

# FOUNDATIONS OF LANGUAGE

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## NO PLACE FOR SEMANTICS

In its early stages, Chomskyan linguistic theory did not question the validity of a basic assumption – inherited from philosophical and linguistic ancestors – according to which there is a fundamental difference between syntactic and semantic investigations. This assumption – which is inseparable from a certain position in the philosophy of language – resulted in the methodological program of rigidly holding semantics outside of syntax. To-day this program is no longer followed by linguists. What we now hear on every side is that the boundary between syntax and semantics is not a sharp one; that the interplay of syntactic and semantic features is a general phenomenon in language. But, as so often happens in the development of ideas, the fundamental error of the old position is, in certain respects, being carried over into the new one. In this paper I would like to survey, from a philosophical point of view, the nature of this transition, and, generally, some semantic notions associated with it.

## 1. OUTLINES OF A THEORY OF MEANING

First I would like to state briefly a theory of meaning, which will serve as a heuristic aid for putting the developments under examination into the proper light.<sup>1</sup>

The meaning of a descriptive term is most commonly thought of as either an extra-linguistic entity denoted by it, or some mental entity expressed by it, or – somehow – both.<sup>2</sup> The untenability of such views have been demonstrated many times and for many purposes. I will not go into the details of these refutations but merely note that these conceptions of meaning lose

<sup>1</sup> This conception of the nature of meaning was, in this form, developed by Wilfrid Sellars. See his *Science, Perception and Reality*, London 1963 (esp. pp. 109–118, 200ff., 311ff., 321ff.). Also his 'Empiricism and Abstract Entities', in *The Philosophy of Rudolf Carnap* (ed. by P. A. Schilpp), Illinois 1963., and most recently Chapters 3–5 in *Science and Metaphysics*, London 1968.

<sup>2</sup> Bloomfield defines "the meaning of a linguistic form as the situation in which the speaker utters it and the response which it calls forth in the hearer" (Bloomfield, p. 139). – "The most obvious way to conceive meaning – writes Rulon Wells in his useful but by no means exhaustive review of the subject – is to conceive it as a dyadic relation between a sign and an object. So natural, so appealing, this conception has cropped up again and again" (Wells, p. 236).



much of their attractiveness once attention is fixed on other than purely descriptive terms. In the case of a descriptive term – e.g. ‘red’ – it is easy to think that although this term would not be *part of the language* unless it played a certain syntactical role, this role has nothing to do with the *meaning* of the term. There is indeed a certain plausibility to the idea that the meaning of the German word ‘rot’ is determined solely by extralinguistic factors, namely by the fact that Germans associate the word ‘rot’ with red things. It could certainly not be true that ‘rot’ means *red*, would Germans *not* connect this term with red things. But we must realize that to grant the latter point is by no means to admit the validity of the former. If we say “The German word ‘und’ means *and*” we obviously do not suggest that ‘und’ and ‘and’ both gain meaning by being connected to the same entity, *Conjunction* – what we *do* suggest is that Germans use the word ‘und’ in a way similar to our use of *and*. Likewise, when Smith says “If Schmidt says ‘rot’, it means *red*”, we get the information that Schmidt’s use of the word ‘rot’ is in every relevant respect similar to our use of the word ‘red’. This is a *global* information, which implies – among other things – that Schmidt usually employs the word ‘rot’ in connection with red things. The meaning of a word is constituted by its role – or, to formulate it in a somewhat different, for our present purpose more suitable way: the meaning of a word is determined by the place which it occupies in the totality of language, i.e., in the totality of *possible sentences*.<sup>3</sup> A word has no meaning independently from the way in which it is connected to other words. Some of these connections are absolutely essential to the meaning of any given word: in a way they can be regarded as implicit definitions of the terms involved. The sentences expressing such connections are *necessarily true* – their truth does *not* depend on extralinguistic circumstances, they are true solely *by virtue of the meanings of the terms involved*. Although this is ultimately a terminological matter, it is important to stress that the sentences in question are not those usually called *analytic* (they might, rather, be compared to Kant’s synthetic *a priori* statements). “Yellow is lighter than red” is necessarily true, and yet it is not a logical

