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COGNITIVE LINGUISTICS - TOWARDS A THEORY
OF INTEGRATED GRAMMAR

The present paper aims at outlining the basic concepts and the heuristic value of cognitive linguistics and especially one of its best developed versions called space grammar with regard to some phenomena which do not find satisfactory explanation in the field of traditional linguistic investigation.

For almost three decades the field has been dominated by the concept of autonomous syntax. In Chomsky's Standard Theory model¹ it takes the form of a base component generating deep structure which is subject, on the one hand, to semantic representation via semantic component and to transformation into surface structure via transformational component. Although the model grew out of an attempt to formulate a grammar employed by speakers in their dually patterned linguistic performance, its syntactic component got fully autonomized. The introduction of the concept of transformations, specified as meaning preserving, relegated the relation of syntax and semantics to the deep structure level. The semantic component was ascribed a merely interpretative function and it operated on the output of syntax.

The validity of the model of autonomous syntax was challenged as early as 1968 when Fillmore² postulated a Base Component containing lexicon together with case rules and subcatego-

¹ N. Chomsky, *Aspects of the Theory of Syntax*, The MIT Press: Cambridge Mass. 1965.

² Ch. J. Fillmore, *Toward a Modern Theory of Case*, [in:] *Modern Studies in English*, eds Reibel and Sanford, New Jersey 1968, Prentice Hall Inc.: Englewood Cliffs.

rization rules constituting the input for semantic representations or case structures. The latter, through transformations, generated surface structures. Fillmore's disposal of the notion of deep structure and thereby of the independent intermediate syntactic level was in line with the key objections put to interpretivists by the adherents of the generative semantics (G. S.) model who reduced grammar to a series of combination rules producing semantic representations with lexical items inserted only after certain transformations have combined semantic primitives into meaningful units. The claim was based on the observation by G. Lakoff³ and other generative semanticists that in the standard theory there seem to exist transformations which are not meaning-preserving. An example of such transformations which do not yield synonymy is the following pair of sentences related by passive:

- 1 (a) Ralph didn't date many girls.
 (b) Many girls weren't dated by Ralph.

In an attempt to circumvent the issue of meaning-preserving transformations in the case of logical predicates such as negation in (1) G. S. postulated for such pairs different base components containing different logical and existential operators and identifying propositions. With this change of attitude towards the base component a new approach to lexicon became necessary. McCawley⁴ analyzed the semantic structure of kill ("x killed y") on the assumption made by Lakoff⁵ that such strings cannot be treated as simplex sentences, but that in reality they involve series of embedded sentences like

- 2 (a) y is alive
 (b) y is not alive
 (c) y becomes to be not alive
 (d) y is caused to become not alive

Thus generative semanticists postulated lexical decomposition of items like kill (hitherto considered as semantic primes; into "real" semantic primitives: cause, become, alive and a lo-

³ G. Lakoff, *Irregularity in Syntax*, New York 1970, Holt, Reinhart and Winston.

⁴ J. N. McCawley, *Grammar and Meaning*, Tokyo 1973, Taishukan Publishing Company.

⁵ Lakoff, *op. cit.*

gical operator not. The same embedded structure of semantic primes was believed to underlie the passive version of the sentence ("y was killed by x") with a consistently generative-transformational assumption that the lexical item by is asemantic and serves purely grammatical purposes.

A side effect of the postulate of lexical decomposition was the realization that categorial notions of the standard theory (ST) are redundant for the semantic representation since at this level the predicate may be any of the standard syntactic categories occurring in the surface structure. Generative semantics adherents neglected this trait in favor of the preoccupation with predicate raising analyses and the formulation of transformation-like rules of correspondence. Syntax seemed to have kept its autonomous status in spite of the "semantic prior" attitude, in that it operated on both semantic primes and semantic representations.

The interpretivists (or ST adherents) rejected the postulates of generative semanticists and formulated a new extended standard theory (EST) which disposed of the idea of fully meaning-preserving transformational component and distributed parts of semantic interpretation between deep and surface structures. In Remarks on Nominalization Chomsky⁶ argues for instance that genitives in strings like

(3) (a) John's head

(b) John's book

are ambiguous in that they can be derived transformationally from deep structures containing embedded relative clauses with have and in this case refer to alienable possessions, or else they can be generated in the base component by a series of PS rules and then refer to unalienable possessions. According to Chomsky this principle can be generalized to cover some prepositional noun phrases and prepositional adjective phrases for which there seems to be no plausible relative transformation. This important cross-categorical observation has led EST adherents only to expand the base component by additional PS rules called X - convention (eks-bar convention: Chomsky, 1970) which allowed them to ac-

⁶ N. Chomsky, *Remarks on Nominalization*, [in:] *Readings in English Transformational Grammar*, eds Jakobs and Rosenbaum, Waltham Mass. 1970, Gin and Cy.

count for the "purely accidental" synonymy of strings containing gerundival and derived nominals

- (4) (a) Jack's refusing the offer
 (b) Jack's refusal of the offer

due to the shared semantic components of the lexicon.

