REVIEWS


For many linguists the reading of this book should be rewarding, though, possibly, for different reasons: some scholars will find an informal presentation of the most general principles of a generative approach to language heavily backed up with quotations from diverse sources of the grammatico-philosophical literature of the last three centuries — some of them will be pleased by the fact that throughout the whole book not a single quasi-mathematical formula disturbs their reading and understanding of the subject matter presented here. Other linguists who have dissociated themselves more or less from traditional linguistic theory will find that most of what is claimed to be the achievement of our day was to a large extent already laid down in the work of the so-called ‘grammatical philosophers’ of the seventeenth and eighteenth centuries.

In his Introduction (pp. 1-3) Chomsky himself regards the book under review as “a preliminary and fragmentary sketch of some of the leading ideas of Cartesian linguists with no explicit analysis of its relation to current work that seeks to clarify and develop these ideas”. In the course of this review article the present reviewer hopes to give some additional information on the subject, though remaining within the field of authors dealt with by Chomsky.

In the last paragraph of his Introduction Chomsky freely admits that “the aptness of the term ‘Cartesian Linguistics’… may well be questioned on several grounds”. The objections he raises against the use of this term for the subject matter under discussion are quite pertinent. If, however, we consider the term ‘Cartesian Linguistics’ as ‘une définition de nom’ for a general rationalist attitude towards certain fundamental linguistic prob-
The heading of the first of four chapters is "Creative Aspect of Language Use"; it may be conveniently rephrased as "The pre-eminence of a dynamic or generative conception of language over a static or taxonomic one". Its aim is to show that without acknowledging the principle of creativity the essence and functioning of language (i.e., language as langage + langue + parole [this is my identification]) cannot be sufficiently understood. It is clear — and Chomsky too is aware of this point — that the meaning(s) of the term 'creativity' is/are crucial for the correct evaluation of this chapter. Discussing Chomsky's interpretation of texts by Descartes, Cordemoy, Lamettrie, Herder, James Harris, A.W. Schlegel, and W. von Humboldt we shall concentrate on the notion of 'creativity in language' and its implications.

The discussion starts with Descartes, and more specifically with Descartes's ideas on the distinction between man and animal. Here we find a rather wide conception of 'creativity': Descartes determines as differentia specifica between man and animal what Chomsky calls the 'creative principle'; it is superadded to the 'mechanical principle' which suffices alone to explain the total behavior of any animal. The positive criterion — 'creativity' — can be attributed to man alone, because only with the help of this principle is it possible to explain his ability to use language "for the free expression of thought... in any new context... undetermined by any fixed association of utterances to external stimuli or physiological states" (p. 5). It is evident — though not explicitly stated in our text — that the application of this kind of 'creative principle' is not restricted to the use of language alone, but includes also the specifically human faculty of inventing and constructing new tools with which man has been changing and may still considerably change his conditions of living. The same wide conception of the 'creative principle' can be attributed to Herder and J. Harris, whose views on the origin of language and on the distinction between man and animal are discussed on pp. 13-16.

Chomsky discusses at some length a less known work, Discours physique de la parole (1666) by G. de Cordemoy. This book can really be considered as supplementary to the scant reference Descartes himself has made to the subject 'language' in his own work, because Cordemoy argues
completely within the framework of Descartes's assumptions. At this point we become acquainted with a version of the 'creative principle' centered directly around our main theme which is language. From the quotations given from Cordemoy's work, Chomsky's conclusions "that there can be no mechanistic explanation for the novelty, coherence, and relevance of normal speech" (p. 7) appear to be correct. This rejection of a mechanistic explanation of man's use of language leads directly to the principle that 'creativity' must govern man's acquisition and use of language. Consequently Lamettrie's argument that man is simply the most complex of machines has to be rejected, because neither a 'beast-machine' nor any other mechanical or electronic device can be regarded as being completely equivalent to the specific human faculty: to think creatively and to utter these thoughts by means of meaningful sentences without being bound by external stimuli.

Still another aspect of the principle of creativity in relation to language appears in the work of A. W. Schlegel. In the passages quoted by Chomsky, Schlegel seeks to connect the linguistic principle of creativity — of which he is very well aware — with the principle of 'poetic or artistic creativity'. It seems that for Schlegel poetry is somehow embedded in language. This view is, of course, a typically romantic attitude towards both language and poetry; for Schlegel linguistic creativity and poetic creativity are partially identical, or, to be more explicit, creativity in language is a pre-condition for poetic creativity to become efficient. Chomsky's last quotation from Schlegel is quite representative of the overall 'organic' conception of language prevalent in the early nineteenth century: "...human language... serves primarily 'als Gedankenorgan[s], als ein'es Mittel[s], selbst zur Besinnung zu gelangen', and only derivatively for the purposes of 'gesellige[n] Mitteilung'" (Schlegel, op. cit., 237-41; Chomsky, 19).

It is not at all surprising that Chomsky concludes his first chapter on the "Creative Aspect of Language Use" with a selection of quotations from Humboldt's works. There is no doubt that throughout the work of this great humanist the notion of 'creativity in language' plays a decisive role. We shall proceed to discuss more unknown works and more intricate questions presented by Chomsky in the following chapters, and

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3 Chomsky's quotation of Schlegel's text does not fit with the construction of his own English sentence; the relevant inflectional elements are therefore noted in square brackets. Incidentally, the same phenomenon occurs repeatedly with other German quotations embedded in the main text.
pass over the interpretation of Humboldt’s well-known ideas on the essence of language.4

If the first chapter of the book can be said to view language under a more philosophical aspect, the topic of the second chapter has definitely a specifically theoretical bent: “Deep and Surface Structure” (pp. 31-51). The usefulness and importance of this correlative pair of concepts was rediscovered by Noam Chomsky.5 It is in this chapter that he produces quite a few noble ancestors or forerunners for this distinction between the surface aspect of any text or linguistic utterance, i.e., THAT form of language that is directly open to empirical inspection (e.g., chaine parlée), and the aspect of deep structure whose mode of existence is determined by its position on a highly abstract level inside of some given theory of language. The raison d’être of a theoretical construct such as ‘deep structure of some given linguistic expression’ is to lay bare the categorical and relational structure of minimal linguistic constructions (‘kernel sentences’) underlying the actually occurring linguistic expressions from which these ‘deep structures’ cannot be directly inferred.

In order to exemplify this idea and to prove its implicit existence and application to linguistic problems in the seventeenth and eighteenth centuries Chomsky chooses as his main texts the works of Antoine Arnauld and his collaborators Claude Lancelot and Pierre Nicole, and for the eighteenth century the works of the encyclopedist César Chesneau du Marsais. The titles of the works in question are:

4 Still, I do not think it unnecessary to supplement Chomsky’s discussion of Humboldt’s linguistic theory with a bibliographical note: two works by Karl Ferdinand Becker — a contemporary of Humboldt — are written completely in the spirit of his works, though in general more closely connected with the empirical facts of language. Thus, Becker succeeded to a considerable extent in applying Humboldt’s not always very clear conceptions on how a grammar of any language should work to his own grammar of German. In a way this fact could be an answer to Chomsky’s reproach that “he [Humboldt] does not, so far as I can see, attempt to construct particular generative grammars or to determine the general character of any such system,...” (p. 27). The titles of the above-mentioned works are: Die deutsche Wortbildung (= Abhandlungen des Frankfurter Gelehrten-Vereins für deutsche Sprache, 4) (Frankfurt a. M., 1824); Organism der Sprache als Einleitung zur deutschen Grammatik (Frankfurt a. M., 1827 [1st ed.]). In my opinion it would not be detrimental for modern linguistic science to give these works a closer look and incorporate some of Becker’s findings in its theories.

5 See fn. 48 for a very revealing quotation from a letter of Humboldt to A. W. Schlegel (1822, Briefwechsel... [ed. A. Leitzmann, 1908], 54): “Daß alle Sprachen in Absicht der Grammatik sich sehr nahe stehen, wenn man sie nicht oberflächlich, sondern tief in ihrem Inneren untersucht, ist unläugbar.” Chomsky’s latest views on how these notions are to be embedded in a general linguistic theory are laid down in Aspects of the Theory of Syntax (Cambridge, Mass., M.I.T. Press, 1965); see especially chapters 2 and 3.
Out of the numerous points and examples drawn from the Port-Royal Grammar and Logic — which in the main are correctly interpreted by Chomsky — I shall concentrate on some remarks on the semantics and syntax of the verb as they are given in the Grammar and in the Logic. Chomsky seems to accept the validity of the postulates and conclusions made by the Port-Royalists on these questions. When discussing the

6 The first authoritative edition of this highly influential work is now available: Grammaire générale et raisonnée ou La Grammaire de Port-Royal. Édition critique en deux tomes présentée par Herbert E. Brekle. Tome I: Introduction, Bibliographie et nouvelle impression en facsimilé de la troisième édition de 1676; Tome II: Variantes de texte (1660-1676) et annotations (Stuttgart-Bad Cannstatt, Frommann-Holzboog, 1966). This edition of the Port-Royal Grammar forms the first volume of a series of editions to be published as Grammatica universalis (ed. Herbert E. Brekle, 1968ff).

7 The first complete edition of the Port-Royal Logic is just leaving the press: L'Art de penser: La Logique de Port-Royal, publié par Bruno Baron von Freytag Löringhoff et Herbert E. Brekle, 3 tomes, Tome I: Nouvelle impression en facsimilé de la première édition de 1662; Tome II: Présentation synoptique des variantes de texte des éditions 1662-1683. Avec des annotations; Tome III: Présentation synoptique des variantes de texte du MS. BN Fr. 19915 et de l'édition de 1662 (Stuttgart-Bad Cannstatt, Frommann-Holzboog, 1965-1967). This edition, presented in two volumes, also contains relevant information about the textual history of the work and is fully annotated as to quotations, allusions, etc.

8 These two works which form the main body of du Marsais’s œuvre will also be published in the series Grammatica universalis (1968ff.).


10 There are two articles on very much the same subject by the author of this paper: “Semiotik und linguistische Semantik in Port-Royal”, Indogermanische Forschungen, 69 (1964), 103-21; “Die Bedeutung der Grammaire générale et raisonnée — bekannt als Grammatik von Port-Royal — für die heutige Sprachwissenschaft”, IF, 72 (1967), 1-21.
well-known dictum "que le verbe [est] un mot dont le principal usage est de signifier l'affirmation", Chomsky does not deal explicitly with a far-reaching semantic ambiguity hidden in the word affirmation. In my opinion there are at least two categorial meanings that can be significantly attached to the word affirmation in the Port-Royal text. Primo, affirmation can be understood as an expression for a two-place predicate linking a propositional concept — e.g., God loving mankind / Dieu aimant les hommes — with a system of states of affairs. In other words, affirmation in this first sense can be conceived of as a link between a propositional concept and some other complex, e.g., a complex of fact. This means that only by such a link as affirmation does a propositional concept become a real sentence to which some truth-value may be attached (e.g., "true", "false", "possible"...). This change from a propositional concept to a sentence becomes clear when we look at the following operation:

Dieu aimant les hommes $\Rightarrow$ Dieu aime les hommes.

From this we may easily draw the conclusion that any statement in any language must needs contain an overt — or covert — marker for this sort of affirmation relation; in our languages this marker happens to be expressed by finite verb forms, or by the insertion of a copula between

11 *Grammaire générale*, II, c.13, p.95 et passim (all quotations from the *Grammaire* refer to the third edition of 1676); substantially the same passage is found in the *Logique*, II, c.2, p.138 (5th ed. of 1683).

12 The fact that 'Affirmation' may be itself a semantic constituent of a word does not concern us here. On this point see my article "Die Bedeutung der Grammaire générale et raisonnée ... für die heutige Sprachwissenschaft", *IF*, 72 (1967), 14ff.

13 This example is found in the *Logique*, II, c.3, p.145; its syntactic interpretation as given by Chomsky, 43ff., requires special comment, see below.


15 'Affirmation' in this case is meant to be equivalent to Frege's assertion-sign "→". In this context it might be useful to point out that there is another function of the copula, parallel to and partly identical with the one we have termed 'affirmation' here: in connection with a single term — normally expressed by one word — it is the function of the copula to indicate the non-emptiness of the class denoted by the term, e.g., Est Deus / There is a God; in logical notation, "∃δ", or, according to another theological standpoint, "E!(tx)(δx)" (where δ = Deus, and ∃! = existential functor). The difference between → and ∃! lies in the convention that the function of the first symbol is ontologically neutral as to the existence of the terms constituting the propositional concept; whereas the second symbol implies both, affirmation of a propositional concept, e.g., Deus esse, and the indication that the existential reality of the notion in question is taken for granted within some given universe of discourse. Cf., e.g., Bocheński-Menne, *Grundriss der Logistik*, 3rd ed. (Paderborn, 1965), §§15.5ff.
noun phrases. This view seems to have certain consequences for a ling-
guistic theory that claims to be explicit about every phenomenon arising
from the study of language. As far as I can see this problem has so far
not yet been dealt with within the framework of generative grammar,
though there should be no difficulty in accommodating for it. A possible
solution could proceed along the following lines: the structures generated
in the base component can be regarded as expressions for propositional
concepts; a special sort of transformation rule at a stage still to be
determined connects these propositional concepts with some other system,
be it real or ideal. This connection is materially expressed by the addition
of inflectional elements to verb stems.

There are two identical passages in the Grammar and in the Logic where
this first meaning of affirmation seems to be reflected:

Et c'est proprement ce que c'est que le verbe, un mot dont le principal usage est
de signifier l'affirmation; c'est à dire de marquer que le discours où ce mot est
employé, est le discours d'un homme qui ne conçoit pas seulement les choses,
mais qui en juge et qui les affirme.\footnote{17}

It is the opposition between concevoir and juger, affirmer that permits the
conclusion that our authors implicitly distinguished between a proposi-
tional concept and a complete sentence that can be affirmed or judged
according to its truth-value.