<sup>3</sup> This conception of the meaning of a word can, in a way, be regarded as the amalgamation of Tractarian and later Wittgensteinian insights. The connection with *Investigations* must be obvious. (“Man kann für eine *grosse* Klasse von Fällen der Benützung des Wortes ‘Bedeutung’ – wenn auch nicht für *alle* Fälle seiner Benützung – dieses Wort so erklären: Die Bedeutung eines Wortes ist sein Gebrauch in der Sprache. Und die *Bedeutung* eines Namens erklärt man manchmal dadurch, dass man auf seinen *Träger* zeigt”, *Investigations*, § 43.) But the more systematic features of this theory remind one of the *Tractatus* rather than of the later Wittgenstein. (Cf. *Tractatus* 3.262, 3.3, and especially 3.327: “Das Zeichen bestimmt erst mit seiner logisch-syntaktischen Verwendung zusammen eine logische Form.”) – The theory of meaning outlined here can, by the way, be given a well-established psychological interpretation, especially along the lines indicated by *Vigotsky*.

truth, nor can it be turned into one by use of explicit definitions. Let us refer to such sentences as analytic<sub>1</sub> ones, and summarize this sketch by saying that a natural language essentially contains analytic<sub>1</sub> sentences the function of which is to determine the intra-linguistic place of the terms involved, thereby also placing constraints upon the possible extra-linguistic situations in which these terms can properly occur.<sup>4</sup>

Note that in this way the distinction between syntactic and semantic rules loses all its naturalness. The rules constituting the meaning of a word are – up to a point – not different in principle from those establishing its ‘syntactic’ status.<sup>5</sup> And the point where the differences start – this is a crucial recognition – is where the statement of the appropriate rules would already include the use of other than linguistic items. The information presented by Schmidt, who after saying “Ich hebe meine Hand” actually raises his hand, is of course not representable by syntactic-like means only – but this information is not representable by ‘semantic’ means either, if these latter are thought of as rules not involving an explicit *extra-linguistic move* – i.e., are not like *pointing* at an object, *noticing* something to be of a certain kind, *doing* something while stating that one is so doing, etc.

We should not be misled by the fact that it is indeed possible to convey every information about the meaning of the sentence “Ich hebe meine Hand” by simply stating that it *means* the same as the sentence “I raise my hand”. For in utilizing this statement *we make essential use of our knowledge concerning the meaning of the English sentence* “I raise my hand”. A grammar of German, which could explain the role of an expression only by pointing to an English expression having a similar role, would, for obvious reasons, fail to give a real explanation.

Note also that on this view traditional ‘semantic’ information of the kind presented e.g. in Katzian semantics does not become theoretically useless. Indeed, the first step must be to gather such information – without pretending, of course, that in doing so we are explaining something or are stating theoretically significant *generalizations*. By stating for example that

<sup>4</sup> The notion of analytic<sub>1</sub> sentences certainly has a Kantian flavour. Although I cannot hope to establish a wholly convincing case for this notion here, may I mention that besides having an important role in easing the syntax-semantics tension, the notion of analytic<sub>1</sub> sentences can be given independent justification once we, on the one hand, realize that association psychology cannot possibly provide a satisfactory solution for the problem of language-acquisition, and, on the other hand, try to escape unrestricted innatism.

<sup>5</sup> It is this fundamental identity Uriel Weinreich seems to refer to when he writes that “in natural languages, semantic relations, too, are relations between symbols” (Weinreich, p. 468). Weinreich’s position, however, is made vague by certain inconsistencies in his treatment of analytic sentences: in the last analysis it is explicit definitions only to which he ascribes definitoric powers, while sentences contradicting definitions are held to be both false (Weinreich, pp. 446–447) and anomalous (Weinreich, p. 449, n. 84).

the English words 'bachelor', 'man', 'priest', 'uncle', 'boy', etc., have a semantic feature in common which is not part of the meaning of any of the words 'child', 'mole', 'mother', 'classmate', 'units', 'bolts', 'cow', etc. (Katz, 1966, p. 157)

and by attributing this to the fact that the

first set of words, but not the second, are similar in meaning in that the meaning of each member contains the concept of maleness (*ibid.*)

we certainly provided significant, though not very deep or unexpected information. But this is no more a generalization than the statement "John, Peter and Tom all have a slight temperature" when we are doing thermodynamics, and does not become one even if

we include the semantic marker (Male) in the lexical readings for each of the words in the first set and exclude it from the lexical entries for each of the words in the second (*ibid.*).