Even this far-fetched assumption is dropped, however, when in *Conditions on Transformations*⁷ in an attempt to simplify the Revised Extended Standard Theory (REST) Chomsky postulates still more general rules for the syntactic component (in the form of dummy PRO-forms and universal complementizers) by which means he removes all of semantic representation to the surface structure component.

Much of this reshuffling of semantic component in the ST, Case Grammar, GS, EST and REST results from the basic assumption of autonomous syntax combined with firm adherence to the classical theory of categorization with its inherent dogma of clear inter-category boundaries, shared intra-categorial properties, the objective character of categories and semantic reductionism exemplified by irreducible primitive predicates. These assumptions made it necessary for interpretivists to neglect both some of their own findings like cross-categorial predication at the level of semantic representation in GS or cases of *accidental* synonymy in EST, as well as some major developments which have taken place in other than structuralist approaches to the study of human mind.

One of them was configurational or Gestalt psychology first formulated by Max Wertheimer⁸ as a result of his observation that the perception of smoothly flowing motion pictures is irreducible to the static stimuli of individual frames. Kohler's experiments confirmed the Gestalt theory through a discovery of the *aha Erlebnis* principle. The formulation of the notion of Pragmantz (the principle of economy in perception) completed the fundamental breakthrough made by configurational theory in psychological thought. The subsequent research into human moti-

⁷ N. C h o m s k y, *Conditions on Transformations*, [in:] N. C h o m s k y, *Essays on Form and Interpretation*, New York 1973, North-Holland.

⁸ M. W e r t h e i m e r, *Experimental Studien über das Sehen von Bewegungen*, "Zeitschrift für Psychologie" 1912, 61.

vation undertaken by sociologist Kurt Levin⁹ resulted in the postulate of the holistic notion of cognitive structure which can be represented by a geometrical model called *hodological space*. The shape of any given hodological space is conditioned by psychological valence of group participants.

The results of Gestalt and field psychology are contrary to the reductionist assumptions adopted in the structuralist linguistic models outlined in the first section of this paper. More doubt is cast on their underlying philosophy by the findings in the field of lexicography. Ross¹⁰ examined a number of phenomena relating to the traditional categorization of lexicon into nouns, verbs and adjectives. By applying a number of tests like preposition deletion, *pied piping*, *fact deletion*, anaphoric *it deletion*, the distribution of the morpheme *-ing*, or the applicability of raising to the traditional set of syntactic categories he found that instead of constituting discrete categories they pattern into a continuum of forms:

(5) Verb > Present Participle > Perfect Participle > Passive Participle > Adjective > Preposition > Adjectival Noun > Noun

distinguished between each other by quantifiable rather than qualifiable features. This discovery of the "category squish" received support from the field of cognitive psychology.

The experimental results obtained by Rosch¹¹ show that category boundaries are indeterminate. Category membership is characterized by clusters of attributes characterizing the most representative or prototypical members. These attributes are easily extended to nonrepresentative members and it may happen that some of them have no relevant common attributes with the prototype. In such case representative members serve as *cognitive reference points* and the range of these reference points is cul-

⁹ K. Levin, *Need, Force and Valence in Psychological Fields*, [in:] *Classic Contributions to Social Psychology*, eds Hollander and Hunt, New York 1972, Oxford University Press.

¹⁰ J. R. Ross, *The Category Squish: Endstation Hauptwort*, [in:] *Papers from the Eight Regional Meeting of the Chicago Linguistic Society*, 1972.

¹¹ E. Rosch, *Human Categorization*, [in:] *Studies in Cross-Cultural Psychology*, ed. Warren, London 1977, Academic Press; *Cognitive Reference Points*, "Cognitive Psychology" 1975, 7; *Principles of Categorisation*, [in:] *Cognition and Categorization*, eds Rosch and Lloyd, New Jersey 1978, Lawrence Erlbaum: Hillsdale.

turally relativized. There seem to be no primitive categories though some are more immediately experienced than others. This immediacy of the so called basic level categories is determined by interactional properties such as similar motor actions toward category members, perception of similar overall shapes and a mental image reflecting the entire category. To give an example, we share concrete motor actions towards a dog (member of basic level category), but not towards a mammal (superordinate category) and not everybody has the same mental image of a retriever (a subordinate category).