\textit{Secundo, affirmation} can be understood as the internal relation sub-
sisting between any predicate and its subject. It is thus distinguished from
the first kind of affirmation by the assumption that it relates certain
elements within a given system. Hans Reichenbach\footnote{19} gives the following
explanation for this second kind of affirmation: "In symbolic logic, this
syntactical relation is created by the parentheses; the functor-name is
outside the parentheses, and the argument-name is inside." This means
that in the expression \( f(x) \) \( f \) stands for the predicate, \( x \) for the sub-
ject, and the parentheses ( ) express the predicational relation between
\( f \) and \( x \) which is identical with our second kind of affirmation. There is

\footnote{16} A similar idea seems to be expressed in Chomsky’s following remark: “Verbs
constitute a subcategory of predicates, they are subject to a transformation that causes
them to coalesce with the copula into a single word” (p. 43).

\footnote{17} Grammaire, II, c.13, p.95; Logique, II, c.2, p.138.

\footnote{18} Cf. for this notion: Ludwig Wittgenstein und der Wiener Kreis. Gespräche aufge-
zeichnet von Friedrich Waismann (Frankfurt a.M., 1967), 54ff., and J.E. Salomaa, The
Category of Relation (= Annales Academiae Scientarum Fennicae, Ser. B, Tom. XIX, 2)
(1929), 143ff.

\footnote{19} Elements of Symbolic Logic (New York/London, 1966) (repr. from the first ed.,
1947), §17, 81f.
one passage in the Port-Royal Grammar that leads us to the assumption that the authors may have intended to use the term *affirmation* also in this second sense:

...le jugement que nous faisons des choses (comme quand je dis, *la terre est ronde*) enferme nécessairement deux termes, l'un appelé sujet,...et l'autre appellation attribut... Et de plus la liaison entre ces deux termes, qui est proprement l'action de nostre esprit qui affirme l'attribut du sujet.\(^{20}\)

The last sentence seems to indicate that Arnauld and Lancelot regard it also to be the function of the copula to establish "la liaison entre ces deux termes" and not only to link propositional concepts with some realm of facts or states of affairs. Such an interpretation would not quite coincide with Chomsky's comment on a similar passage in the Port-Royal Logic: "...the deep structure underlying a sentence such as *Peter lives*... contains a copula, expressing the affirmation, and a predicate (*living*) attributed to the subject of the proposition".\(^{21}\) It seems that in this place Chomsky is inclined to interpret the notion of *affirmation* exclusively in the first sense (see above); on the one hand he speaks of the copula as expressing some kind of affirmation, on the other hand he posits a relation of attribution between the predicate and its subjects with no special sign expressing it.

It is true that both kinds of affirmation are necessary in order to arrive at a consistent and adequate description of the fundamental relations inherent in any sentence, *i.e.*, the internal relation between the predicate and its subject(s)\(^{22}\) — let us term this one *attribution* — and the external relation between the propositional concept as a whole (*e.g.*, *Peter living*) and some system of facts or states of affairs. This latter relation should be considered as the affirmation proper, because only with the existence of this kind of affirmation can a sentence be said to be a real statement susceptible of being contradicted.

A possible conclusion to be drawn from the preceding discussion is that Arnauld and his collaborators were to some extent aware of these two fundamental relations inherent in any sentence expressing a statement. At the same time the foregoing remarks may be considered as supplementary to Chomsky's interpretation of the passages in question.

In the following another point is taken up for discussion and that for two reasons: (1) in order to show that not just every result for more

\(^{20}\) *Grammaire*, II, c. 13, pp. 94ff.

\(^{21}\) Chomsky, 43; *Logique*, II, c. 2, pp. 138ff.

\(^{22}\) For the conception of two or more 'subjects' linked by a single predicate, see below.
general linguistic problems offered in the Port-Royal texts can compete with solutions offered elsewhere; (2) in order to expose a rather deep-rooted weakness in Chomsky's conception of syntactic relations which is in the main identical with the one presented in the Port-Royal Logic and Grammar.

In both works we find many instances of the axiom that a proposition — or, to speak linguistically, a sentence expressing a statement — "enferme necessairement deux termes: l'un appelé sujet, ... et l'autre appelé attribut, ...". Chomsky paraphrases this idea as follows: "...the deep structure underlying a sentence such as Peter lives or God loves mankind... contains a copula, ... and a predicate (living, loving mankind) attributed to the subject of the proposition." This view would seem to be also one possible interpretation for the initial formula in the syntactic base component of a generative grammar: \( S \rightarrow NP + VP \). This rule is normally followed by the rule: \( VP \rightarrow V + NP \). These two rules may thus be conveniently and correctly interpreted by the dogma of traditional grammar that any sentence expressing a statement consists of a subject and a predicate. The predicative part of the sentence may be complex — as well as the subject — one constructional possibility of a predicate is that it consists of a transitive verb plus its direct object. If traditional grammar gives any information at all on what is meant by this classification it amounts to this: any predicate is attributed to its subject; likewise the direct object determines somehow its transitive verb. The amount of information we can draw from current work on generative grammar for this problem is even less substantial: They are content to say that a NP (noun phrase) in order to be equivalent to a traditional direct object, is to be directly dominated by a VP node. This, of course, can be no explanation of a syntactical relation; at best it is an uninterpreted nominal definition within some sort of calculus for which so far no interpretation in the Carnapian sense has been given.

It was exactly twenty-four years before the Port-Royal Logic made its first appearance that the dogma of the universality of the subject-predicate structure of a sentence received its first blow — the first one of a number of works. It was exactly twenty-four years before the Port-Royal Logic made its first appearance that the dogma of the universality of the subject-predicate structure of a sentence received its first blow — the first one of a number of works.

23 Grammaire, II, c.1, p. 29 et passim; Logique, II, c.3, p.145 et passim.
24 Chomsky, 43.
25 Other substitution rules for VP, e.g. \( VP \rightarrow \) Copula + Predicate etc., are disregarded here; they are irrelevant for the problem under discussion. Cf. for the following discussion, Ch.J.Fillmore, “The Case for Case” (unpublished paper, 1967), 23: “...the notion 'direct object' can be equated with the relation that holds between a NP and an immediately dominating VP”.
of attacks to follow. As far as it can be seen by now it was Joachim Jungius who was the first to posit explicitly that apart from the generally acknowledged subject-predicate structure another type of sentence must be assumed in order to explain fully such a sentence as Simo dominus est Davi, i.e., that two terms (Simo/Davus) are connected through some verbal expression (dominus esse). This assumption is one of the first steps leading to the distinction — now commonly made in Symbolic Logic — that propositions are to be differentiated according to the number of arguments some predicate requires in order to make the proposition (or propositional concept) complete. The application of this insight to linguistic matters means that there are basically two types of sentence structure that are independent of each other:

1. **Subject-Predicate Type** (equivalent to a one-place function: \( f(x) \)).

2. **Relational Type** (equivalent to a two- (or many) place function: \( xRy \) or \( R(x, y) \)).

Typical examples of this relational type of sentence structure are sentences with a transitive verb (= two- or three-place function) e.g., \( A \) beats \( B \), \( A \) gives \( B \) to \( C \). This conception of two basically different types of sentence structures sharply contradicts the traditional view that one or two so-called ‘objects’ are somehow contained in the verbal complex of a sentence; instead it is assumed that — traditionally speaking — the notions of ‘subject’ and ‘object’ are to be treated on a completely equal footing. Thus a relational sentence really has two or three ‘subjects’ related by a transitive verb. The following remarks should provide suffi-

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29 *Loc.cit.*, lib.I, c.8: “Relatio ... est Accidens, secundum quod Subjectum ad aliquid relatum esse dicitur, ut Dominium est relatio, quia Simo, qui Subjectum est Dominij, ... secundum Accidens illud Dominus Davi dicitur. Ita Servitus est Relatio, quia secundum illam Davus, ... Servus Simonis dicitur.”

30 It is proven by Whitehead and Russell, *Principia Mathematica*, *32.16*, that it is logically impossible to transform a relational proposition into a subject-predicate proposition without the predicate becoming complex, thus containing an incomplete relational expression.
cient evidence for the considerable advantages of this conception.

(1) By this assumption that a sentence with a transitive verb is the expression of a relation between at least two terms ('subject' and 'object') by means of the transitive verb, we eventually can do away with the unsatisfactory view that a verbal complex containing a direct object seems either to be unanalyzable as to a clear notional relation between the verb and its object, or, as Jespersen — who desperately tried to show that the only universal relation holding between the constituents of a sentence or any linguistic construction is that of subordination — assumes that "the object serves to make the meaning contained in the verb more special".\(^31\) This view runs directly against the intuitive understanding of a sentence like: He sees the man; it is hard to conceive that in this case there should be as many different processes of visual perception as there are perceived objects subsumed under the general meaning of to see. The much simpler and logically coherent explanation is that between the 'subject' of such a sentence and its 'object' subsists such a relation as seeing, and vice versa, between the 'object' and the 'subject' the relation of being seen by.

(2) The foregoing remark brings us another advantage of our conception of a sentence containing a transitive verb: it is only by regarding a transitive verb as an expression for a two-place predicate that the grammatical phenomenon called 'passivization' can be really understood. It is necessarily implied in the notion of 'relation' that any relation must have its converse.\(^32\) In the domain of linguistics this means that the grammatical function of the passive can be said to express the converse of a transitive verb used actively; in other words: a sentence with a direct object in the active voice expresses a relational structure such as \((xRy)\); whereas the respective passive construction reflects the converse of \(R\) in the form of \((y\bar{R}x)\).\(^33\) This notion of 'converse of a relation' not only explains the process of passivization in its grammatical sense, but is also capable of explaining the phenomenon that has sometimes been called a 'semantic passive'. A case in point that exemplifies both kinds of passive is:

\(^{31}\) The Philosophy of Grammar (London/New York, 1924) 158.
\(^{32}\) Cf. Principia Mathematica, *31.13: "\(\vdash - E ! Cnv'P\)", \(i.e.,\) any relation \(P\) has a converse. *31.131: "\(\vdash \forall (Cnv'P) y. \equiv . y P x\)".
\(^{33}\) Cf. Principia Math. *31.11.: \(\vdash " xPy. \equiv . yPx"; i.e., if the symbol 'R' denotes the relational notion of 'beating', then 'R' denotes its converse 'being beaten by': 'x beating y' is equivalent to 'y being beaten by x'.
A follows B $\Rightarrow$ B is followed by A
('grammatical passivization': is followed by is the converse of follows)

B is followed by A $\equiv$ B precedes A
('semantic passivization': precedes is equivalent to is followed by and thus another expression for the converse of follows)

It is evident that this latter sort of converse should play an important role for the lexical structure of any given language. In every language there exist quite a number of word-pairs expressing relations such that one member of the pair is the converse of the other, e.g., father — son, greater — lesser, master — servant, etc. It would seem to be useful if information of this sort were contained in the respective lexical entries.

(3) One further remark will suffice to show the usefulness and adequacy of the introduction of relational structures into any grammatical model. If in the process of word-formation we come to derive such words as

E trainer — trainee, etc.
G Sieger — Besiegter, etc.

it is again the notion of relation that plays an essential part in the analysis and synthesis of these derivatives.

With some justification traditional grammar has termed these two types of suffixal derivatives ‘agent noun’ and ‘passive noun’ respectively. They originate in relational sentences such as A trains B and B is trained by A. Again the concept of ‘converse of a relation’ becomes important: both trainer and trainee are formations in which a coalescence of some term of a relation with the relational verb itself has taken place; in one case it is the ‘subject’ that yields together with the active form of the verb an ‘agent noun’ (trainer), in the other case it is the ‘object’ that coalesces with the passive form (= converse) to a ‘passive noun’ (trainee). It should be clear that both formations are effected on very much the same footing:


85 Readers to whom these formulations appear to be too vague are referred to the Principia Mathematica *32, “Referents and Relata of a given Term with respect to a given Relation” where exactly this problem is dealt within the well-known rigorous framework of symbolic logic.
both are relational concepts, and one concept is the converse of the other, such that trainer and trainee fit into a series of proportional equations:

\[ \text{trainer} : \text{trainee} = \text{father} : \text{son} = \text{follow} : \text{precede} = \text{greater} : \text{lesser} \ldots \]

There is no doubt that much more could be said about the application of findings made by the logical theory of relations to quite a number of linguistic problems, but a book review — even in a wider sense — is not the proper place for such a project.

In spite of his adherence to the medieval dogma that any proposition can only be thought to be explained on the basis of the subject-predicate structure, Chomsky tries to show that the Port-Royal Logic succeeds in developing what he calls a “partial theory of relations” (p.44). Before we go on to prove that this assumption is untenable, a few words on the textual quality of the version of the Port-Royal Logic used by Chomsky do not seem to be out of place. It is probably for the sake of convenience that Chomsky has chosen the most recent English translation of the work as the basis for his quotations. If, as in our case, we have to do with such a delicate subject matter that is extremely difficult to interpret fully and correctly, it would seem that using any translation is very liable to cause unnecessary difficulties. The following paragraph taken from the Port-Royal Logic pertains to our main problem under discussion — viz., whether a ‘partial theory of relations’ is to be found in that text or not — and will be given in the original version of 1683 together with its most recent English translation (1964); it should be easy to discover to what extent the meaning of the original becomes distorted. It is needless to say that the following example stands for many similar licentiae translatorum, to say the least.

Et que cette proposition, \textit{La loy divine commande}, qui paroissoit la principale, n'est qu'une proposition incidente à cet argument, qui est jointe à l'affirmation, à qui la loy divine sert de preuve. (\textit{Logique} [1683], 267f.)