Traditional semantics is best regarded as a heuristical, or quasi-syntactical system, the role and importance of which decreases according to the extent that the formal-structural intralinguistic uniformities constituting the conceptual status of linguistic expressions are perspicuously described.

These remarks indicate quite clearly the way a semantic theory should take. In the light of them we will now survey some of the developments in generative grammar. We shall see that certain changes (and some of the initial ideas, too) point toward an organic extension of early Chomskyan grammar so that this should be able to account also for traditionally semantic problems.<sup>6</sup> We will also notice that this line of development does not coincide with the emergence of Katzian semantics. In fact, contrary to the common view, these developments are fundamentally incompatible.

## 2. THE DEVELOPMENTS OF CHOMSKYAN SEMANTICS

### 2.1 *Early stages*

In *Syntactic Structures* Chomsky's treatment of semantics is mainly but not entirely negative. He seems to have a very poor opinion of what semantic studies have, up to that time, achieved, and shares Quine's contempt towards the notion of 'meaning'.

Part of the difficulty with the theory of meaning is that 'meaning' tends to be a catch-all term to include every aspect of language that we know very little about. (Chomsky, 1957, p. 103.)

<sup>6</sup> Chomsky's grammar I regard as a fundamentally *instrumental* theory, one for which no realistic interpretation can be given. Most of the rules this grammar contains – in particular, the "top-to-bottom" generative rules – are clearly of such a kind that no psychological reality can possibly correspond to them. Thus if I indicate that by employing a tenable conception of meaning some ways to deal with semantic questions can be found even *within* the Chomskyan paradigm, I most certainly do *not* mean to say that one should give up the search for alternative, altogether more adequate semantic theories.

One thing he is very much concerned with in this respect is to show that semantic considerations have no relevance for grammar. It is not very clear what he means by this thesis,<sup>7</sup> and the arguments presented in its favour are none of them really convincing. As I am at the moment still concerned only with sketching a background against which to view later developments, I will not try to give a detailed proof in defence of this remark<sup>8</sup> and pass on instead to Chomsky's positive suggestions according to which the syntactic investigations he describes are likely to be a sound basis for subsequent semantic studies. Chomsky presents these suggestions rather reluctantly.

In proposing that syntactic structure can provide a certain insight into problems of meaning and understanding we have entered dangerous ground. There is no aspect of linguistic study more subject to confusion and more in need of clear and careful formulation than that which deals with the points of connection between syntax and semantics. (Chomsky, 1957, p. 93.)

<sup>7</sup> There is, to be sure, a clear sense in which semantic considerations can not replace grammatical analysis. This is the sense in which Bloomfield denies the possibility of defining form-classes by the *class-meaning* (cf. Bloomfield, pp. 266-273). But Chomsky's claim seems to be stronger than this, he questions even the heuristical value of utilizing semantic intuition. It is this stronger claim which I find problematic.

<sup>8</sup> Just one point for the sake of illustration. At one place the subject is introduced while discussing the problem of what a 'grammatical' sentence is – or rather, what it is not (Chomsky, 1957, p. 15). According to what Chomsky writes here, the notion 'grammatical' cannot be identified with 'meaningful' or 'significant' in some semantical sense. Chomsky presents two sentences – "Colourless green ideas sleep furiously" and "Furiously sleep ideas green colourless" – assuring us that though both these sentences are equally nonsensical, only the first one will be recognized – by "any speaker of English" – as grammatical. There is no semantic reason to prefer the first sentence to the second, although the former, but not the latter, is grammatically quite all right. Grammatical differences thus do not show themselves on the semantic level, which proves that grammar can not expect any help from semantics. – This short argument breaks down at several places. To begin with, semantics should not be confused with semantic intuition, especially if what we want to contrast the former with is grammar in a very technical sense. In the second place, it is quite contrary to linguistic intuition to regard the above two sentences as equally nonsensical. They certainly differ in important, relevant respects. The first sentence gives rise to certain associations, the second does not. The first one can be pronounced quite effortlessly with a normal intonation, the second one not. To memorize the first sentence presents no difficulties, but to memorize the second one is not at all easy. And a fundamental difference: the first sentence, but not the second, can serve as a premiss in inferences – or, to point out this difference from a different aspect: it is quite possible, though of course not very customary, to contradict the first one, while there is no way to contradict the second. The third place where this argument seems to be wrong is the statement that only the first sentence is grammatical – i.e., that this one *is* grammatical. This assertion depends on a prior – and much too arbitrary – decision about what to regard as grammatical. In a later publication Chomsky suggests that grammaticality should permit *degrees*. On this – very natural and fruitful – view the first sentence would get only a low degree, while the second would get the degree zero. To say of the first sentence that it is quite nonsensical although perfectly grammatical, is thus mistaken on both points. Ultimately we will be led to the insight that 'degrees of significance' and 'degrees of grammaticality' are two terms for the same notion, so the contention that semantic considerations are not relevant in grammatical investigations turns out to be not just false but rather meaningless.