Rosch category study remains wholly neglected by adherents of autonomous syntax, though it was heartily welcome by lexicographers. Fillmore¹² immediately put it to use in the formulation of prototype semantics and frame analysis. For Fillmore "a 'frame' [...] is a lexical set whose members index portions or aspects of some conceptual or actional whole. The items in a frame [...] are only understandable to somebody who has (conceptual) access to underlying schema onto which parts of the frame fit". Lakoff¹³ refers to such underlying schemata by the name of idealized cognitive models (ICM's), i.e. structured, often metaphorical understandings and theories of reality based on Rosch-type experiential categorization. At the same time ICM's are intersubjective "because of what commonness there exists among people's experiences".

In the cognitive interpretation no reality (including linguistic reality) is ever objective. Meaning is attached to *cognitive events* by means of *grammatical symbolization*. In the words of Langacker¹⁴ "the alternate images imposed on a situation amount to qualitatively different mental experiences. Consequently, the image embodied by a linguistic expression - the conventionally established way in which it structures a situation - constitutes a crucial facet of its meaning". For Langacker, semantic structure becomes conventionalized conceptual structure. No semantic primitives can be posited and the only type of semantic hierar-

¹² Ch. J. Fillmore, *The Organization of Semantic Information in the Lexicon*, [in:] *Chicago Linguistic Society Parasession on the Lexicon*, 1978.

¹³ G. Lakoff, *Categories and Cognitive Models*, L.A.U.T. 1982.

¹⁴ R. W. Langacker, *Foundations of Cognitive Grammar*, Bloomington 1983, Indiana University Linguistic Club.

chization allowed is schematic hierarchization. The schema e.g. [TOOL] is instantiated by elaborated concepts of hammer (which constitutes a basic level category) and claw-hammer (a subordinate category). The latter two categories are content units in Langacker's space grammar (SG) and their relation with schemata is dynamic. Such view of semantics precludes any possibility of syntax autonomization. Grammar represents the conventional symbolization of semantic structure and is also symbolic in nature. Grammatical structures are bipolar. At one pole there are phonological components, at the other pole semantic units. The components at each pole are syntagmatically related with each other and each of them is compositionally related to its subsuming schema. Schemata at both poles, as well as syntagmas which they subsume, are symbolically related to each other. Thus in SG the integration of components at the phonological pole symbolizes their integration at the semantic pole. This symbolization constitutes the sole function of grammar which is no longer generative, but schematically categorizational. Linguistic structures are complex categories, but they operate overtly. There are no underlying syntactic structures. Although there may be occasional grammatical morphemes serving formal purposes, for the most part morphemes overtly coincide with semantic units in linguistic production.

Some further clarification of space grammar terminology is necessary before we pass to the discussion of examples.

PREDICATE is the semantic pole of a morpheme selected from the SEMANTIC SPACE by means of natural categorization. The whole of semantic space can be resolved into COGNITIVE DOMAINS, either BASIC or ABSTRACT (the majority of domains) which are defined by FUNCTIONAL ASSEMBLIES, i.e. cohesive knowledge-structures of the ICM type. The characterization of a predicate necessarily takes the form of a PROFILE (FIGURE) with respect to a BASE (GROUND), which is either the domain as a whole or some delineated portion of the domain. The profile is the designatum of a predicate. Predicates are THINGS or RELATIONS both of which designate ENTITIES of some kind. A relation is a semantic structure whose profile consists of two or more entities. Within a relation one of the two defining entities is singled out as the TRAJECTOR, while the other functions as LANDMARK. A continuous sequence of

profiled relations through time constitutes a PROCESS. PERFECTIVE processes are processes which involve a change through time while IMPERFECTIVE processes represent perpetuation of a given relation.