We thus see that the sentence “the divine law commands” which appears in the original statement of the argument as the principal clause of the first premiss is really only an incidental remark [sic!] joined to the statement that kings are to be honored to reinforce the statement. (\textit{Logic} [1964], 207)

This passage requires some comment. The argument from which the authors of the \textit{Logique} start runs like this:

\[ \text{La loy divine commande, qui paroissoit la principale, n'est qu'une proposition incidente à cet argument, qui est jointe à l'affirmation, à qui la loy divine sert de preuve.} \]

\[ \text{We thus see that the sentence "the divine law commands" which appears in the original statement of the argument as the principal clause of the first premiss is really only an incidental remark [sic!] joined to the statement that kings are to be honored to reinforce the statement.} \]
In order to prove that such an argument whose initial and terminal propositions are both complex can nevertheless be reduced to a syllogism in *Barbara*, Arnauld and Nicole resort to the method of analyzing the first proposition in two sentences of which one is embedded in the other (“...le mot de Roy... est sujet d’une autre proposition enveloppée dans celle-là [i.e., dans *La loy divine commande* ...]”). Thus we have a *proposition principale* which may have the form *on doit honorer les Rois* (see fn. 39), and an incomplete *proposition incidente*, *La loy divine commande* ... (note that here Arnauld and Nicole use the notions *proposition principale*, *proposition incidente* relative to the whole syllogism); it happens now that contrary to normal linguistic analysis the first (i.e., *La loy divine commande* ...) is embedded into the latter sentence; linguistically speaking *La loy divine commande* ... is, of course, the principal clause (= matrix), because it is the one into which *on doit honorer les rois* (= constituent) is embedded, but logically speaking the function of these two sentences has to be inverted, because it is only the last sentence on which the syllogistic rules operate. It is clear — and Chomsky has, of course, seen this spurious problem — that *Roy* — as the sentence stands above — is not the subject of the sentence; on the contrary, the sentence must, in order to permit the syllogism to operate, be transformed into the passive, 38 yielding *Les Rois doivent estre honorés*. It is on the structure of this sentence that the syllogistic rules operate; the incomplete sentence *La loy divine commande* ... does not play the least role in the course of the whole argument. 39

The foregoing interpretation of how the Port-Royalists succeed in

37 *Logique* (1683), 266.

38 This function of a passive transformation for syllogistic purposes is mentioned explicitly in chapter 5 of the second part of the *Logique*: “Ce qu’il est tres-important de remarquer, parceque lors que ces sortes de propositions entrent en des argumens, quelquefois on n’en prouve qu’une partie en supposant l’autre, ce qui oblige souvent pour reduire ces argumens dans la forme la plus naturelle, de changer l’actif en passif, afin que la partie qui est prouvoe soit exprimée directement,...” (ed. 1683, p. 155).

39 *Logique* (1683) p. 267: “Il est clair que tout l’argument consiste dans ces propositions:

*Les Rois doivent estre honorés:*

*Louis XIV. est Roy:*

*Donc Louis XIV. doit estre honoré.*”

This argument is followed by the sentence that was contrasted with its English translation a few lines above.
reducing apparently complex arguments to simple figures, e.g., *Barbara*, should have made it clear that relational notions nowhere come into the picture. The whole argumentation is carried out on a strictly Aristotelian basis (S is P), whereas a truly relational interpretation of the premiss would look like this:

\[
(1) \quad \{f(x) \, R_0\,[g(y\,R_1\,z)]\}^{41}
\]

where \(f(x) = \text{la loy divine}\), \(R_0 = \text{commander}\), \(g = \text{modal functor of necessity = devoir}\), \(y = \text{subject of the embedded sentence = on}\), \(R_1 = \text{honorer}\), \(z = \text{les Rois}\).

This formula is supposed to reflect the semantic connections among the elements of the sentence: *La loy divine commande d’honorer les Rois* in the deep structure. The expletive *de* or *que*, respectively, is not expressed in the formula itself because this deep structure can be mapped into two surface structure sentences: ...*d’honorer les Rois*, or, ...*qu’on honore les Rois*.

There is another problem inherent in the formula as it stands now; it does not express that there is a necessary identity between the personal object of the matrix sentence (*la loy divine commande à quelqu’un d’honorer les Rois*) and the subject of the embedded sentence (*on doit honorer les Rois*). In other words, the structural meaning of *commander* in this sentence is governed by the fact that it functions as a three-place predicate, i.e., three arguments are needed (= subject, direct object, indirect object) in order to satisfy its syntactic valences. Another specification is that the ‘indirect object’ of such a verb as *commander* invariably will be a whole sentence with its ‘subject’ identical with the ‘direct object’ of the matrix sentence. A formula reflecting this would be:

\[
(2) \quad \{f(x), y', [g(y\,R_1\,z)]\}
\]

where \(y' = \text{‘direct object’ of the matrix sentence, y = ‘subject’ of the embedded sentence, and y' \equiv y}\). Both elements, \(y'\) and/or \(y\), may be facultatively deleted as it is shown by the original sentence *La loy divine commande d’honorer les Rois*.

This last formula mirrors to a certain extent the complex structure

\[\text{40} \quad \text{One single remark makes this overwhelmingly clear: Arnauld and Nicole conceive of the word *commander* as a predicate of 'la loy': ‘...j’attribue à la loy de commander, j’attribue aussi l’honneur aux Rois’ (p.267).}\]

\[\text{41} \quad \text{The symbolism used is in the main equivalent to that used by Whitehead and Russell.}\]

\[\text{42} \quad \text{It is clear that the ‘subject’ of the matrix sentence, *la loy divine*, is already a derivation from another kernel sentence.}\]
underlying the sentence that functions as the premiss of the above-men-
tioned syllogism, and explains also why formula (1) — though correct
at a certain level of analysis or synthesis — is still insufficient compared
with the more fundamental structural information given by formula (2).43

There is no question about the fact that for the linguistic side of the
whole problem this last analysis made in terms of a hierarchy of semantic
relations gives more insight into the semantic structure of such a complex
sentence than a traditional subject-predicate analysis could ever do. An-
other interesting and important problem would be, how such “semantic
connections among the elements of speech”44 could be mapped onto
certain syntactic structures as they are, e.g., expressed in three-diagrams
used commonly in most recent work on generative grammar. This prob-
lem still awaits its solution.45

In the remaining part of the second chapter Chomsky discusses ideas
by the encyclopedist C. Ch. du Marsais46 on the syntactic function of case
systems in some languages and their equivalent expression by preposit-
ions in other languages. He furthermore discusses the function of adverbs,
and the rather subtle distinction between du Marsais’s terms construction
and syntaxe which reflect precisely the correlation between ‘surface’ and
‘deep structure’ of linguistic expressions. Together with the third chapter,
“Description and Explanation in Linguistics” (pp.52-59), where some

43 This apparent loss of structural information caused by transformational operations
was well known to the grammarians of the seventeenth and eighteenth centuries.
Chomsky’s footnote 67 alludes to the “Theory of ellipsis and ideal types” put forth in
Sanctius’s Minerva (1587) as being equivalent to the distinction between surface and
deep structure. In the eighteenth century this notion was further elaborated by du
Marsais and Horne Tooke (Diversion of Purley, 1798/1805); the latter called this
phenomenon ‘subaudition’ and equated it with abstraction, thereby drawing a parallel
between an imagined operation of the mind and an operation of language of ‘transfor-
mation’. Cf. the most recent study on the history of grammar by Hans Aarsleff, The

44 This is Chomsky’s own wording when he discusses du Marsais’s ideas that case
endings express relations among the elements of discourse; pp.44f. It is admitted
that our relational analysis of a sentence structure is carried out on a higher level of
abstraction than the one on which Chomsky seeks to locate the relational function
of case suffixes or prepositions.

45 J.J. Katz ‘projection rules’ that are meant to fulfil the task of interpreting syntactic
structures in terms of semantic relations between sentence constituents do not fulfil
this objective: “The projection rules as formulated in KF [= J.J. Katz and J.A. Fodor,
“The Structure of a Semantic Theory”, Language, 39 (1963)] destroy the semantic
structure and reduce the words of a sentence to a heap” (U. Weinrich, “Explorations
in Semantic Theory”, Current Trends in Linguistics, III: Theoretical Foundations,

46 Cf. fn. 8 above.
points in the work of Nicolas Beauzée are raised, Chomsky provides ample material that, by all means, should be reconsidered in the light of the present-day crisis in the methodology of linguistics.

In his last chapter, "Acquisition and Use of Language" (59-73), Chomsky again goes back to problems situated more or less on the borderline between linguistics proper and philosophy and psychology. The central question of this last chapter — again treated historically, insofar as it is presented in the form of a discussion of the views propounded by Herbert of Cherbury, Descartes, Leibniz, A.W. Schlegel, and W. von Humboldt — amounts to this: How can the general features of grammatical structure that are common to all languages reflect certain fundamental properties of the mind?

It seems quite likely that exactly this problem can be regarded as a rather substantial link between the thinking of Descartes and that of W. von Humboldt, giving thus some empirical support to Chomsky's term 'Cartesian Linguistics'.

The whole chapter deserves careful reading because it presents the philosophical starting-point from which Chomsky and his followers proceed in order to arrive at their 'mentalistic' conception of a theory of language. The attention of the reader is focused on the age-old conflict between the rationalist position holding that some kind of innate ideas are a necessary precondition for man's perceptual and conceptual powers — including his faculty of language, of course — and the empiricist's position with the well-known tabula rasa principle. Chomsky's evaluation of the behavioristic foundations underlying most of the linguistic studies carried out in the United States in the Thirties and Forties of our century convincingly shows that this approach must needs end up in a blind alley, insofar as it shares the fundamental weaknesses of a strictly empiristic position. Many particulars in the theory of generative grammar may have to be altered, yet it seems nevertheless certain that Chomsky has produced a sound philosophical basis — fragmentary as it may be — for his views on what language is like, how it possibly works, and what kind of information we have to demand from a consistent theory of language.


To conclude: Chomsky has written a very readable book. In spite of several inconsistencies in his interpretations of text, his partial inability to penetrate deep enough into the subject matter under discussion, and various technical defects situated more on the surface level, everybody should wholeheartedly agree with the essence of the last sentence in the book: "...that a careful examination of classical linguistic theory, with its accompanying theory of mental processes, may prove to be an enterprise of considerable value" (p. 73).


Many linguists, those of the transformational camp as well as their opponents, have for quite some time hoped to see emerge some 'final answer' from the continuing process of alteration which Chomsky and his associates have been forced to make in their 'transformational generative grammars'. Bystanders and participants alike have been alarmed to see these grammars getting more and more complicated as a result of so much alteration. The long awaited 'final answer' would have to hold true at all times: once it was found, no further major changes of the theory would thereafter have to be made. To many, especially Chomsky's followers, the book under review (hereafter abbreviated as *Aspects*) has seemed to point at least partially (if not fully) to that 'answer'. But to many others, *Aspects* is far from the answer, and has for better or worse created more problems than it has actually solved in the description of natural language.

Be that as it may, one thing is certain: compared to *Syntactic Structures* (hereafter abbreviated as *SS*), *Aspects* has met very little formal resistance. (In fact, it reportedly became a 1966 best-seller in Japan.)

What concerns us most here, however, is not the popularity of *Aspects*. Rather, we are concerned with its content and the question of whether or not it really is the advancement in linguistic theory which it purports (and is purported) to be.

The following review will be divided into four parts: 1. Classification; 2. Description; 3. Discussion; and 4. Conclusion. Above all, we shall
devote the review not so much to the theory per se as to Aspects itself – the book supporting and presenting the theory.¹

1. CLASSIFICATION

Aspects may be classified as a book of general interest dealing with the methodology of synchronic linguistics – in particular, that of syntax. For the most part, it uses English as its illustrative language to present the author's theoretical viewpoints. Because of this, its scope tends to be quite narrow and its range correspondingly limited. Nevertheless, the volume under review is of considerable importance in the field of linguistics, especially for those of us concerned with the type of study usually referred to as 'general linguistics'. This importance derives largely from the fact that it keeps the reader up to date, as of 1965, on Chomsky's thinking and makes available publicly the information which was otherwise unobtainable outside of Chomsky's circle.

Doubtless, then, Aspects is not a beginner's book. Nor is it a reference book to be used by advanced students of linguistics. In fairness to both the author and the reader, one may say that it is a crude report of what the author had in mind about linguistics at the time of its writing. As such, considerable acquaintance with previous publications of transformational generative grammars is required on the part of the reader.

2. DESCRIPTION

Aspects contains a preface, four chapters, a well-documented bibliography, and an index. The four chapters are entitled: (1) "Methodological Preliminaries", (2) "Categories and Relations in Syntactic Theory", (3) "Deep Structures and Grammatical Transformations", and (4) "Some Residual Problems".

The first chapter may in general be said to present just one point; namely, that there should exist a distinction between the competence of a speaker and his actual performance. Everything else in the chapter is clarification, further explanation, and justification of this point.

To introduce the point, Chomsky first defines what he means by

¹ The reviewer is indebted to the following people for their constructive suggestions, comments, criticisms, and material improvement: Barron Brainerd, Y. R. Chao, Elizabeth Closs, Marshall Durbin, John L. Fischer, R. Paul Murphy, Eugene A. Nida, and Tom Roberts.
competence and performance: The former refers to the speaker-hearer's knowledge of his language, the latter to his use of the language in concrete situations (4).

In elucidating the distinction between competence and performance, Chomsky returns to de Saussure's langue and parole. But he rejects langue on the one hand, and retains parole on the other on the grounds that de Saussure's analysis of langue was merely a systematic inventory of items. He then informs the reader that one should return to the Humboldtian conception of underlying competence as a system of generative processes (4).

