

THE INTERRELATION BETWEEN SYNTAX, LEXICO-SEMANTICS
AND WORD-FORMATION

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o. The reasoning in the present paper is based on certain principles of the functional structuralism of the Prague School and its recent developments. Partially it touches upon some issues of TG.

1. The sentence structure of any natural language is much more dependent on lexical units and mutual relations between them than is realized or admitted in most contemporary syntactic studies.

1.1. In fact, the syntactic arrangement of utterances is to a considerable degree conditioned by lexico-semantic properties of the particular lexical units ("namings" of extralingual objects, in a broad sense) brought into interconnection in a communicative unit such as a sentence, in the course of sentence production.

1.2. Present-day Prague syntactic conceptions proceed from the functional approach to linguistic description elaborated by V. Mathesius in 1930. He distinguished two main parts in linguistic description: (1) functional onomatology (naming theory) and (2) functional syntax (conceived as theory of "usouvztažnění", interconnecting of namings into sentence patterns). A sentence pattern brings the individual meanings of namings into a certain mutual relation, and, preserving their lexical meaning endows them with new functions, such as actor, action, goal, e.g. My father is writing a long letter. In other words, the syntactic functional positions of words (as actor, goal) should be in compliance with relations in the extralingual situation about which the speaker wants to communicate. There is, however, no direct correspondence between the arrangements of elements of the communicative unit on the content level and the structure of the sentence pattern, although incidentally the two can coincide and then the difference between them remains unrevealed. These ideas have been elaborated in several papers by F. Daneš.

1.2.1. It is evident that the same situation can be differently styled, can have various linguistic presentations not only in different languages, but also in the same language. Therefore, we have to keep the distinction between the level of cognitive (gnoseological) content and the level of linguistic meaning (semantic). E.g. three sentences

- (1) John has a headache
- (2) U Ivana bolí hlava
- (3) Jana bolí hlava

have certainly an identical content (Quine's "constant of translation" or "constant of paraphrase"). They represent one and the same logical proposition. But they differ in their linguistic semantic structure:

- (1) possessor - relatio possessionis - possessum
- (2) agens - actio - localisatio
- (3) agens - actio - patiens

Another illustration:

- (4) John likes music : bearer of attitude - attitude - object of attitude
- (5) Music pleases John : source (cause) - effecting - recipient of effect

Here again, it is the same logical proposition (reference, extension, as the logical semanticists understand it, in the sense of an abstract entity, as a construed object of conceptual nature), but the two sentences have, clearly, different significative (designative) value (different meaning, intension). The respective questions to (4) and (5) obviate the difference:

- for (4) What is John's attitude to music?
- for (5) How does music effect John?

Thus, in a semantic interpretation of utterances of a natural language we should take into account the following three levels of which only the last one falls into the sphere of natural languages:

- | | | | |
|-----|------------------------------------|--------------------------------|-------------------|
| I | Phenomena of extralingual reality) | sphere of objects and events | } semantic sphere |
| II | Content | sphere of logic and gnoseology | |
| III | Meaning | sphere of natural languages | |

The elements of cognitive content (II) as well as those of linguistic meaning (III) are conceptual generalizations on different levels of abstraction. The content elements go beyond the linguistic forms and are of universal character, whereas the meaning units

are generalizations relevant in respect to forms of a given language; in other words, they are language-specific. Unfortunately, even the cognitive elements, if we wish to treat them scientifically, must be expressed by means of some language, and even an artificial formal logical symbolic language is based on a natural language (cf. Daneš 1968).

Now, this point of view, as we see, assumes two kinds of semantics:

- (I) universal (logical semantics), content
- (II) semantics of a concrete natural language, linguistic meaning (lexico-semantics)

This of course entails also a distinction of two types of synonymy:

- (I) content synonymy
- (II) meaning synonymy

The above adduced sentences (1 - 3, 4 - 5) are, accordingly synonymous by content only, not by meaning.

1.2.2. But a merely semantic classification would be insufficient for linguistics.

The aim of linguistic investigation is to ascertain categories based on the form-meaning relation, on the interdependence of these two aspects, since we must remember that linguistic units (including sentences) are bilateral signs. In this respect we are in full agreement with Kenneth Pike's view that we must treat language as form-meaning composite and work with both sides from the beginning.

It is obvious that the semantic sentence structure (SSS) does not exist without its formal, linguistic expression (as even the thinking is performed through language medium). The SSS is materialized in a sentence syntactic pattern which is a grammatical sentence pattern (GSP) with a relational syntactic structure such as, e.g. $N_1 - V_{fin} - N_2$ (Subject - Predicate - Object) or some other pattern.

The semantic structure carried by the lexical items and their concatenation is, in effect, prior to and decisive for the building of the grammatical structure. Thus, a certain semantic class of predicative verbs determines whether or not there will be an object NP following the verb or whether there will be an adverbial etc. So the speaker chooses a suitable GSP for the communicated message. The GSP not only combines the particular lexical meanings, but converts them into another type of meaning, or better to say adds additional meaning, on a higher level of grammatical abstraction (therefore we may speak then about syntactic nouns, syntactic adjectives and so on). These meanings, obtained from the functional position of lexical items in the syntactic structure are the syntactic

classes, like subject, object etc., i.e. the traditional sentence members.