Following Langacker's analyses¹⁵ I claim that the *accidental synonymy* of (4) (a) and (b) above is a case of conceptual though not semantic synonymy. We need not use the \bar{X} - convention to account for the relation between refusing and refusal. What is important about the relation between these two nominals is that it is "squishy" by nature. The of in (4) (b) is not an \bar{X} - bar instantiation of $NP \Rightarrow NofNP$ rule but a *surface* preposition eliciting a different image due to the semantic contribution which it makes as profile determinant in the organization of perspective. In this way the "grammatical" morpheme finds its way to the semantic-phonological continuum on an equal basis with other constituents. Consequently, (4) (a) and (b) have different semantic structures; though their conceptual structure is the same. The latter becomes clear when we analyze the abstract nominalization refusal in terms of space grammar as an ordered set of stative relations unfolding (as is the case with gerundival nominalizations) in a processual way, but with no focus placed on time as a basic organizing parameter.

A similar procedure is used in space grammar to account for the semantic contrast between (1) (a) and (b). For the detailed discussion of English passive I refer the Reader to Langacker. For the present purposes I shall only stress that in SG all *grammatical* morphemes, including such as the perfect participial inflection [PERF] and units by and be gain the status of meaningful entities. As a result the [PERF] inflection in (1) (b) combines syntagmatically with the verb stem of date at a low level in the constituency tree of the clause, which makes it unnecessary to transform any underlying active clause into passive by purely grammatical operations. Passivization is achieved through profiling. In (1) (b) the profile includes all the component states of the base process, but although their distribution through time

¹⁵ R. W. Langacker, *Space Grammar, Analysability and the English Passive*, "Language" 1982, 58.

(corresponding to that of active (1) (a)) remains a feature of the base it is profiled in a non-temporal perspective. In other words (just as in the case of (4) (b)) time does not receive the focus as a basic organizing parameter.

Whenever the passive [PERF] inflection combines with a perfective verb (denoting a change through time) the individual states of its perfective trajectory are represented by a series of distinct relations of the trajector to landmark (their decreasing relative distance signifying movement towards the completion of perfective action). However, in the case of imperfective verb-stems, such as date, the profile, devoid of its temporal aspect, consists of a number of static occurrences of a single state, all of them identical and relating to a mass subject in the base. The syntagmatic relations of [not][be] on the one hand and [date][perf] on the other automatically select the non-profiled constituents of the mass elaboration site in the landmark (many girls) in (1) (b), while in the case of (1) (a) the profiled constituents are selected. Thus, although (1) (a) and (1) (b) both stem from the same conceptual image their semantic structure is different and no synonymy obtains.

Synonymy is also ruled out through the use of by which, like of in (4) (b) is a meaningful entity. As a result the object of by is no longer treated as a demoted deep structure clausal object, but simply the object of by. The meaning of by is basically prepositional, locating the preposition in the neighborhood of a landmark, but changes in *degree* of its prepositionality with regard to the type of its domain (concrete or abstract) and the type of its trajector. The lack of true synonymy in (1) is thus due partly to the fact that with the abstract use of by space is replaced in the base with the functional assembly (ICM) of the notion of responsibility (for dating) which is absent in the active clause (cf. Langacker, 1982).

The above examples give only a little insight into the value of space grammar approach to linguistic investigation. As can be seen it easily removes some problems which occur in the traditional approach. It simplifies grammatical description by postulating a bipolar grammar instead of the traditional multi-level

syntagmatic structure and last, but not least, it incorporates the crucial findings in the field of human categorization, so far neglected in the interpretivist theories.

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JĘZYKOZNAWSTWO KOGNITYWNE A TEORIA GRAMATYKI ZINTEGROWANEJ

Artykuł porównuje tradycyjne podejście generatywno-transformacyjne z postulowanym przez leksykografię językoznawstwem kognitywnym na przykładzie zjawisk językowych, których w tradycyjnym ujęciu nie można zadowalająco wyjaśnić (np. synonimia między różnymi typami nominalizacji, a także między stroną bierną i czynną).

Podejście kognitywne, a zwłaszcza jego szczególna postać proponowana przez R. W. Langackera - gramatyka przestrzenna - omówione są szczegółowo w oparciu o pokrewną językoznawstwo dziedzinę psychologii kognitywnej (szczególnie w ujęciu E. Rosch).

Analiza przykładów, dla których postuluje się strukturę konceptualną odrębną od semantycznej, pozwala na rozwiązanie problemów związanych z występowaniem zjawiska synonimii i innych zjawisk językowych. Podejście kognitywne pozwala na uproszczony opis gramatyczny w postaci dwubiegunowej gramatyki postulowanej w miejsce tradycyjnej wielopoziomowej struktury syntagmatycznej z autonomicznym komponentem syntaktycznym, a ponadto odpowiada w pełni najnowszym odkryciom w dziedzinie kategoryzacji naturalnej.