The second chapter may be regarded as a demonstration of the method outlined in the preceding chapter. As such, it is the main body of Aspects. It is made up of the following: “The Scope of the Base”, where Chomsky delimits the range of syntactic description (§1); “Aspects of Deep Structure”, where he tries to depict his conception of deep structure (§2); “An Illustrative Fragment of the Base Component”, where he illustrates the set up of the base component (§3); and “Types of Base Rules”, where he differentiates summarily three types of base rules, namely, (1) subcategorization rules, (2) selectional rules, and (3) categorial rules (§4).

As will be shown further below, what is proposed in this chapter differs extensively from any previous publication, mainly in that Chomsky introduces two important concepts: (1) syntactic features and (2) deep structure. Unfortunately, there are numerous errors and false claims to which we shall return later (cf. Discussion).

In Chapter 3, Chomsky talks about deep structure. The notion of deep structure, as the reviewer understands it, centers around the idea of relating syntax to semantics; that is, the deep structure of a sentence receives semantic interpretation (141). But there are discrepancies as to how to characterize a proper deep structure. At times, Chomsky says that the base generates deep structures (141), in which case the transformational component plays no part in the characterization of deep structures. Yet, he also says that the base rules and the transformational rules set certain conditions that must be met for a structure to qualify as the deep structure expressing the semantic contents of some well-formed sentence (140), in which case the transformational component does play an active role in the characterization of deep structure. In the latter sense, three processes are supposedly needed: (1) the construction of generalized phrase-marker; (2) the construction of a sequence of transformational rules; and then, (3) the construction of a transforma-
tional history, *i.e.*, a transformation-marker, by applying the sequence of transformational rules to the generalized-Phrase-marker, from the bottom up, such that none of the transformations will block (138). We shall come back to discuss this point later (cf. Discussion).

The last chapter is where Chomsky picks up odds and ends. Here, he is concerned with "The Boundaries of Syntax and Semantics" (§1) and "The Structure of Lexicon" (§2). The first problem is whether grammaticalness is a matter of syntax or a matter of semantics. In particular, he is concerned with whether or not it would be a good idea to propose that selectional rules (discussed in Chapter 2) be dropped from the syntax and that their function be taken over by the semantic component (§1.2). Without making any noticeable decision, he points out additional problems in semantics (§1.3) and concludes that the syntactic and semantic structure of natural languages evidently offer many mysteries, both of fact and of principle, and that any attempt to delimit the boundaries of these domains must certainly be quite tentative (163).

Following the discussion on the boundaries, he tries in the second half to work out an analogy between SYNTACTIC REDUDANCY RULES and PHONOLOGICAL REDUNDANCY RULES (168). Unfortunately, there are many untenable arguments to which we shall come back later (cf. Discussion).

**DISCUSSION**

Although there are numerous inconsistencies, errors, and false assumptions (a discussion of which will follow below), the reviewer appreciates Chomsky's clarification of the confusion between the notion 'NP', the notion 'subject', and likewise, the notion 'VP', and the notion 'predicate'. After being in the dark so long, this new light does the reader a great service, to say the least. For this reason, the reviewer hastens to quote it as follows:
The notion "Subject", as distinct from the notion "NP", designates a grammatical function rather than a grammatical category. It is, in other words, an inherently relational notion. We say, in traditional terms, that in (1) sincerity is an NP (not that it is the NP of the sentence), and that it is (functions as) the Subject-of the sentence (not that it is a Subject). Functional notions like "Subject", "Predicate" are to be sharply distinguished from categorial notions such as "Noun Phrase", "Verb", a distinction that is not to be obscured by the occasional use of the same terms for notions of both kinds. Thus it would merely confuse the issue to attempt to present the information presented in (2ii) formally by extending the Phrase-marker (3) (our [2] – FCCP) to (6) (the one above – FCCP), adding the necessary rewriting rules to (5I) (our [3I] – FCCP). This approach is mistaken in two ways. For one thing, it confuses categorial and functional notions by assigning categorial status to both and thus fails to express the relational character of the functional notions. For another, it fails to observe that both (6) and the grammar on which it is based are redundant, since the notions Subject, predicate, main-verb, and object being relational, are already represented in the Phrase-marker (3), and no new rewriting rules are required to introduce them. It is necessary only to make explicit the relational character of these notions by defining "Subject-of", for English, as the relation holding between the NP of a sentence of the form NP^Aux^VP and the whole sentence, "Object-of" as the relation between the NP of a VP of the form V~NP and the whole VP, etc. (68-9).

Next, we return to the distinction between competence and performance mentioned earlier.

The reader must know that this distinction is motivated by important empirical facts which lead to a constant inquiry.

The facts: (1) Language belongs to man and man alone. (2) A native speaker of any language, be it Russian, English, or Chinese, has the ability to distinguish between grammatical and ungrammatical sentences and produce, under ordinary circumstances, only the grammatical ones. (3) A speaker can produce a new sentence of his language on the appropriate occasion and other speakers of that language can understand him immediately, although the sentence may be equally new to them.

The inquiry: What sort of linguistic theory would be capable of addressing itself to such facts?

Chomsky thinks that the answer to the inquiry rests upon generative grammars. (The reader may be assured that if Chomsky is right, generative grammars will eventually have to change considerably from what they are now. But if Chomsky is wrong, then something else will undoubtedly take over the explanatory task.) This opinion is advocated strongly in "Generative Grammars as Theories of Linguistic Compe-

To support this opinion, Chomsky specifically presents three points:

First, Chomsky says that the problem for the linguist, as well as for the child learning his language, is to determine from the data of performance the underlying system of rules that has been mastered by the speaker-hearer and then put to use in actual performance (4).

Second, Chomsky continues that the only concrete results which have been achieved and that the only clear suggestions which have been put forth concerning the theory of performance, outside of phonetics, have come from studies of performance models that incorporate generative grammars of specific kinds – that is, from studies that have been based on assumption about underlying competence (10).

Third, in reply to the question of how one is to obtain information about the speaker-hearer’s competence (his knowledge of the language) Chomsky concludes that the actual data of linguistic performance along with introspective reports by the native speaker or the linguist who has learned the language will provide much evidence for determining the correctness of hypotheses about underlying linguistic structure, for, as with many interesting and important facts, these are neither presented for observation nor extractable from data by inductive procedures of any known sort (18).

All this seems to indicate that performance is subordinate to competence and to support the claim that linguistic theory is mentalistic – that there are in the human brain unobservable processes which can only be guessed at through introspection. But regardless of whether or not linguistic theory is mentalistic, the following important question can and must be asked: Does this ideal speaker-hearer exist at all?

Obviously, there is no easy answer to this question. In the first place, no one person (or group) can be elected to become the ideal speaker-hearer. In the second place, if there were such an ideal person, his speaking and hearing might not necessarily always be equally ideal.

Perhaps a good solution would be to treat speaking and hearing as two separate abilities which probably belong to different mental faculties. Thus, if competence and performance are indeed important, they should
be connected individually with speaking and hearing (or understanding). The following observations support this proposal:

First, consider a child at the age of three. The reviewer believes that if the child is normal – that is he (or she, for sex is not a factor) has no speech defect of any known sort – he will demonstrate considerably more skill in hearing (understanding) than in speaking. That is to say, he understands his language(s) far better than he speaks the language(s), especially when one of his parents speaks to him. For instance, he can understand a fairly complex sentence, and yet does not usually know how to compose that kind of sentence on his own. This observation has been supported by experimental evidence as well as the testimony of many a parent. The reason for this is obviously that the child has been exposed to hearing longer than to speaking, that he is developing his hearing and speaking abilities separately, and that presently his hearing ability is superior to his speaking ability.

Second, consider the average foreigner – say, an American – learning to speak Japanese. Like the child, the learner understands Japanese better than he speaks it. The reason is again the same: his hearing and speaking abilities are not equal because he has been exposed to hearing longer than to speaking. But suppose that other things are not equal, i.e., suppose we reverse the process of learning by teaching the American to speak first before he can hear authentic Japanese. (This seems to be the approach of the teach-yourself-books and that of traditional classroom instruction which are not accompanied by native models, spoken in person or on a record.) The results would surprise no one. The chances are that our learner would not be able to understand even familiar sentences that he had supposedly learned when they were spoken to him by a native speaker of Japanese, because he had yet to develop his hearing ability.

Third, consider now a native speaker of any language. It is true that he can understand a perfectly new sentence which he has never encountered before. But is he always able to (re-)produce that kind of sentence? In other words, if he can produce a new sentence of his language on the appropriate occasion and other speakers of that language can understand him immediately, although the sentence may be equally new to them, will all the other speakers ever be able to (re-)produce the kind of sentence on the same appropriate occasion? Obviously not! For no two persons have the same experience in their lifetime. This means that a native speaker's hearing and speaking abilities are different, that the first is superior to the second, and that two native speakers’
hearing abilities are more comparable to each other than their speaking abilities.

One of the inconsistencies which the reviewer feels he must point out is the handling of tree-diagrams. If tree-diagrams are so important in transformational generative grammars that they even deserve to be called structures (of which there are two kinds, deep and surface), then it is only reasonable to expect consistency in diagramming. For instance, the tree-diagram, or structure of

\[ Sincerity \text{ may frighten the boy.} \]

is given (65) as:

\[ S \]
\[ \begin{array}{c}
\text{NP} \\
\text{Aux} \\
\text{VP} \\
\text{N} \\
\text{M} \\
\text{V} \\
\text{Det} \\
\text{N} \\
\text{the} \\
\text{boy}
\end{array} \]

which in the old sense is presumably the deep structure, not the surface structure, of the above string. To generate a string such as [1] and provide its phrase-maker (deep structure) such as [2], Chomsky says that the base component, which in *Aspects* is an important subcomponent of the syntactic component of transformational generative grammars, might contain the following sequence of rewriting rules (67-8):

\[ \begin{align*}
\text{(I)} & \quad S & \rightarrow & \text{NP} \overline{\text{Aux}} \overline{\text{VP}} \\
& \quad \text{VP} & \rightarrow & \text{V} \overline{\text{NP}} \\
& \quad \text{NP} & \rightarrow & \text{Det} \overline{\text{N}} \\
& \quad \text{NP} & \rightarrow & \text{N} \\
& \quad \text{Det} & \rightarrow & \text{the} \\
& \quad \text{Aux} & \rightarrow & \text{M} \\
\text{(II)} & \quad \text{V} & \rightarrow & \text{may} \\
& \quad \text{N} & \rightarrow & \text{sincerity} \\
& \quad \text{N} & \rightarrow & \text{boy} \\
& \quad \text{V} & \rightarrow & \text{frighten}
\end{align*} \]

But earlier, in *SS* (111), such different rules as [4] were formulated:
REVIEW OF CHOMSKY, "ASPECTS ..."

[4] (i) Sentence → NP~VP
(ii) VP → Verb~NP

(viii) Verb → Aux~V
(ix) V → hit, take, walk, read, etc.
(x) Aux → C(M) (have + en) (be + ing)
(xi) M → will, can, may, shall, must.

Obviously, [3] differs from [4] in ordering and bracketing. The reason for choosing [3] over [4], despite such differences, is then given in fn. 6 of Chapter 2 of Aspects as follows (211):

As noted earlier, there are rather different conventions, and some substantive disagreements about the usage of these terms. Thus if we were to change the rules of (5) (Our [3] – FCCP), and correspondingly, the Phrase-marker (3) (our [2] – FCCP), to provide a binary analysis of the major category S in sincerity (NP) and may frighten the boy (VP), then the latter would be the predicate of the sentence in the sense defined in (11).

But in the same footnote, Chomsky calls the reader’s attention to an emendation of those suggested definitions of functional notions (211) the result of which is (102):

[5] (i) S → NP~Predicate-Phrase
(ii) Predicate-Phrase → Aux~VP (Place) (Time)

\[ be \text{ Predicate} \]
\[ (NP) (\text{Prep-Phrase}) (\text{Prep-Phrase}) (\text{Manner}) \]

(iii) VP → \{ V Adj S’ \}
\{ (like) Predicate-Nominal \}
\{ Direction \}
\{ Duration \}
\{ Place \}
\{ Frequency \}
\{ etc. \}

(iv) Prep-Phrase → \{ Place \}
\{ Frequency \}
\{ etc. \}

(v) V → CS

The point which the reviewer wishes to make is then that since the tree-diagram provided by such rules as [5] would resemble that provided by such rules as [4] rather than that which is provided by [3], there is
no reason whatsoever why Chomsky should not start off with something like [4], and be consistent (if nothing else) in order to illustrate the structure of [1]. If the fact that [3] is used, instead of something like [4], means that Chomsky wants to show his preference for, and how he arrives at, [5], he would have achieved the same purpose, except with both greater consistency and greater understanding on the part of the reader, had he derived [5] from something like [4], instead of [3]. Furthermore, while [4] clearly states

$$\text{Aux} \rightarrow \text{C(M)} (\text{have} + \text{en}) (\text{be} + \text{ing}),$$

[3] states only

$$\text{Aux} \rightarrow \text{M}.$$ 

This means that had [3] contained something like Aux→C(M) (as the reviewer argues it should have) [2] would have been as follows:

[6]

There is evidence supporting this criticism in the appearance of Aux→Tense (M) (Aspect) in §3 (107), where Tense is equivalent to C. But Chomsky does not even bother to so mention. He ignores entirely the significant difference between [2] and [6], which cannot be ignored if a tree-diagram is really a structure and not just an ad hoc drawing. Furthermore, if a rule is, as it should be, a precise statement and not a mere haphazard symbolization, one can only wonder at the inconsistency between Aux→M and Aux→Tense (M) (Aspect).