In fact Chomsky's proposals aren't very clear either, but this is no wonder, since they implicitly contradict his 'official' position, according to which syntax and semantics should be sharply separated. What Chomsky here says is that certain correspondences hold between syntactic and semantic features of language.

For example, the sentences

- (i) John played tennis
- (ii) my friend likes music

are quite distinct on phonemic and morphemic levels. But on the level of phrase structure they are both represented as NP-Verb-NP; correspondingly, it is evident that in some sense they are similarly understood. (Chomsky, 1957, p. 86.)

These correspondences, however imperfect they are, should not be ignored. They should, rather,

be studied in some more general theory of language that will include a theory of linguistic form and a theory of the use of language as subparts. ... Having determined the syntactic structure of the language, we can study the way in which this syntactic structure is put to use in the actual functioning of language. (Chomsky, 1957, p. 102.)

The fact that:

great many words or morphemes of a single grammatical category are described semantically in partially similar terms ... is not surprising; it means that the syntactic devices available in the language are being used fairly systematically. (Chomsky, 1957, p. 104.)

The undeniable correspondences are thus not conceived as pointing towards a unified treatment of formal and 'material' problems; semantic issues are, rather, taken as being connected somehow to the 'actual functioning' of language, to 'use' in the sense of *performance*. This is an untenable move, but it is the only way open for Chomsky if he wants to preserve the *prima facie* compatibility of his main methodological ideas. The other way would be to give up the idea of separate semantics altogether, and concentrate on the refinement of the correspondences between formal and semantical features – so as to reduce, ultimately, the latter to the former. This is the way suggested by an adequate theory of meaning, and, as we will see, this is in fact the way Chomsky tends to choose in his later publications.

## 2.2. *The concept of subcategorization*

The paper which is of crucial importance in this respect is Chomsky's 'Some Methodological Remarks on Generative Grammar' (Chomsky, 1961). What makes it so important is that the notion of 'subcategorization' is, in the published work of Chomsky, here discussed explicitly for the first time.<sup>9</sup>

<sup>9</sup> The phrase structure rules of 'A Transformational Approach to Syntax' (Chomsky, 1958) do already, in fact, subcategorize. The significance of this is not, however, discussed explicitly.

This notion is introduced to represent the process of *refinement* of the grammatical system. It is interesting to note immediately that the cases where such refinements are needed typically involve traditionally *semantic* distinctions. And, in fact, the categories representing 'formal' features on one hand, and those representing 'material' ones on the other, are not in principle distinguished. Exactly in the way that syntactic categories like Adjective, Noun, etc. are put to work in marking differences between certain sentences,

we can just as well distinguish 'John plays golf' from 'golf plays John' by rules involving such syntactic subcategories as Animate Noun, etc. These are simply a refinement of familiar categories. I do not see any fundamental difference between them. (Chomsky, 1961, p. 385.)

The abstract structure of a subcategorizing system is the following (I will not try to paraphrase Chomsky's admirably succinct own formulation).

Suppose that we have a grammar that generates an infinite set of utterances with structural descriptions. Let us call the units in terms of which these utterances are represented by the neutral term *formatives* ... Suppose, in addition, that we have an  $m$ -level hierarchy of categories of formatives with the following structure. On level one we have a single category denoted  $C^1_1$ , the category of all formatives. On level two, we have categories labeled  $C^2_1, \dots, C^2_{n_2}$ . On level three, we have categories  $C^3_1, \dots, C^3_{n_3}$ , where  $n_3 > n_2$ , and so on, until we reach the  $m$ th level with categories  $C^m_1, \dots, C^m_{n_m}$  ( $1 < n_2 < \dots < n_m$ ). On each level, the categories are exhaustive in the sense that each formative belongs to at least one, perhaps more (in the case of grammatical homonymy). We might also require that each level be a refinement of the preceding one, i.e., a classification into subcategories of the categories of the preceding level. Let us assume, furthermore, that the  $m$ th level categories are the smallest categories that appear in the rules of the generative grammar. That is, the members of  $C^m_1$  are mutually substitutable in the set of generated utterances. Many of them may contain just a single formative. (Chomsky, 1961, p. 387.)