1.3.1. It is not difficult to discover that there is no biunique correlation between units of SSS and GSP. This is due to the well-known fact of the asymmetric dualism of the linguistic sign (Karcevskij). One GSP can cover several different semantic structure types. Such a common GSP can be called Complex Sentence Pattern (CSP).

E.g. $N_1 + V_{fin} + N_2$ may serve for expressing following SSS:

- | | |
|--|---------------------------------|
| (a) actor - action - patient | The farmer killed the duck |
| (verb of affecting) | Robert repairs his car |
| (b) actor - action - result | Mary wrote a poem |
| (verb of effect) | He dug a hole |
| (c) actor - action (engagement) - specification | Linda studies mathematics |
| | She plays tennis |
| (d) bearer of attitude - attitude - object of it | John likes music |
| (f) comparand - comparative | John excelled the other players |
| relation - comparative background | |

1.3.2. Now the question arises why do different semantic structures share a common grammatical sentence pattern. The reason may be, partly, in a certain language economy, as it would not be very convenient to have hundreds of GSP. But such an economical device is possible only in view of the fact that there is a main, or dominant function of the given common pattern, to express the relation actor - action - goal. This is the core of the set of sentences moulded into this pattern. The less frequent, peripheral semantic structures are then adapted to this basic relation as its modifications as secondary meanings.

1.3.3. Moreover, there is a certain feed-back or back-effect of the grammatical pattern on the semantic structure; if other semantic classes come as fillers into the functional positions of the given GSP, these are then conceived of as the dominant meanings actor - action - goal. E.g. The concert exceeds our expectations - concert is understood as actor etc.). V. Skalička has labelled this phenomenon as anthropocentrism of syntax. We say, for instance The sun rises, The window looks onto the backyard and so on.

The asymmetric dualism, naturally, also means that the same semantic structure can be expressed by quite different GSP, e.g. the comparison, besides the given form John excelled the other players can be conveyed by $N_1 - V_{cop} - Adj_{comp} - Conj. + N_2$

(John was better than the other players). This is the source of syntactic synonymy, or paraphrase.

1.4. One inference from what I have said can be accepted, I believe:

The main analytic procedure in linguistics is the contrastive synchronic study of languages, related and unrelated. The linguistic characteristic is best achieved by a combination of two psycho-linguistic acts: that of naming and that of interconnecting (linking). The process of generating utterances can be divided into a series of successive decisions occurring on two basic levels: lexico-semantic and grammatical-syntactic.

Thus, there are very close ties between the semantic side and the formal grammatical side in sentence structure. Consequently, there should be a great deal of contiguity between lexicosemantic theory and syntactic theory. Only the two parts taken together constitute an adequate basis for linguistic description.

1.5. If we accept the terms deep and surface structure, then the so-called deep-structure ought to be understood as the underlying semantic sentence structure on which corresponding formal constructions of GSP are built to the surface structure, i.e. into the expression level, in particular languages. More intensive research is needed to investigate all elementary types of semantic sentence structures.

This standpoint, that the deep structure of a sentence conveys the meaning of a sentence, contains all of the information required to determine the meaning of a sentence, and the surface structure is the form used in communication, is already accepted and explicitly stated so in the newest English Transformational Grammar by R.A. Jacobs & P.S. Rosenbaum, 1968, pp. 18-19. It was not so clearly formulated yet in Chomsky's Aspects.

2. The mapping of the semantic structure from the deep to the expression level on the surface is a very intricate matter and it is proper to see this depth-to-surface way as a hierarchic structure, a multi-level process, as it was described, e.g. by P. Sgall (see my paper in Kivung, vol. 1, No. 3). It goes from the (1) tectogrammatical level to (2) the parts-of-speech-level, then to (3) morphological level, (4) morphonological up to (5) phonetical level. Levels 2 - 5 are transductive, they translate the generated string from one level to the following one, and between two adjacent levels is a relation of function and form, or representation relation.

2.1. I would like to focus attention on the morphological or morphemic level standing between the parts-of-speech level and the morphonological (or morphophonemic) level. It deserves greater attention because the morphemes are minimal meaning-bearing units and morpheme strings are still semantically structured. I have in mind words

consisting of several lexical morphemes. Let us call them multi-morphemic lexical items. We shall be, though, interested now only in those multi-morphemic lexical units which are synchronically, not etymologically, analyzable into two subcomponents, i.e. if they possess an overt semantical binary structure, from the point of view of word-formation.

2.2. Word-formation alongside with grammatical form-derivation (inflection) plays an important role in the description of sentence structure in languages such as Indo-European ones. It is sometimes difficult, I admit, to draw a strict line dividing word-formation as a lexical, onomatological procedure from form-formation, i.e. grammatical inflection (declension, conjugation). There are, indeed, some dubious border-cases, such as formation of verbal nouns, aspect pairs in Slavonic languages, degrees of comparison of adjectives and adverbs and some other. Yet still, in principle, it is methodologically possible and desirable to mark off lexical derivation (resulting in new lexical units (inform---informant, win---winner, eager---eagerness etc.) from the grammatical, inflectional derivation, creating only forms of the same lexeme.