On page 71, where Chomsky mentions the relationships between the components of sincerity may frighten the boy, he neglects to state the grammatical relation between may and any other part of the sentence which he might deem appropriate. That is to say, while it is absolutely true that sincerity bears the relation [NP, S] to sincerity may frighten the boy, frighten the boy bears the relation [VP, S] to sincerity may frighten the boy, the boy bears the relation [NP, VP] to frighten the boy, and frighten bears the relation [V, VP] to frighten the boy (71), nothing is said about the relation(s) which may bears to (1) sincerity may frighten
the boy as a whole, or (2) may frighten the boy, or (3) may frighten.

As a result, in the paragraph that follows (71), although it is clearly indicated that sincerity is the Subject-of the sentence sincerity may frighten the boy and frighten the boy is its Predicate, and that the boy is the Direct-Object-of the Verb Phrase frighten the boy and frighten is its Main-Verb, no mention of may as an Aux is made available.

This flaw is, unfortunately, carried over into a further discussion (73), where grammatical relations of the sort that hold between sincerity and frighten (Subject-Verb) and between frighten and the boy (Verb-Object) in [1], but nothing of the sort that hold between sincerity and may frighten, are defined.

The lack of the provision of such statements makes the reviewer wonder if Chomsky really thinks that in dealing with a binary analysis (211) may should be and is accounted for, whereas in dealing with a ternary analysis (71) may need not be.

In §3 of Chapter 2, when illustrating the base component (107), there are two rules that deserve some discussion; namely,

\[
\begin{align*}
[7] & \text{(i) } \text{Copula} \sim \text{Predicate} \\
& VP \rightarrow \left\{ \text{(NP) (Prep-Phrase) (Prep-Phrase) (Manner)} \right\} \\
& \text{(ii) } \text{Predicate} \rightarrow \left\{ \text{Adjective} \right\} \\
& \quad \left\{ (\text{like}) \text{ Predicate-Nominal} \right\}
\end{align*}
\]

Earlier on page 102, there was one rule stated as:

\[
\begin{align*}
[8] & \text{be Predicate}^2 \\
& VP \rightarrow \left\{ \text{(NP) (Prep-Phrase) (Prep-Phrase) (Manner)} \right\} \\
& \quad \left\{ \text{Adj} \right\} \\
& \quad \left\{ \text{S'} \right\} \\
& \quad \left\{ (\text{like}) \text{ Predicate-Nominal} \right\}
\end{align*}
\]

It seems that [7] plus that which follows it on page 107 are meant to be the same as [8] plus that which follows it on 102. But oddly enough, [7] differs considerably from [8], as well as from the others. For instance, while [7] contains Predicate, which is further expanded, [8] contains Predicate, which is not expanded at all. If, on the other hand, [7] and [8] are not meant to be the same, then [7] should not be a summary of [8], any more than §3 is a summary of the original problem posed in §1 of the same chapter.

* There should have been an arch \(\sim\) between be and Predicate in Aspects.
In §2.2 of Chapter 4, "Inflectional Process", Chomsky sees an analogy between rules of agreement and those of assimilation in phonology. To prove his point, he cites the agreement in German between der and Brüder (173-5). While this seems to indicate that there is a new way to handle agreement, the reviewer is of the opinion that such a way may not necessarily prove to be fruitful when dealing with the cooccurrences between classifiers and nouns in any Chinese language, say, Amoy. Perhaps some sort of semantic analysis will be more fruitful along these lines.

The rules of assimilation are demonstrated by English nasals. Chomsky says that these are neutralized before stops, so that the words limp, lint, link, send, ring would be represented as /liNp/, /liNt/, /liNk/, /seNd/, and /riNg/, respectively, in lexical entries, where /N/ is equal to [+nasal], and the other symbols are also abbreviations for certain sets of phonological features (175-6). This statement has two serious flaws:

First, it makes wrong use of the concept of class and that of complementarity distribution, both of which have been devastatingly denounced by Chomsky himself [1964]. Second, it deviates from the definition of a phoneme in terms of generative phonology.

With regard to the first, what he has stated is this: There is a class of sounds consisting of m, n, and η, which is symbolized as /N/; the sounds are in complementary distribution, because m occurs before p and b, n before t and d, and η before k and g.

Chomsky's error is not so much in using the concepts he has time and again rejected elsewhere as in employing the concepts unwisely.

Traditionally, the two concepts have been used both in phonemics and morphemics. In phonemics, the purpose is to set up phonemes as units, whereas in morphemics, the purpose is to set up morphemes as units. But between morphemics and phonemics there is one more realm of endeavor called morphophonemics which deals with such data as wife and wives, impossible, indefinite, and incomplete. The traditional linguists then recognize the status of morphophonemics and state that wife is /wayF/ where /F/ is a morphophoneme which becomes /v/ in the presence of another morpheme having the phonological shape of /-z/, a member of the plural suffix V-Zi>, a^d /-f/ in the absence of the morpheme [cf. Gleason, 1961].

Unlike the /F/ in /wayF/, Chomsky's /N/ is neither a phoneme, nor
a morphophoneme, nor a morpheme; it is a class of three nasals each of which is a full-fledged phoneme in the Bloomfieldian sense of the term. And unlike the \(-s\) of \(\sqrt{Z}_1\), neither \(p\) nor \(b\), neither \(t\) nor \(d\), and neither \(k\) nor \(g\) is a morph in the Bloomfieldian sense of the term; \(p, b, t, d, k,\) and \(g\) are simply individual sounds of the English language.\(^9\)

As to the second, a question may be asked as follows: If \(/N/\) is a phoneme, like the other symbols which are abbreviations for certain sets of phonological features, what are the other features of \(/N/\) besides \([+\text{nasal}]\)? If \(/N/\) is a segment, like the other symbols, then it certainly must have more than one feature. But if \(/N/\) is only a feature, namely, \([+\text{nasal}],\) rather than a set of features, the reviewer begins to wonder why it should be represented separately. If it is assigned to \(p, b, t, d, k,\) and \(g\) to indicate their nasality, then Chomsky will have a dilemma, for he would have to contradict himself in a vicious circle by saying, that \(p, b, t, d, k,\) and \(g\) occurred with \([+\text{nasal}],\) after \(m, n,\) and \(n,\) respectively, and without \([+\text{nasal}],\) elsewhere. This is absurd.\(^9\)

Up to this point, transformational generative grammars, besides some justification and detailed clarification, consist of otherwise little changes. However, beyond this, drastic changes take place; the changes are to be seen in the introduction of syntactic features (75). The introduction involves not only new symbolization but also new presentation of old (mixed with new) symbols, such as rewriting rules involving complex symbols.

The changes are said to have been prompted by a suggestion made by G. H. Matthews, which goes something like this: Rewriting rules is not the appropriate device to effect subcategorization of lexical categories (79). The difficulty is that this subcategorization is typically not strictly hierarchic, but rather involves cross classification (79). Consequently (80), instead of,

\[
\begin{align*}
N & \rightarrow \text{Proper} \\
N & \rightarrow \text{Common} \\
\text{Proper} & \rightarrow \text{Pr-Human} \\
\text{Proper} & \rightarrow \text{Pr-nHuman} \\
\text{Common} & \rightarrow \text{C-Human} \\
\text{Common} & \rightarrow \text{C-nHuman},
\end{align*}
\]

the reader is told that something like the following is more adequate (82):

\[
\begin{align*}
\text{(i)} & \quad N \rightarrow [+N, \pm \text{Common}] \\
\text{(ii)} & \quad [+\text{Common}] \rightarrow [\pm \text{Count}]
\end{align*}
\]
Granted that this suggestion is valid, the reviewer must hasten to ask two questions: First, what are the criteria upon which all the assignments of the syntactic features are based? Second, is the ordering of such rules as [10] important?

The first question was asked because there are lexical items to which two opposite syntactic features may be assigned. (This is not because the reviewer is seeking a discovery procedure.) Suppose, for example, we say that milk, in line with butter (64), is a Mass Noun. Milk is a Mass Noun, because there are sentences like


On the other hand, however, there are also sentences like


in line with

[14] He ordered two cokes.

in which case, the work milk, just like the word coke, is used as a Count Noun, not a Mass Noun. How then is one distinguished from the other?

There is apparently no easy way out. The only solutions the reviewer can think of, if Chomsky's suggestion is to be followed, is either to have one lexical item milk receive two directly opposite features [+Count],

4 On the other hand, any Count Noun can be a Mass Noun. For instance, there's some boy in that girl, with weak stress on some, as against some boy is playing with that girl, with tertiary stress on some. The first boy is a Mass Noun, whereas the second boy is a Count Noun. (The reviewer is indebted to Marshall Durbin of Tulane University for the examples.) In addition, the reviewer may also ask what sort of features will the lexical item great in Alexander the Great receive? If it does receive anything, will all adjectives, including past participles, as in the modified, be assigned distinctive features?

5 The reviewer would not be surprised if the answer came out to be as follows: Sentences like [12] and [14] have different deep structures, and therefore may have Mass Nouns on the one hand and Count Nouns on the other hand. But this would be as good as no answer, because there are sentences like she bought two fish yesterday and she knows about many fishes. To make the matter worse, there are sentences involving a head of cattle, two head of cattle, a head of cabbage, two heads of cabbage, some wheat, and some oats.
or set up two lexical items $milk_1$ and $milk_2$ to which [+Count] and
[—Count] are assigned, respectively.

However, the reviewer must caution the reader that either way the
consequences will be unthinkable, for there is more than one such lexical
item as milk and not every such Mass Noun is like milk.

Another characteristic of the Mass Nouns is that some of them,
though they are assigned exactly the same syntactic features as the
others, may combine with other elements to create ungrammatical sen-
tences. Examples are home and house.

According to Chomsky, in line with [10], both of these lexical items
ought to receive [+N, +Common, +Count, —Animate]. It follows,
then, that in whatever environments one can occur the other must be
able to occur as well – otherwise, there would be a grammatical difference
for which to account. Thus, if transformational generative grammars
are both descriptively and explanatorily adequate, they ought to be
capable of accounting for such differences as shown in:

[15]  
They took him home.

and

[16]  
They took him house.

But the reviewer wonders if transformational generative grammars can
even begin to explicate the differences between them.

If context-sensitive rules are needed to show that [15] is grammatical
while [16] is not, what are the environments in which home and house
may be assigned different syntactic features? If transformational rules
are to be applied to explicate that [15] is well-formed whereas [16] is
not, in what way do home and house differ in their respective deep struc-
tures whose derivations to [15] and [16] – viz., T-markers – may then be
characterized by the rules?

The chances are that neither way will work out satisfactorily until
all the nouns which receive [+Common], [+Count], and [—Animate]
are subclassified to a finer degree — in other words, until a better taxonomy
of the nouns in question is available.6 This is because we need taxonomy
in linguistics; as a matter of fact, Chomsky’s subcategorizations and
syntactic features (§2.3) are to a great extent taxonomic.

As to the second question, i.e., is the ordering of such rules as [10]
important, it was asked, because there is no a priori reason why such

6 This is contrary to the view often expressed by Chomsky and his followers; they
hold taxonomy in contempt.
rules as [10] should be the way they are. To put it more precisely, sets of rules like [10] are only one way of stating complex symbols (82) and have no bearing whatsoever on what Chomsky calls 'structures' (deep or otherwise), because, instead of [10], the reader must realize that there are

\[\begin{align*}
\text{[17]} & \quad \text{(i) } N \rightarrow [+N, \pm \text{Human}] \\
& \quad \text{(ii) } [+\text{Human}] \rightarrow [\pm \text{Common}] \\
& \quad \text{(iii) } [-\text{Human}] \rightarrow [\pm \text{Animate}] \\
& \quad \text{(iv) } [+\text{Animate}] \rightarrow [\pm \text{Common}] \\
& \quad \text{(v) } [-\text{Animate}] \rightarrow [\pm \text{Abstract}] \\
\end{align*}\]

\[\begin{align*}
\text{[18]} & \quad \text{(i) } N \rightarrow [+N, \pm \text{Human}] \\
& \quad \text{(ii) } [+\text{Human}] \rightarrow [\pm \text{Common}] \\
& \quad \text{(iii) } [-\text{Human}] \rightarrow [\pm \text{Abstract}] \\
& \quad \text{(iv) } [-\text{Abstract}] \rightarrow [\pm \text{Animate}] \\
& \quad \text{(v) } [+\text{Animate}] \rightarrow [\pm \text{Common}] \\
& \quad \text{(vi) } [-\text{Animate}] \rightarrow [\pm \text{Common}] \\
\end{align*}\]

\[\begin{align*}
\text{[19]} & \quad \text{(i) } N \rightarrow [+N, \pm \text{Abstract}] \\
& \quad \text{(ii) } [-\text{Abstract}] \rightarrow [\pm \text{Common}] \\
& \quad \text{(iii) } [+\text{Common}] \rightarrow [\pm \text{Count}] \\
& \quad \text{(iv) } [-\text{Common}] \rightarrow [\pm \text{Human}] \\
& \quad \text{(v) } [-\text{Human}] \rightarrow [\pm \text{Animate}] \\
& \quad \text{(vi) } [+\text{Count}] \rightarrow [\pm \text{Human}] \\
& \quad \text{(vii) } [-\text{Count}] \rightarrow [\pm \text{Human}] \\
\end{align*}\]

\[\begin{align*}
\text{[20]} & \quad \text{(i) } N \rightarrow [+N, \pm \text{Abstract}] \\
& \quad \text{(ii) } [-\text{Abstract}] \rightarrow [\pm \text{Human}] \\
& \quad \text{(iii) } [+\text{Human}] \rightarrow [\pm \text{Common}] \\
& \quad \text{(iv) } [-\text{Human}] \rightarrow [\pm \text{Count}] \\
& \quad \text{(v) } [+\text{Count}] \rightarrow [\pm \text{Animate}] \\
& \quad \text{(vi) } [-\text{Count}] \rightarrow [\pm \text{Animate}] \\
\end{align*}\]

to mention just a few. Furthermore, if the total effect of [10] can be represented by the branching diagram below,

7 The reviewer is puzzled to see that the diagram [21] does not start off with the N on the left hand side of the arrow in [10] (i), which contradicts the established convention of rewriting rules, because the S in [3] clearly appears in the branching diagram [2] further above, yet nowhere in Aspects does Chomsky bother to explain the differences. One explanation would be to say that [21] is part of a larger branching diagram which is as follows:
there is absolutely no reason why that of [17] cannot be represented by the branching diagram [20].