We may, from our present perspective, regard with special interest the last-mentioned categories, i.e. the ones containing just a single formative. If we think of formatives as English words, and imagine the categories Red and Yellow to contain just the words *red* and *yellow* respectively, we see that these categories may represent *every* relevant feature of the words involved; thus, in particular, it will be possible to represent grammatically the fact that the sentence "This book is red" differs in meaning from the sentence "This book is yellow".<sup>10</sup> By incorporating appropriate rules into our

<sup>10</sup> Another interesting consequence will be the increased power of such a grammar to resolve ambiguities. The sentence "He wears a light suit in the summer" will be marked as ambiguous due to the fact that the word "light" will appear in *two* subcategories of Adjective. In *Syntactic Structures* this was not yet foreseen by Chomsky, according to whom "we would not expect a grammar to explain the referential ambiguity of ... 'light' (in colour, weight), etc." (p. 86, fn. 1). These developments are simply *neglected* by Katz, who in 'The Structure of a Semantic Theory', declares grammar to be unable to explain ambiguities of this sort. — It may, in this connection, be mentioned that in his 'Semi-sentences' Katz offers a criticism of Chomsky's position in the problem of 'degrees of



grammatical system – and there is, in principle, no reason why we should not do so – it might even be possible to distinguish sentences like “Yellow is lighter than red” as *necessarily true* ones. Chomsky is quite right in observing:

As the grammatical rules become more detailed, we may find that grammar is converging with what has been called logical grammar. That is, we seem to be studying small overlapping categories of formatives, where each category can be characterized by what we can now (given the grammar) recognize as a semantic feature of some sort. If this turns out to be true in some interesting sense when the problem is studied more seriously, so much the better. (Chomsky, 1961, p. 387.)

*Aspects of the Theory of Syntax* is best viewed as a decisive step towards a “more serious study” of the problem of subcategorization.

### 2.3 *The problem of semantics in Chomsky's later work*

We are now in a position not to be surprised by Chomsky's remarks in *Aspects*, according to which “... it should not be taken for granted, necessarily, that syntactic and semantic considerations can be sharply distinguished”. (Chomsky, 1965, p. 77.) Not even the considerations whether semantics should not better be taken over *in toto* by the generative rules of syntax (Chomsky, 1965, pp. 158–159) – which question, ultimately, is not *expressis verbis* decided by Chomsky – do really shock us now. What interests us here is the way in which the notion of subcategorization rules is presented.

In *Aspects* the notion of subcategorization is introduced in connection with the problem of an adequate representation of traditional grammatical information. Traditional grammar recognizes certain strings of morphemes as a Sentence; certain substrings are characterized as a Noun Phrase or a Verb Phrase; these in turn can be segmented into Noun, Determiner, Verb, etc. This process of segmentation, as well as the grammatical relations holding between segments, can conveniently be represented by simple Phrase-markers. A grammar that generates simple Phrase-markers may be based

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grammaticalness’. This position – briefly outlined in ‘Some Methodological Remarks on Generative Grammar’ – can be summarized by saying that if a sentence deviates from a perfectly wellformed string in such a manner that this deviance manifests itself on some higher level of categorization, then the sentence has a low degree of grammaticalness. If, on the other hand, the fact that the sentence is deviant becomes representable only upon reaching some level of very subtle subcategorization, we can conclude that the sentence – though not absolutely grammatical – has a high degree of grammaticalness. Now Katz argues that in this way the results achieved can always be shown to be counter-intuitive. I do not know how much weight this criticism carries – Chomsky recognizes it as valid (p. 213, fn. 11 in *Aspects*) – but it does certainly *not* affect the idea of subcategorization, i.e., the significance of this paper for the foundations of a semantic theory. Chomsky commits himself to a similar view. “I think that Katz's major criticisms are correct – he writes – but that they can perhaps be met by narrowing the scope of the proposals to just what is being discussed here, namely the question of subcategorization of lexical categories ...” (*ibid.*).