I prefer to regard the theory of word-formation (lexical derivation) a special linguistic discipline, dealing with a specific level in the language structure. I do not, however, exclude another viewpoint, e.g. inclusion of word-formation into lexicology or into morphology, until the proper analysis is given there.

2.3. Some instances of word-formation, mainly of affixation and composition, represent, we may say, infrasyntactic problems which should not be passed over in a complete sentence analysis.

Between the component-morphemes of affix-derived and compound words hold, as it is known, syntactic relations similar to those between complete words linked syntagmatically, e.g. steel-production, employer, employee, collector, bank manager etc.) We find in these words internal syntagmas, as opposed to external ones, cf. Karcevskij. Thus, multi-morphemic words with still lively divisibility also have their underlying deep structure, their IC structure. E.g. informant = he who informs, employer - who employs, new-comer = who came newly etc.

It would not be, however, correct to put an equation mark between the relations in external and internal syntagmas, i.e. relations between elements of a sentence and between components of a compound or derived word. There is, as M. Dokulil has shown (in Travaux Linguistiques de Prague, vol. 3) only an affinity, on the level of semantic structure, but the grammatical syntactical relations are different. Cf. informant = inform

(activity, process) ++ -ant (bearer of the activity) vs. he informs (subject + predicate). Thus, the synonymy here is only the content synonymy. Formally, it is a transposition from the syntactic relation level to a lower, naming level.

2.4. Quite frequently there is an apparent intralingual or interlingual parallelism between a synthetic and analytic lexical unit. What is expressed by one analyzable word (with internal binary structure), i.e. "lexically", can be also expressed by a combination of two or more words ("syntactico-lexically"). E.g.: a childless family = a family without children/with no children, composedly = in a composed manner, harmful = causing harm. You can find lots of examples of this sort in any explanatory dictionary. Syntactically, these multi-morphemic words are less interesting than another type which I will discuss. This parallelism of expression has no impact on the sentence structure, as the particular equivalents are simply substitutable in the same syntactic position.

I am more concerned with lexically derived words which function in a sentence as "nominalizers" or "condensors" (Vachek's term).

(a) Here fall verbal nouns derived from verbs by different suffixes (including zero suffix), sometimes with inner inflection, stem alternation:

treat--treatment, propose--proposal, examine--examination, remind--reminder, decide--decision, choose--choice, succeed--success, etc.

The formal side of these formations involves also morphonological rules. But this is beyond our objective for the moment. What we emphasize in them is the fact that they result from embedding transformations: He complained of unfair treatment = ... that he was treated unfairly. These examples are well known in TG.

(b) Another group of derivatives (implying conversion from Adj--N) are deadjectival abstract nouns, such as similarity (similar), anxiety (anxious), easiness (easy), likelihood (likely) etc. Again, they are not simple lexical items filled into the slot, but a result of transformation: He insisted upon his innocence = that he was innocent.

Naturally, not always have these nouns such a deep structure. In "Innocence is a good quality" innocence is only a filler for subject position. Another ex. of double interpretation: He sits for an examination X The case is under close examination.

Chomsky, in "Remarks on nominalization", 1967, attempted another solution, comprised in the so-called lexicalist hypothesis. He tried to simplify the transformational component by shifting derived nominals (and some other analyzable derived words, e.g. adj. in-able/ible) from the transformations into the lexicon in the base, assuming that a lexical item

like "refuse" is an item with certain fixed selectional and strict subcategorization features and that may be determined by morphological rules either into verb (refuse) or into noun (refusal). I don't think this explanation is an advance, it is, in my opinion, rather a step back. No matter which part of grammar these facts are described in, they still must be described. Creation of a derived part of speech for syntactic purposes should anyway go into sentence structure description. The lexicalist's position does not seem to be consistent, either. E.g. gerundive nominalization (-ing forms) remain (in the said paper by Ch.) among transformations.

2.5. Further consideration, certainly, should be given to noun determiners and nominal attributes, first of all possessive pronouns and genitive case, together with front-position nominative attribute. I mean noun phrases such as: his arrival, your newspapers, Beethoven's symphony, ten minutes walk, Menzies building, heart diseases, college student etc. Their deep structure is manifold and it is not sufficient to determine them simply as constituents of NP.

There are even more sophisticated attributes, like north-bound flight, American-sponsored project, Hungarian-born pianist, Soviet-led invasion, short-lived period, which require a deeper analysis.

3. Conclusions.

Sentence analysis, to be adequate to language reality, should inevitably take into consideration, alongside with grammatical sentence structure, also facts of lexico-semantics and word-formation. A multi-level approach to linguistic description proves to be justified.

To end, let me quote a sentence from Chomsky's Aspects in another context:

"There is no reason to doubt the importance or reasonableness of the study of this question."

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