By the same token, the total effect of [18], [19], and [20] can be represented by the branching diagrams [23], [24], and [25], respectively.

This is important because while +N can be carried into a pre-terminal string generated by such rules as [10], the same string can only be derived from the branching diagram above, rather than from [21].

---

8 The same criticism in fn. 6 goes for diagram [22], and subsequently diagrams [23], and [24], and [25].
When comparing [21] with [22], [23], [24], and [25], respectively, a few important observations become apparent. Suppose that the pair [21] and [22] is now compared. Immediately, it can be asked why [22] has fewer nodes than [21]. The apparent answer is that [17], from which [22] has resulted, has fewer rules than [10], from which [21] has resulted. But this is not the real answer. The truth of the matter is that each lexical formative in [22] has been assigned fewer syntactic features than that in [21], on the one hand, and that the grouping of the lexical formatives with respect to the number of syntactic features assigned to them in [21] differs considerably from the grouping of the lexical formatives with respect to the number of syntactic features assigned to them in [22], on the other hand. That is to say, while, for instance, *boy*, according to [21], receives [+Common], [+Count], [+Animate], and [+Human], *boy* according to [22], receives only [+Human] and [+Common]; and while *dirt* and *Egypt* in [21] receive two sets of syntactic features which are [—Abstract], [—Count], and [+Common], and [—Animate] and [—Common], respectively, *dirt* in [22] receives [—Abstract], which is the same as before, [—Animate], and [—Human], under the same set of which *Egypt* in [22] must also fall.

But this is not all. One may furthermore ask why *boy* must have four features in [21] when it can have only two in [22]. The argument against [21] is that it seems plausible to say that a noun, if it is [+Human], automatically must also be [+Animate], and therefore the latter feature does not have to be specified. On the other hand, however, one can argue that [22] lacks [+Count], and therefore is forced to place such nouns as *crowd* and *nation* with *boy*. But note that *crowd* and *nation* must also be placed with *boy* in [21], even though [21] has the [±Count] distinction; this is because no features, such as [+Human], are dominated by [—Count] in [21]. It follows that the [±Count] distinction is not really needed in [22] and has no bearing whatsoever, in [21], and that

---

As in *The Wilson*, the ship named after the president, under the American President Lines. But notice that in English a ship is often referred to as 'she', and yet she is named after a man. Also, notice that it is considered wrong to use *who* in a subordinate (relative) clause to refer to a ship named *Wilson*. 

---

[25]
[22], as far as boy is concerned, is a better diagram, in line with Chomsky's simplicity measure (38), than [21].

The same is true of dog. Notice that in [21] it receives [—Human], [+Animate], [+Count], and [+Common], whereas in [22] it receives only [+Common], [+Animate], and [—Human]. The [+Animate] distinction is needed in [22] because it is dominated by [—Human]. But the [+Count] distinction is unnecessary in [22] because all such nouns as cattle may be dominated by [+Common], like dog, without too much difficulty. On the other hand, in [21], the [+Count] distinction is so made that in the first place there is no [+Animate] distinction dominated by [—Count], whereby a noun like cattle might otherwise be assigned appropriate features, and in the second place, a noun like cattle is forced to be placed with dog, whereby they both must receive [+Count] when actually it might be more adequate to assign [+Count] to cattle. Cattle can be a [+Count] noun or a [—Count] noun, for one says the cattle are lowing with only a plural form like in many cattle but a head of cattle as against a good deal of money and much money.

With regard to John, it can be pointed out as well that while it is assigned three features in [21], namely, [+Human], [+Animate], and [—Common], it is assigned only two features in [22], namely, [—Common] and [+Human]. This means that [+Animate] is an excessive feature in [21]; it should be predictable, if John is assigned [+Human]. It once again follows that as far as John is concerned, [22] is a better diagram, in line with Chomsky's simplicity measure (38), than [21].

In addition, there is a problem regarding such nouns as government, because either the government is or the government are is well-formed. In the former, it is used collectively, whereas in the latter it is not. Then, is the [+Collective] distinction necessary? If so, in what way does it differ from the [+Count] distinction?10

A good many comments can likewise be made on [23], [24], and [25] in comparison with [21]. But the reviewer will not attempt to do so, leaving the task entirely to the reader's 'intuitive' discretion.

A couple of remarks are now in order concerning the notion of deep structure as stated further above (cf. 2. Description).

First, consider the relations of T-marker, basis, deep structure, and surface structure. Given a sentence A, a set of prearranged base rules will first generate its basis which consists of sometimes one and sometimes

10 These kinds of features are by nature not sequential in arrangement but are simultaneous. Thus, simultaneity prevents a hierarchy, as well as an ordering, from being formed. It is this same problem that we have in phonology.
more than one Phrase-marker, depending on the nature of the sentence. The basis is then mapped into the sentence by a set of transformational rules, also prearranged, which automatically assign to the sentence a derived Phrase-marker (ultimately a surface-structure) in the process (128). (See also the “Summary” on page 141.)

This means that the T-marker is the transformational history – a diagram of transformational steps – of the sentence from the basis to the surface structure (130-1). That is to say, the basis is the input and the surface structure is the output (131), whereas the T-marker represents the operations between them. (See also the “Description” on page 140.)

This gives rise to an important point concerning the status of the deep structure: The deep structure is sometimes equal to the basis, in which case, the basis is a single P-marker, and sometimes not, in which case, the basis is a sequence of base P-markers. In the latter cases the basis must be transformed to a certain generalized P-marker in order to qualify as the deep structure. Thus, we have two situations as follows:

1.

\[
\begin{align*}
\text{basis} & \quad \text{T-marker} \quad \text{surface structure} \\
\text{deep structure} & \quad \text{basis} \quad \text{T-marker} \quad \text{surface structure} \\
\text{X} & \quad \text{basis} \quad \text{T-marker} \quad \text{surface structure} \\
& \quad \text{X} \quad \text{basis} \quad \text{T-marker} \quad \text{surface structure} \\
& \quad = \text{generalized P-marker}
\end{align*}
\]

In 1. there is no gap between the basis and the deep structure, but in 2. there is a gap between the basis and the deep structure.

If Chomsky calls ‘basis-surface’ – which means the transformational history from deep structure to surface structure – T-marker, then the reviewer begins to wonder what Chomsky would call that part which is marked as X in 2. (where X = basis-surface minus deep-surface, but basis ≠ deep and basis > deep) and whether it is theoretically sound to label both basis-surface and deep-surface as T-marker, when basis is not equal to deep structure in 2.

Worse still, Chomsky even asserts that the syntactic component consists of a base that generates deep structures and a transformational part that maps them into surface structures (135), and that the transformational rules in THE TRANSFORMATIONAL PART OUTSIDE THE BASE (emphasis reviewer's) act as a ‘filter’ that permits only certain generalized Phrase-markers to qualify as deep structure (139).

The problem lies in the uncertainty on the part of Chomsky. At
times, he asserts that the base alone generates all deep structures, on the one hand. But at times he insists that some deep structures must be constructed by both the base and the transformational rules, on the other hand. For instance, while the sentence *sincerity may frighten the boy*, as was demonstrated earlier, has its deep structure generated solely by the base, not to mention the errors (see the discussion that follows further below), the deep structure of the sentence

[26]  the man who persuaded John to be examined by a specialist was fired.

has to be generated by the base plus a few transformational rules, namely, two $T_E$ rules (cf. p. 130).

There may be some grounds for not accepting this: Evidently Chomsky has revised the theory of the base by allowing $\#S\#$ to appear on the right in certain branching rules, where previously the dummy symbol $S'$ had appeared, and by allowing the rules to reapply (preserving their order) to these newly introduced occurrences of $\#S\#$ (134). Moreover a generalized Phrase-marker formed in this way contains all of these base Phrase-markers that constitute the basis of a sentence but contains more information than a basis in the old sense since it also indicates explicitly how these base Phrase-markers are embedded in one another (134). If so, then it is clear that the two $T_E$ rules shown in the T-marker

[27]  

are quite unnecessary, since the embedding they are supposed to perform has already been taken care of by the base when generating the generalized Phrase-markers (which is equal to the basis in this context and to the deep structure as well).

It follows that the generalized Phrase-marker of [27] ought not to have been separated as three distinct base Phrase-markers but, rather, should have been presented as one generalized Phrase-marker (see [28]). As a matter of fact, this is what was done later in "Topics in the Theory of Generative Grammar" [1966].

It also follows that the T-Marker presented as [27] should have been:

[29]  

Generalized Phrase-marker $\mid T_P - T_D - T_{to} - T_R - T_P - T_{AD} \mid$

= deep structure

$\mid T_P - T_D - T_{to} - T_R - T_P - T_{AD} \mid$

= Surface structure
whereby the 6 transformational rules act as a genuine ‘filter’ that permits only certain generalized Phrase-Markers to qualify as deep structure (139).

Second, consider the conception of deep structure itself. Although the motive behind it seems well-inspired, a closer look at it makes the reviewer question its validity.

In his “Topics in the Theory of Generative Grammar” [1966], Chomsky suggests that we take a T-Marker of a sentence to be its deep structure, and that we take the derived Phrase-Marker that is the final output of the operations represented in the T-Marker to be the surface structure. By this standard, then, the deep structure of [26] should not be [28]; instead, it should be [29].

If the notions ‘generalized transformation’ and ‘transformation-marker’ are indeed to be eliminated [134], especially the latter, why and how, then, given a grammar containing a base component and a transformational component, can one develop innumerable procedures for actually constructing deep structures (140)?

Since there has never been any ‘official’ recognition of one against the other, it thus appears that the notion of deep structure is in the state of uncertainty and perhaps confusion.

On page 107, Chomsky says that adding the rules that realize Definite as the and non-Definite as null before a following non-Count Noun, we derive the sentence sincerity may frighten the boy of §1, with the Phrase-Marker (59). This statement really presents the reader with a logical discrepancy, because while the Definite/non-Definite distinction is said to be that of the and null, the Count/Mass distinction is not that of Count Noun and null but rather that of Count Noun and Mass Noun. This means that the use of ± with reference to distinctive features is inconsistent, and hence inadequate. This criticism is made on two accounts.

In the first place, one should notice that the Definite/non-Definite distinction indicates the presence of something, namely, the, and the absence of it, whereas the Count/Mass distinction indicates the presence of something, e.g., boy, or the presence of something else, e.g., sincerity, which at the same time conditions the absence of the other. By analogy, then, if the latter distinction were meant to be in line with the former, it should have been the presence of something, e.g., boy, and the absence of it. But this analogy would seriously handicap the operation of the rules mentioned earlier (see discussion presented further above on distinctive features), because the sentence so derived would be ... may frighten the
boy, where the dots mean the absence of a Count, rather than sincerity may frighten the boy, where the word sincerity means the presence of a Mass Noun which conditions the absence of a Count Noun, not the absence of a Count Noun or null.

In the second place, one should also notice that if the Definite/non-Definite distinction implies simply the presence of something or the absence of it, there exists no distinctive feature for the presence of a, the so-called indefinite article, as in sincerity may frighten a boy (but not two boys) whose derivation becomes impossible on the basis of the rules given (see discussion presented further above on distinctive features). Notice also that in English there is a big difference between man and a man. Thus, one cannot lump a and null together under non-Definite.

The above defect manifests itself more clearly if such comparison of the two distinctions as below is made:

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison of Definite/non-Definite and Count/Mass distinctions. (The dotted line means unclear but necessary sub-distinction.)</td>
</tr>
<tr>
<td>Tripartite:</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Bipartite:</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Similarly, if the number is taken into account, although there exists a different but related problem in English, such tripartite, instead of bipartite, distinctions as Plural, Dual and Singular, must be considered.

The statement concerning the characterization of universal categories is also interesting. Two points deserve mention here: (1) It is said that in order to characterize universal categories, the base of the syntactic component does not, in itself, explicitly characterize the full range of sentences, but only a highly restricted set of elementary structures from which actual sentences are constructed by transformational rules (117). (2) The base Phrase-markers may be regarded as the elementary content from which the semantic interpretations of actual sentences are constructed (117).

Contrary to Chomsky's claim, the base of the syntactic component, as was clearly indicated further above in connection with the notion of deep structure, can characterize neither the full range of sentences nor the entire set of elementary structures from which actual sentences are
supposed to be constructed by transformational rules. And, since the
status of deep structure is in the state of confusion, as was also clearly
pointed out, the base Phrase-markers, if they are construed to be deep
structures, should not be regarded as the elementary content elements from
which the semantic interpretations of actual sentences are made (cf.
Conclusion).

On page 168, Chomsky states boldly that walk can appear with or
without a Manner Adverbial, but with no Direct-Object, and hit can ap-
pear with or without a Manner Adverbial, but only with a Direct-Object.
The reviewer thinks it necessary to repudiate Chomsky on both
accounts, because not only can walk appear with a Direct-Object but
hit can also appear with an Indirect-Object. Examples are the following:

1. Sandy Koufax walked Willie Mays intentionally in the second inning.\(^\text{11}\)
2. Cassius Clay hit Ernie Terrell a blow.