on a vocabulary of symbols including formatives (*the, girl, Past*, etc.) and category symbols (*S, NP, V*, etc.). The formatives can be subdivided into lexical items (*desire, girl*) and grammatical items (*Past, the, Possessive*, etc.). The mechanism adopted for generating Phrase-markers is a system of rewriting rules. These rules are of the form

$$A \rightarrow Z/X - Y$$

where *X* and *Y* are (possibly null) strings of symbols, *A* is a single category symbol, and *Z* is a nonnull string of symbols. This rule is interpreted as asserting that the category *A* is realized as the string *Z* when it is in the environment consisting of *X* to the left and *Y* to the right.

Now the information provided by traditional grammar is much richer than the apparatus hitherto described would permit to represent. The word 'girl', e.g., is not just a Noun – it is a Count Noun (as distinct from the Mass Noun *water*); it is a Common Noun (as distinct from Proper Noun *Brigitte*); it is, furthermore, an Animate Noun (as distinct from *wood*); *love* is a Transitive Verb (as distinct from *fall*), allowing only Animate Subjects (as distinct from *threaten*) and both Animate and Non-Animate Objects (as distinct from *persuade*). In dealing with information of this sort, Chomsky first raises the question whether it should be treated by the syntactic component at all, and, if the answer is affirmative, whether, or to what extent, semantic considerations are relevant in determining the appropriate syntactic decisions. Chomsky calls these the questions of *presentation* and *justification*, respectively. Concerning the latter he holds that

a linguist with a serious interest in semantics will presumably attempt to deepen and extend syntactic analysis to the point where it can provide the information concerning subcategorization, instead of relegating this to unanalyzed semantic intuition, there being, for the moment, no other available proposal as to a semantic basis for making the necessary distinctions. (Chomsky, 1965, p. 75.)

The first part of this statement is quite in the spirit of the theory of meaning outlined in Section 1, and is fully in line with the Chomskyan ideas developed earlier in 'Some Methodological Remarks on Generative Grammar' (Chomsky, 1961).

Information concerning subcategorization, if it is to have *theoretical* value (to be an *explanation*), should be supplied by the syntactic rules of the grammar. – The second part of the sentence is, however, somewhat misleading. Chomsky is of course absolutely right when insisting that semantic intuition does not suffice to establish the required formal distinctions in their entirety.<sup>11</sup> Many formal features of a language might be semantically

<sup>11</sup> To the form-class of verbs, e.g., there does not correspond a unique meaning which all verbs have in common. – This should not blind us to the fact, however, that there certainly is *some* sense in which there is a 'semantic' likeness between *most* members of this class. On

insignificant, though playing an important role in the functioning of language. The reverse is, however, not true. That is, *every* semantic difference, if it is representable *at all* by purely linguistic means, must be representable, in principle, by *syntactic* means.<sup>12</sup> Semantic intuition thus shows the way to an underlying formal structure. It is this formal structure which is *reflected* by the semantic structure of the language, this latter being, in a sense, a mere *appearance*. Semantic *Schein* is invariably a manifestation of syntactic *Form* – but this appearance is *objective* in that it will not disappear even if its being a mere appearance has been shown. Semantics, though a *Scheinwissenschaft*, cannot be dispensed with.

As to the question of presentation, Chomsky does not, officially, decide the issue. "A priori there is no way to decide whether the burden of presentation should fall on the syntactic or semantic component of the generative grammar." (Chomsky, 1965, p. 78.) In the subsequent investigations Chomsky assumes, however, that to work along the lines indicated by the first alternative is likely to prove more fruitful.

### 3. KATZ'S SEMANTIC THEORY

To show that something is *not* the case is always the easier task. Of the semantic theory of J. J. Katz it is commonly assumed that – whatever its achievements are – it is (1) compatible with Chomskyan grammar and (2) philosophically adequate. In indicating why this is not the case, my aim is *not* primarily critical: I merely take the easy way and try to say something

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this point I quite agree with Wallace L. Chafe. See e.g. Chafe, 1967, p. 253. – Chafe, by the way, holds a general position which is just the opposite of the one I defend. He wants to eliminate *syntax*, whereas I – in some sense at least – would like to do away with semantics. It is interesting to note that these two extreme approaches yield, nonetheless, many similar conclusions in questions of detail. To consider, e.g., a sentence in the active voice and its passive 'transformation' as exactly alike in meaning, is incompatible with either position. Incidentally, the radical differences between Chomsky and Chafe enable the latter to make some very illuminating observations about the Chomskyan paradigm in general – see e.g. the excellent analysis à la Kuhn in Chafe (1968).

<sup>12</sup> As I see it, the great significance of Charles J. Fillmore's 'Case Grammar' lies precisely in the fact that it is an attempt to provide an explicit method by which semantic intuition can lead to syntactic theory-formation. The "reintroduction of the 'conceptual framework' interpretation of case systems" (Fillmore, 1967, p. 21) creates a new possibility to understand the way in which the semantic ('conceptual') structure of language corresponds to (is a projection of) its syntactic structure. Fillmore gives various examples of cases in which different semantic interpretations pertaining to traditionally undifferentiated grammatical relations turn out to have syntactical relevance; his work, I believe, is a real advance towards what he calls "a semantically justified universal syntactic theory" (Fillmore, 1967, p. 88).



more, in an indirect manner, about both the theory of Chomsky and philosophically adequate semantics in general.

Since the days of 'The Structure of a Semantic Theory' (Katz and Fodor, 1963) the position of Katz did undergo some changes, but none of them is really fundamental. The main ideas – the notion of 'semantic interpretation', and the concepts of 'semantic marker' and 'projection rule' which underlie this notion – remained, from our point of view, essentially unaltered.

The semantical theory of Katz operates on the output of the base component of the grammar. The nature of this output has, as we have seen, changed considerably since the good old days. This change, however, did not affect the workings of the semantic component essentially, so we might as well start with the original version. The syntactic component here supplies a string of formatives with a Phrase-marker attached to it. The formatives belong to various lexical categories like Noun, Adjective, etc. The first step in the interpretation of this string is the interpretation of the formatives themselves. This is a very simple matter. Suppose we have the formative *bachelor* (Katz's favourite example). The Phrase-marker assigns the label Noun to this word (in the case of *play*, e.g., the labels Noun, Verb<sub>tr</sub> or Verb<sub>intr</sub> would be possible). The semantic component has a dictionary. In it we actually find the word *bachelor*, with the *grammatical marker* Noun. (With *play* the dictionary would have three entries, one for each category respectively.) Now the dictionary gives four different senses for the word *bachelor*, but let us consider just one: a bachelor is a man who has never married. (Katz and Fodor, 1964, p. 495. Let us not worry about priests, who cannot said to be bachelors, though in some sense they are men and are not married.) This sense is provided by the dictionary in a special way. Part of it is *decomposed*. Bachelors are males and humans, besides having other properties. This fact is represented in the dictionary by having the *semantic markers* (Human) and (Male) attached to *bachelor*. In addition, the *distinguisher* [who has never married] completes the dictionary entry.

The semantic markers and distinguishers are used as the means by which we can decompose the meaning of a lexical item (on one sense) into its atomic concepts, thus enabling us to exhibit the semantic structure in a dictionary entry and the semantic relations between dictionary entries. That is, the semantic relations among the various senses of a lexical item and among the various senses of different lexical items are represented by formal relations between markers and distinguishers. (Katz and Fodor, 1964, p. 496.)

Before the semantic interpretation of the formative *bachelor* we did not *understand* this word. In this respect nothing has changed *after* the semantic interpretation either. The dictionary entry does not *give* the meaning of a word; it *represents* it. The semantic markers and distinguishers, though in the

orthography of natural languages, are not *words*. They are *theoretical constructs*, the function of which is to represent formally the systematic relations in and between the meanings of words, in particular the relations of synonymy and ambiguity.

After having operated on individual formatives, the semantic component interprets compound expressions, and, ultimately, *sentences*. This is effected by the so-called 'projective rules'. These actually are devices with the help of which it is possible to determine whether a compound expression will be semantically anomalous or not, and – in the latter case – whether it will be ambiguous. That is, interpretation of sentences does not give their *senses* any more than in the case of individual formatives.