The first sentence, contrary to Chomsky's assertion, has the direct object
as well as the manner adverbial. The second sentence, against Chomsky's
wish, has both the direct and indirect objects.\(^\text{12}\) These examples con-
sequently invalidate Chomsky's syntactic redundancy rules.

More misleading is what Chomsky and Halle call 'accidental gap'
(169 and elsewhere) on generative phonology. As a matter of fact, they
have repeated this over and over again, without realizing that it has not
the slightest validity.

To explain phonological admissibility, Chomsky says that Halle was
able to give a general, language-independent definition of the notions
'accidental gap' (such as, in English, /blik/) and 'systematic gap' (such
as, in English, /bnik/), in place of an \textit{ad hoc} chart or list (169).

While the notion of 'systematic gap' may to some extent be worthy
of consideration, the reviewer is of the opinion that that of 'accidental
gap' is of little value, because /blik/ is not only possible but actually
occurs in English. \textit{Webster}'s two entries of /blik/, spelled as blick, will
suffice here:

\begin{verbatim}
blick, n. a fish; same as bleak.
blick, n. same as fulguration.
\end{verbatim}

Furthermore, the reviewer has met a lady in Tokyo by the name of
Hazel Blick; she is from New Zealand, a member of the Association

\(^\text{11}\) A more telling example would be: \textit{John walked the floor with the baby when it was}
teething.

\(^\text{12}\) If necessary, one can look up \textit{Webster's New Twentieth Century Dictionary} (1965),
under the entry hit.
of Foreign Teachers in Japan to which the reviewer also belongs, and told the reviewer, when asked by him, that the family name Blick /blick/ is an old, old English name.\textsuperscript{13}

What Halle and Chomsky have tried to show is in fact a matter of phonotactics, which (if the reviewer is right) is a concept introduced by Archbald A. Hill of the University of Texas a few years back. This concept tells us of the ‘syntax’ of the sounds of any particular language. Thus, in a sense, /blick/ is more ‘grammatical’ than /bnik/; but so is smear than smick, sphear than sfick, slick than sleer, and skier than skick, and so on, and so forth. As a matter of fact, one can go on and on to collect hundreds of items like those above. Does this mean that there are tens of hundreds of ‘accidental gaps’ in English? If so, what are the consequences?

From the above evidence, it no longer follows that the so-called formal tripartite distinction of occurring, possible but non-occurring, and impossible (170) has any significance in the syntactic case any more than it has in the phonological case, for the tripartite must now be reduced to bipartite distinction, namely, occurring and non-occurring, unless proven otherwise.

By bipartite distinction is meant that if a sequence of sounds is ‘grammatical’, it should be ‘grammatical’ PERIOD, and if a sequence of sounds is ‘ungrammatical’, it should be ‘ungrammatical’ PERIOD. Of course, one could account for different degrees of ‘grammaticalness’ by saying that /smik/ is more ‘grammatical’ than /bnik/ in English, just like Chomsky has tried to account for the different degrees of grammaticalness about English sentences (cf. pp. 75-6). But the point the reviewer tries to make is that there is no need for an intermediate state to be called ‘accidental gap’, for innovation or borrowing does not necessarily (or always or even at all) go through such a stage to be accepted, and, like /blick/, we cannot be absolutely sure that a ‘gap’ (systematic or otherwise) has not been, or when it will be, filled by someone somewhere. Consider, for example, the following:

1. \textit{Coloress green ideas sleep furiously.}
2. \textit{He learns hard.}

\textsuperscript{13} When she was introduced to the association by its president, an American, Fr. Lawrence of Sophia University, as Miss Blick /blick/, which was uttered several times by him, the reviewer, who happened to be present, almost got up and said: “Mr. President, /blick/ is possible but does not occur in English.” It is quite ironical that the reviewer had to come all the way to Japan to get the satisfaction that Chomsky and Halle were wrong in the first place. See Peng’s “On Systematic and Accidental Gaps” (forthcoming) for further discussions.
Can one say that 2. is more grammatical than 1. in the sense that 2. contains an 'accidental gap' whereas 1. contains a 'systematic gap'? As Hill pointed out recently, 1. now stands a good chance to be 'grammatical', say, in poetry. It follows that there are no grounds on which to predict that 2. will become 'grammatical' sooner than 1.

To further justify this view, the reviewer cites below a few examples from Mandarin: There are many cases in which the combination of certain tones with a 'grammatical' sequence of vowels and consonants would make the sequence 'ungrammatical'. For instance, the sequence /en/ is 'grammatical' as against /len/. If to /en/ is added the first tone, the result /ën/ 'grace, favor' is also 'grammatical'. But if to /en/ is added the second tone, the result /éñ/ becomes 'ungrammatical'. Does this mean that /ën/ will have a better chance to become 'grammatical', if we say that /ën/ contains an 'accidental gap', than /len/, if we say that /len/, with whatever tone, contains a 'systematic gap'? The answer is obviously no.

The negative answer is supported by good evidence. The sequence /ka/ was 'ungrammatical' in Mandarin, its 'ungrammaticalness' being analogous to /len/. But when the term coffee was borrowed into Mandarin, it became /kä fey/, with the first tone added to /ka/; and hence, /kä/ is now 'grammatical'.

In English, on the other hand, it has been said that if the second C of an initial #CC is a true consonant (that is, not a liquid or a glide), the first must be [s] (168). Since there are three such clusters and three single initials

<table>
<thead>
<tr>
<th>1st</th>
<th>2nd</th>
</tr>
</thead>
<tbody>
<tr>
<td>#C</td>
<td>#CC</td>
</tr>
<tr>
<td>p</td>
<td>sp</td>
</tr>
<tr>
<td>t</td>
<td>st</td>
</tr>
<tr>
<td>k</td>
<td>sk</td>
</tr>
</tbody>
</table>

it is normally understood that the sounds of the first column do not precede those of the second. Thus, it follows that there are nine 'systematic gaps'. But along came an innovation, not out of an 'accidental gap' but rather out of one of the nine 'systematic gaps', namely, pst, a sequence of sounds used in English to draw attention.

If such is the case, then the possible but non-occurring lexical entries do not exist and hence possess no status of 'accidental semantic gap' (170) any more than /blick/ was said to pose an accidental (phonological)
gap. However, Chomsky is partly right in saying that the problem merits investigation (170). The direction of such investigation must be, in a sense, geared towards identifying the varying ways of innovation from among the non-occurrences, and the various kinds of borrowing.

In Chapter 2, §2.3.3, where Chomsky tries to exemplify the base component, a few factual as well as typographic errors have been found.

First, the lexical item boy is said to have the following features: [+N, —Count, +Count, +Animate, +Human] (85). The —Count feature should have been +Count.

Second, the preterminal string characterized as [+N, —Count, +Abstract]~M~Q~the [+N, +Count, +Animate, +Human] (85) should have the feature +Common as well in the last complex symbol, otherwise the string is inconsistent with the features specified of boy above, except for the errors pointed out earlier.

Third, the Phrase-marker (86) given as

\[
\text{[30]}
\]

\[
\begin{array}{c}
S \\
\downarrow \\
NP \\
\downarrow \\
N \\
\downarrow \\
[-\text{Count}] \\
\downarrow \\
[+\text{Abstract}] \\
\downarrow \\
sincerity \\
+\text{Common}
\end{array}
\]

\[
\begin{array}{c}
\downarrow \\
\text{NP} \\
\downarrow \\
\text{M} \\
\downarrow \\
\text{VP} \\
\downarrow \\
\text{V} \\
\downarrow \\
\text{Q} \\
\downarrow \\
\text{Det} \\
\text{N} \\
\downarrow \\
[-\text{Human}] \\
\text{boy}
\end{array}
\]

\[
\text{frighten} \\
\text{the} \\
\text{[+Count] [+Common] [+Animate] [+Human]}
\]

\[
\text{sincerity} \\
\text{may}
\]

should actually have been

\[
\text{[31]}
\]

\[
\begin{array}{c}
S \\
\downarrow \\
NP \\
\downarrow \\
N \\
\downarrow \\
[-\text{Count}] \\
\downarrow \\
[+\text{Abstract}] \\
\downarrow \\
sincerity \\
[+\text{Common}]
\end{array}
\]

\[
\begin{array}{c}
\downarrow \\
\text{NP} \\
\downarrow \\
\text{M} \\
\downarrow \\
\text{VP} \\
\downarrow \\
\text{V} \\
\downarrow \\
\text{Q} \\
\downarrow \\
\text{Det} \\
\text{N} \\
\downarrow \\
[-\text{Human}] \\
\text{boy}
\end{array}
\]

\[
\text{frighten} \\
\text{the} \\
\text{[+Count] [+Common] [+Animate] [+Human]}
\]

Furthermore (91), when restating
REVIEW OF CHOMSKY, "ASPECTS ..."

\[
(\text{i}) \quad V \to [+V, +\text{Transitive}] / \quad \text{NP} \\
(\text{ii}) \quad V \to [+V, -\text{Transitive}] / \quad \# 
\]

Chomsky gives

\[
(\text{iii}) \quad V \to [+V, \{+\text{Transitive} / -\text{Transitive}\} / \quad \text{NP}' \quad \# 
\]

which, to the reviewer, is extremely awkward in terms of the convention established thus far for the use of braces. To accede to the convention, the reviewer suggests that instead of [33], [32] yields [34] which is as follows:

\[
(\text{iv}) \quad V \to [+V, \{+\text{Transitive} / -\text{Transitive}\} / \quad \{\text{NP} \quad \#\} 
\]

On page 95, when illustrating the use of CS, complex symbol (93), it is totally impossible to substitute

\[
(\text{i}) \quad [+V] \rightarrow \text{CS} / \quad \{[+\text{Abstract}] \text{Aux} \quad \} \\
(\text{ii}) \quad [+V] \rightarrow \text{CS} / \quad \{[-\text{Abstract}] \text{Aux} \quad \} \\
(\text{iii}) \quad [+V] \rightarrow \text{CS} / \quad \{+[+\text{Animate}] \text{Det} \quad \} \\
(\text{iv}) \quad [+V] \rightarrow \text{CS} / \quad \{+[[-\text{Animate}] \text{Det} \quad \}
\]

for

\[
(\text{i}) \quad [+V] \rightarrow \quad \{[+[+\text{Abstract}] -\text{Subject}] / [+N, +\text{Abstract}] \text{Aux} \quad \} \\
(\text{ii}) \quad [+V] \rightarrow \quad \{[+[+\text{Abstract}] -\text{Subject}] / [+N, +\text{Abstract}] \text{Aux} \quad \} \\
(\text{iii}) \quad [+V] \rightarrow \quad \{+[+\text{Animate}] -\text{Object}] / [+N, +\text{Animate}] \text{Det} \quad \} \\
(\text{iv}) \quad [+V] \rightarrow \quad \{+[[-\text{Animate}] -\text{Object}] / [+N, -\text{Animate}] \text{Det} \quad \}
\]
on page 91.

The reason is simple: Although a convention has been established (93) to replace \([+[+\text{Abstract}] -\text{Subject}]\), etc., of [36] with CS of [35],14 nowhere is it explained how, when, and why all the \(+N\)'s of [36] above are deleted in [35]. Furthermore, two factual errors are committed when Chomsky says: "Where now \([+[+\text{Abstract}] \text{Aux} \quad \] is the feature denoted in (34) (Our [36] - FCCP) as \([+[+\text{Abstract}] -\text{Subject}]\), etc."

95. First, it is not at all true. Second, what he should have said is this: where now CS are the features denoted in (34) (our [36] - FCCP) as \([+[+\text{Abstract}] -\text{Subject}]\), etc.

There is another error on page 96: The word "categorization" on the second line from the bottom should be changed to "subcategorization", 14 The rules listed as (36) ... (39) in Aspects.
so that "strict categorization" would read "strict subcategorization".

There is a typographical error on page 102. When Chomsky says that "It will follow, then, that Verbs are subcategorized with respect to the Prepositional-Phrases introduced by (50iii) but not with respect to those introduced by (50ii) — namely, ..." the reviewer finds that (50) is stated on page 101 only as

\[37\]

he decided on the boat

and therefore cannot have (iii) and (ii). It follows that (50iii) and (50ii) above should have been (52iii) and (52ii), respectively.

On pages 106-7, Chomsky has formulated as an illustrative fragment of the base component a set of rules which he believes will generate the Phrase-marker listed as follows:

\[38\]

\[
F = [+\text{Det}\ldots] = \text{Common} \quad G = [+\ldots\text{NP}] = \text{Transitive} \\
F'_1 = [-\text{Count}] \quad G'_1 = [+[-\text{Abstract}] \text{Aux}\ldots\text{Det} \\
\quad [+\text{Animate}]] \quad G'_2 = [+\text{Object-deletion}] \\
\ldots \\
F'' = [+\text{Abstract}] \\
H = [+\text{Det}\ldots] = F \\
H'_1 = [+\text{Count}] = -F'_1 \\
\ldots \\
H'' = [+\text{Animate}] \\
H''' = [+\text{Human}^1]
\]
There are several errors in this so-called Phrase-marker which, in line with Chomsky’s concept, should be the deep structure of the sentence discussed thus far, namely, *sincerity may frighten the boy.*

In the first place, it is impossible to generate [38], given the rule on page 107, despite Chomsky’s claim, because one of the rules is

\[
\text{[39]} \quad \text{Aux} \rightarrow \text{Tense (M) (Aspect)}
\]

which means that the element Tense is obligatory in the expansion, whereas M and Aspect are not; in other words, [39] is the contracted form of four rules one of which is Aux → Tense + M but none of which is Aux → M, and hence no rule would have generated the branch of Aux in [38] dominating M which in turn dominates *may.*

In the second place, it seems that \( F \) should be positively specified as \([+\text{Common}]\). If this is true, then \( G \) must also be positively specified as \([+\text{Transitive}]\).