All this is quite consistent with the goals set by Katz in the first place. For although he promised to describe and explain the 'interpretative ability' of speakers, this ability was explicated in very restricted terms. It was actually equated with the ability to detect ambiguities, anomalies and paraphrases (Katz and Fodor, 1964, p. 486). And although we immediately notice certain signs which indicate that much more will eventually be attributed to this ability than what the original explication would involve, e.g. the ability to recognize *analyticity*, etc., one thing must be quite clear: that nothing like *understanding* a sentence is involved in this ability.

Now it should not surprise us that a semantic theory does not in every respect represent the semantic competence in language-use. As noted in Section 1, the description of semantic uniformities other than intra-linguistic ones would in fact require use of other than linguistic *entities*. In the explanation of the meaning of 'red', red *objects* are indispensable (though not sufficient). The uniformities a semantic theory can describe are, *in principle*, uniformities *within* language; synonymy, ambiguity and anomaly are relations between *linguistic* entities. This may sound trivial, but reflection upon it should lead to doubts about the notion of 'semantic interpretation' *in toto*. The description of connections *within* a theory is not, usually, called 'interpretation'.

Semantic theory, then, treats certain formal properties of strings generated by the rules of grammar. The properties in question are those which traditionally involve mention of *meaning*. The question naturally arising here is whether these properties really need a fundamentally different treatment from that received by properties investigated in grammar. The developments surveyed in this paper suggest a definite *no*. As we saw, subcategorization rules can, in principle, be developed to the point where they already account for typically 'semantic' properties. The issue can be narrowed down by asking what the difference between syntactic and semantic markers is. Katz repeatedly emphasizes that there is, indeed, such a difference. When confronted

with the problem of distinguishing between the grammatical subcategory Human Noun and the semantic marker (Human) as applied to formatives belonging to the category Noun, Katz declares that the identity is a mere appearance.

Where it appears that a marker is common to both grammar and semantics, what is in fact the case is that there are two distinct markers having the same or similar names. This is most clear from the fact that it is often *not* the case that a lexical item receiving a certain grammatical marker also receives the corresponding semantic marker. For if we always assign a semantic marker when the corresponding grammatical marker is assigned, then in many cases lexical items will be given the wrong sense characterizations. For instance, grammatically the words *ship*, *England*, *fortune* and *fate* are marked feminine, but clearly they cannot receive the semantic marker (Female) if sentences are to receive the correct semantic interpretations. ... Thus, grammatical and semantic markers have different theoretical import. Grammatical markers have the function of marking the formal differences upon which the distinction between well-formed and ill-formed strings of morphemes rest, whereas semantic markers have the function of giving each well-formed string the conceptual content that permits them to be represented in terms of the message they communicate to speakers in normal situations. They are concerned with different kinds of selection and they express different aspects of the structure of a language. (Katz and Fodor, 1964, p. 518.)

Now this passage contains an important argument. It was used by Bloomfield to show that a semantic definition of form-classes is impossible.

The gender-categories of most Indo-European languages, such as the two of French or the three of German, do not agree with anything in the practical world, and this is true of most such cases. (Bloomfield, p. 271.)

The argument, however, cannot be used to prove what Katz here wants to prove. The class of grammatically feminine words does not coincide with the class of words denoting females. But this does not alter the fact that – if having the semantic property of denoting females is a linguistically systematic property *at all* – the semantic marker in question will apply to those and only those words the class of which is definable by some sort of *formal* connections, and this being so, the marker in question might just as well be regarded a syntactic one. The introduction of the appropriate subcategorization rules for this syntactic marker – which, though not at all an easy task, presents no difficulties of principle – would result in a further refinement of the grammar.

Nobody doubts that, given a grammar, phenomena not accounted for by it can be found, and it is quite possible to systematize these phenomena in a way different from the usual. Katz, for example, systematizes the properties of language hitherto unsystematized by grammar in a novel way. To say that in this case the constructs used by the two methods will be different is true but trivial. If, however, what Katz says is interpreted as an assertion that the



ultimate theoretical function of the two kinds of markers is different due to the difference of the subjects studied by syntax and semantics – then, though not trivial, this assertion is, I am afraid, unsupported.<sup>13</sup>

Budapest

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<sup>13</sup> The use of 'Projection rules' becomes, under these circumstances, quite superfluous. Every information that is needed to give an answer to 'semantic' questions concerning a given sentence can be extracted from the description of the particular rules which generated it.