On page 118, Chomsky states one less abbreviated rule

\[
\text{[40]} \quad \begin{array}{c}
(i) \\
(ii)
\end{array} \quad [+V] \rightarrow \text{CS} / \begin{cases} \alpha \text{Aux} \quad \beta \\ \alpha \text{Aux} \quad \end{cases}
\]

which is supposed to be repeated from another rule on page 107 stated as

\[
\text{[41]} \quad [+V] \rightarrow \text{CS} / \alpha^\text{Aux} \quad (\text{Det}^\beta)
\]

where \( \alpha \) is an N and \( \beta \) is an N. If this is true, then the first half of [40] (i) should have been \( \alpha \text{Aux} \quad \text{Det}^\beta \).

He goes on to say that not quite simple is the question of whether [41] which is repeated in less abbreviated form as [40] – with the obvious error corrected – should be preferred to the alternative

\[
\text{[42]} \quad \begin{array}{c}
(i) \\
(ii)
\end{array} \quad [+V] \rightarrow \text{CS} / \begin{cases} \alpha^\text{Aux} \\ \text{Det}^\beta \end{cases}
\]

Furthermore, he says that in terms of evaluation measures that have so far been proposed, there is no way of choosing between these (118-9).

This last statement puzzles the reviewer a little. [42] should never have been formulated, because it contradicts at least three rules on pages 106-7; namely,

\[
\text{[43]} \quad S \rightarrow \text{NP}^\text{Predicate-Phrase}
\]

the very first rule of the base component, and

\[
\text{[44]} \quad \text{NP} \rightarrow (\text{Det}) \text{N (S')}
\]

\[
\text{[45]} \quad \text{N} \rightarrow \text{CS}.
\]
Obviously, only [40] – with the error corrected – or [41] can support [44] and [45]. Since [42] (ii) does not have an $\alpha$ which is an N in the case of [42] (i), it automatically means that [42] is a part of the rewriting process set forth as

\[ S \rightarrow \text{Predicate-Phrase} \]

rather than as [43]. It thus follows that [42] does not belong to the rewriting process of [43], and that the choice between [42] and [40] – with the error corrected – or [41], for that matter, is crystal-clear.

Apparently unaware of the error pointed out above, Chomsky has even gone further to say that (66i) (our [40i] – FCCP) – corrected as part of [41] – assigns certain features to Transitive Verbs and (66ii) (our [40ii] – FCCP) to Intransitive Verbs, whereas (67i) (our [42i] – FCCP) assigns a feature of subject selection to all Verbs (119). Here, he commits an error within an error, for it is totally impossible that two supposedly identical rules, [40ii] and [42i], function differently.

Since (67) (our [42] – FCCP) is unwarranted, Chomsky’s reasons stated on page 119 for ultimately choosing (66) (our [40] – FCCP) – corrected as [41] – over (67), though legitimate, become quite unnecessary.

On page 120, when Chomsky asks the reader to recall that the notation $[+\text{Animate}] \text{ Aux } ___ \text{ Det } [+\text{Abstract}]$ is a single symbol designating a particular lexical feature, he must have meant $[+\text{Abstract}] \text{ Aux } ___ \text{ Det } [+\text{Animate}]$, for the former would certainly generate a string like man may frighten sincerity which he would undoubtedly like to avoid.

### 4. CONCLUSION

The main contribution of Chomsky’s theory is perhaps that it has brought to many linguists’ attention the fact that language is essentially a system of generative process. (We are sure now that no one learns a language sentence by sentence.) However, the reviewer feels that Aspects was published much too soon, not because it has no merits in support of the theory but because it is misleading in many respects – the rejection of de Saussure’s langage is one example, the mixing of hearing and speaking abilities is another, and the notion of deep structure is still another.

Langue, to many followers of de Saussure, appears to be a far more abstract concept than competence, almost a theoretical construct. Martinet likens it in Eléments de linguistique générale to a code book.
from which messages, namely, parole, are drawn. Thus, langue is in a sense a model-like quantum theory in physics—of the language process.

The point in separating hearing and speaking abilities comes into focus when we take into account the problems of decoding and encoding messages. To these, the reviewer would like to add the problems of receiving and sending messages. For performance, according to Chomsky's definition, seems to imply only the speaking part. A person's decoding and encoding capabilities can then be regarded as his competence, and the receiving and sending capabilities as his performance. When he utilizes his decoding and receiving capabilities, he is a hearer; but when he utilizes his encoding and sending capabilities, he is a speaker. All this can thus be summarized in a diagram as follows:

```
Hearing  neural       decoding ← receiving ← input behavior
          neural ↓ transmission
          neural    ↑ feedback
Speaking  encoding → sending → output behavior
          neural    transmission
```

This diagram explains the fact that ambiguity is a decoding problem, not an encoding one. In other words, a person faces ambiguity only when he is a hearer; he has no ambiguity when he is a speaker. For instance, Chomsky's favorite example, *Flying planes can be dangerous*, which he has repeatedly used (cf. p. 21 and elsewhere), is ambiguous only if we try to decode it; it is not at all ambiguous when it is encoded by a speaker, say, Chomsky himself.

This point is particularly true when a language is defined as an infinite set of sentences. If the English language, in line with the definition, is regarded as an infinite set of sentences, it must follow that $S_a$ and $S_b$ are members of that set, where

$S_a$: *Flying planes can be dangerous* (= to fly planes can be dangerous)  
$S_b$: *Flying planes can be dangerous* (= planes which are flying can be dangerous).

Consequently, it is the hearer who has to identify a given sentence like *Flying planes can be dangerous* with $S_a$ or $S_b$, and not the speaker who
gives the sentence to the hearer, for the speaker knows which one of the two he had encoded. If this is true, it points to a hypothesis that each member of a speech community has acquired two grammars for his language, one for his hearing and the other for his speaking. The two are similar but the former is definitely more powerful than the latter. Unfortunately, no one really knows how they interact in a human brain.

An interesting, possible application of this hypothesis may also be observed here. The reviewer is of the opinion that the hypothesis, if proven valid, will probably help solve some of the problems that MT (machine translation) has had. In MT, the inputting of a source language is a decoding task, whereas the outputting of the target language is an encoding task, among other things. But while the computer apparently needs both the hearing and the speaking grammars, which the human brain has, for both the source and the target languages, no one has been able to build the needed grammars for each language concerned; and hence, the problems of ambiguity resolution and homophones.

The question of deep structure also deserves further mention. For instance, if sentence A receives $D_1$ as its deep structure, will $D_1$ still be A's deep structure when A is embedded in sentence B as part of sentence C to which $D_k$ is assigned as its deep structure? If so, what is the relationship between $D_1$ and $D_k$? (Is $D_k$ the addition of $D_1$ and $D_j$ where $D_j$ is the deep structure of B whose relationship with A is that B is the matrix sentence, whereas A is the constituent sentence?) If not, what is $D_1$ in relation to $D_j$ and $D_k$? Does $D_1$ lose its status as the deep structure of A automatically? If so, why?

In short, if there is such a thing as deep structure, the reviewer believes that it must be concerned with a whole language, not each individual sentence of the language. The concept of deep structure, in other words, has got to be a system of some processes which determines the function of all aspects of the language, at all levels, not the diagramming of trees for sentences.  

As to the theory the book intends to advance, the reviewer is afraid that regardless of its contribution it is heading for a dead end. His misgivings are based on the reasoning that follows:

First, the reviewer thinks it wrong to start everything with S, because

There are sentences in English which do not have transforms. For instance, the sentence \textit{I used to go there} cannot be transformed into a question in accordance with the question-transformation. Yet many speakers of English will undoubtedly use \textit{Did I used to go there} as a question which immediately gives rise to a morphological problem – the conflict between \textit{did} and \textit{used}. Children asking parents about childhood say, “Did I used to ...?”
a sentence is **not** the ultimate unit with which linguistics is concerned. If a sentence is structured, *i.e.*, if it is made up of something smaller called 'words', whatever they may be, something larger called 'discourse units', whatever they may be, must be made up of sentences. Thus, if a sentence can be grammatical or ungrammatical, so can a discourse unit. Examples are the following:

If a sentence like

> [47] Yesterday, John hit Bill.

is grammatical, and none of the following are

> [48] (i) Yesterday, John hit
> (ii) Yesterday, John hit Bill with

then, a discourse unit like

> [49] I have three things to announce.  
First, breakfast will be served at six o'clock tomorrow morning.  
Second, there will be a coffee break at ten thirty.  
Third, the director kindly asks those who have not yet registered to please go to see him immediately.

is grammatical, but none of the following are:

> [50] (i) I have three things to announce.  
First, breakfast will be served at six o'clock tomorrow morning.  
Second, there will be a coffee break at ten thirty.

---

16 Notice that if [48] (i) is changed to *Yesterday, Betsy hit*, in which *Betsy* is the name of a typhoon, it is grammatical. The difference in gender sometimes matters (cf. Fn. 9).

17 Compare those discourse units with this sentence: *If I leave Tokyo for Honolulu today, I'll arrive there yesterday*. This was said by a native speaker, meaning that if he left on June 10th he would arrive at Honolulu on June 9th, because of the change in time. Notice that if the sentence is changed into *If I leave Tokyo on the 10th for Honolulu, I'll arrive there on the 9th*, it somehow sounds less conspicuous, yet both sentences say virtually the same thing, and both are equally grammatical. More interesting is the fact that either sentence can be translated into another language, say, Chinese, or Japanese, or even Russian, and the Chinese equivalent, or the Japanese equivalent, or even the Russian equivalent is a well-formed sentence and makes sense. Also observe that *she is a man* can become grammatical in a proper discourse unit, such as *I just discovered that the columnist who used the name Mary is not a woman. She is a man.* and *The French novelist George Sand was not a man. He was a woman.* As a matter of fact, the very sentence *she is a man* is used in a movie entitled "Don't Make Waves, Make Love" as part of a discourse unit. Similar sentences are discarded by generative transformational grammars. Actually, we should not be too conceited, just because we live above the Equator. There are people below the Equator, who may say to us: *We have winter in the summer or Our summer is in December.*
I have three things to announce.

First, breakfast will be served at six o'clock tomorrow morning.
Second, there will be a coffee break at ten thirty.
Third, the director kindly asks those who have not yet registered to please go to see him immediately.
Fourth, lunch will be served at one o'clock.

Discourse units like [49] can be found not only in English but also in Chinese, Japanese, or what have you; to be more precise, that [49] is grammatical and [50] (i) and [50] (ii) are not is practically universal – that is, it is true in every language. But can a theory tied up with S address itself to the differences between [49] and [50] or explicate the structure of [49]? The answer is no. In support of this point, the reviewer cites further examples below:

In any language, the relationship between sentences of who does what and where are very important. These are partly manifested in English through the use of articles and/or pronouns. (See the discussion above.) Thus, if one says:

[51] (i) My wife bought a hat yesterday.
(ii) The hat has a bird on it.
(iii) According to her, the bird was manufactured in Japan, whereas the hat was manufactured in Germany.
(iv) But they were put together by a local store here.

Several observations are in order.

First, we know that he can carry on and on with the store, just like This is the malt that lay in the House that Jack built. That is to say, [51] (i), [51] (ii), [51] (iii), and [51] (iv) form a closely knit discourse unit, though it can be further expanded.

Second, we know that [51] (i) and [51] (ii) form a discourse unit themselves but it is a subunit. Likewise, [51] (ii) and [51] (iii), and [51] (iii) and [51] (iv) constitute two separate discourse units each of which is a subunit. Furthermore, although [51] (i), [51] (ii), and [51] (iii) can also form a discourse unit, [51] (i), [51] (ii), and [51] (iv) cannot; nor can [51] (i), [51] (iii), and [51] (iv).

Third, although [51] (ii) may be changed to it has a bird on it, with it referring to a hat in the preceding sentence, no such freedom can be allowed for in [51] (iii) for either the bird or the hat.

Fourth, on the other hand, the bird and the hat are replaced by they in [51] (iv). But notice that [51] (iv) may be changed to but the bird and the hat were put together by a local store here.
And fifth, while the tense of [51] (ii) is in the present, that of the other sentences is in the past.

If [51] is in Chinese, since there is no article in the language, hat and bird will have to be repeated in each sentence after the first and second ones, with or without nèy tíng ‘that classifier’ for hat and nèy chih ‘that classifier’ for bird.

Moreover, regardless of whether or not the determiners nèy tíng and nèy chih are employed, the Chinese equivalent of [51] will also consist of several subunits, pretty much like the English subunits mentioned above. The individual Chinese sentences will of course differ considerably from [51].

One of the striking differences will be the use of pronouns. For instance, the hat of [51] (ii) is unlikely to be replaced by a pronoun in Chinese, not because there isn’t one, but because it is not customary to use a pronoun in such discourse units as [51]. Consequently, they in [51] (iv) will become two nouns in Chinese to match the preceding sentence to establish the continuity of discourse. And the reviewer may also add that the question of tense does not even have to be dealt with in the Chinese equivalent.

The importance of discourse units will unequivocally be a great concern of many linguists in the near future. For man’s creativity is not confined to constructing well-formed sentences; he can also create new rules to generate new sentences. It is only when we take into consideration discourse units that we can begin to talk about literature (oral or written), about great masterpieces, about translation, and most of all, about man’s competence in his language and his actual performance of it.

Perhaps, Chomsky will see to it that his theory will eventually take into consideration discourse units and something even larger. But if he does, will there be any place for what he terms ‘transformation’? Imagine what will happen if somebody calls all the newly available English versions of the Holy Bible ‘transforms’ of the King James Version or calls one of them the ‘kernel’ or the ‘underlying structure’, for that matter. To put it more plainly, will the filtering ‘transformation’ be any good at all?

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