

OUTLINE OF THE COMPOSITIONAL SYNTAX

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Abstract : We suggest that the semantic structure of Sentence is composed of two independent but interrelated semantic constructions: significational, corresponding to a logical statement, termed here proposition, and denotational, corresponding to our knowledge of the world, termed here situation. The formal structure of the sentence leads to the proposition, while the lexical components lead to the situation. As these two facets of the sentence meaning are independent, a special mechanism (empathy) performs the function of choosing the centre of modelling of the situation. It operates under certain restrictions depending upon the morphological and semantic systems of a language.

Keywords : actant, argument, deep case, empathy, participant, proposition, sentence, situation.

1. INTRODUCTION

At present in the field of theoretical syntax one can find many different and conflicting systems for describing and explaining sentence as a meaningful unit. It can be proved that each of them is correct and at the same time is incorrect. The trouble here is not so much in the fact that many of their statements can be proved wrong, but that many of them are obviously correct and they can be correct only if we accept the basic postulates of the theory which postulates eventually and inevitably produce incorrect or at least doubtful statements.

That makes it impossible both to accept and to reject any of the competing theories. On the other hand it may be an evidence of the fact that the syntactical units are composite structures

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and each of the theories may be considered as a good description of one of the composing elements of syntactical units.

But to accept this we are to prove that a sentence has to be a composite structure. For that we should analyse the process of understanding a sentence.

We shall not discuss the stages of perception at which elements of the sound (or the graphic) component of the utterance are identified (though in actual process the lexical, grammatical and phonetic features are recognised simultaneously and in tight interconnection with each other).

As a result we receive a series of elements identified as words. To understand them we have to identify also their relations (connections), which, as we expect, can lead us to relationship of objects (phenomena) named by these words.
In this situations we have two possibilities. Either the words have the relations that are predetermined by the objects (phenomena) they name or they are in relations determined by the words themselves.

If the words are connected according to the first possibility each type of relations of objects (phenomena), we name the relations of objects (phenomena) situations, must have its own type (or types) of sentences which cannot be used to describe other situations. As a result we would lose the ability to compare situations and, moreover, we would have to invent new types of sentences for any new type of situation we may encounter. But that would lead to the necessity of explaining to others not only the situation itself but also the connections of the words. This difficulty can be overcome in case the word connections and thing connections must be born with us. Then human being would be limited both in the possibilities of representing situations and adjusting ourselves to them. In fact, we would lose the ability to transfer and understand any new information. Thus situation bound sentences turn into signals and lose their sign nature.

The second possibility, when the relations of words in the sentence are determined by words themselves has another difficulty, the difficulty of interpretation. We have to associate somehow the structure of the sentence with the other world. But there is no way to do it.

In fact it appears that both possibilities lead us to an impossibility, the impossibility to use Language.

We think that the only way out of this is to assume that in fact our understanding is a composition of these two possibilities. Human beings possess an algorithm of processing the series of words according to their own relationships and to refer the result with external situations. We shall not discuss here the problem of how this algorithm appeared, whether it is natural or nurtured. The only relevant thing here is that we have it.

The said above allows us to suggest that each sentence has at least two aspect of semantics — one, associated with the mechanism of identifying word relations and the other, connected with the situation represented by the sentence.

As a result we came to the system proposed long ago by Frege with his distinction of Sinn and Meinung, or, in other terminology, significational and denotational components.

ISBN: 0 08 043 438X

The former, significational component can be identified with the logical structure and therefore we shall use the term "proposition " to name it. The latter, denotational component is connected with our empirical knowledge of the external world and therefore will be named "situation".

Thus the aim of syntactical description which endeavours to explain (not only register) facts should be composed of two types of analytical procedures performed independently — for the proposition and for the situation of the sentence — followed by a synthetic procedure of co-ordinating the results to discover the laws of connection of these two aspects of the sentence meaning in a language under analysis.

Below we shall exemplify this type of analysis which we call "Compositional syntax" with facts of English. The adjective "compositional" in the name of the approach means that, first, the object of study (sentence) is viewed upon as a result of composition of a number of linguistic operations and, second, since a sentence is a composition of virtually different structural elements (aspects) the theoretical model suggested here is an attempt to compose different and even conflicting syntactic concepts into one frame. Here we are to express our acknowledgement to many scholars whose ideas we have utilised in our work. We are greatly indebted to such great people as I.A. Bauduin de Courtenay (1963), L. Bloomfield (1964), W. von Humboldt (1984), O. Jespersen (1958), A.A. Potebnya (1874), F. de Saussure (1977), L.V. Shcherba (1974), whose ideas are incorporated into the basic framework of our study. Not less important for us were more recent theoretical models of Yu.D. Apresyan (1974), N.D. Arutyunova (1976), L.S. Barkhudarov (1966), V.V. Bogdanov (1977), W. Chafe (1975), N. Chomsky (1972), Ch. Fillmore (1981), V.G. Gak (1969), Z. Harris (1960), G. Helbig (1976), V.V. Martynov (1974), A.Ye. Mikhnevich (1976), A.M. Mukhin (1968), A.I. Smirnitsky (1957), I.P. Susov (1973), L. Tesnière (1969), V.V. Vinogradov (1975 — 1980), Zvegintsev (1976). The compositional approach presupposes combining different ideas into one framework, which means that they must necessarily be modified. As a result their general senses are altered. This is the reason why we do not make references unless direct quotation is used. By this we take all responsibility for presenting and interpreting the ideas. It means that all errors are exclusively our fault.

Before we pass to describing the model of compositional analysis we have to make several notes on the terminology used here, because it should clearly discriminate the information on the proposition and the situation.

The elements of the proposition will be given here names suggestive of their logical origin. The relation which is the basis of the proposition and defines its properties will be named the Predicate. The elements that are predicted by the Predicate will have three synonymic terms: arguments, actants and deep cases. "Arguments" will be used as a general term. "Actants"(the term is borrowed from L.Tesnière's syntax) imply that the arguments are of certain ranks within proposition. "Deep cases", the terms of Ch.Fillmore, will be used when the functions of actants are specified.

The arguments when their ranks and functions are specified (when they become actants and deep cases) will be given names with Latin roots, that suggest the function they perform, and the suffix '-ive" to distinguish them from the participants of the situation.

ISBN: 0 08 043 438X

The proposition may also include modifiers, that is words, which are associated with the elements of the proposition (the Predicate or the arguments) or the proposition as a unit. These elements are not discussed in the present publication and no terms are suggested for them.

The terminology for the components of the situation cannot be universal for all types of situation. Yet in all types of them we expect to find a certain connection that unites all the elements of the situation. This connection might be an action, or existence, or attitude or anything else which is relevant for the culture in which a language under analysis is employed. in this publication we shall discuss only several kinds of situations found from English dictionaries and thus they may be thought relevant for the English speaking nations. All of them have the relation that can be generally viewed as "action" and we expect that elements united by this relation should be "participants" We use this term as a good English equivalent for L.Tesnière`s term "actant". The term "participant" is used as a general term and may considered as the situational parallel for the propositional term "argument". A synonym to it is "role" which suggests that the function of the participant is specified. In case we identify the situational function (role) of the participant we shall use the word wherever possible with Germanic stems and without the suffix "-ive". The stems are chosen so that they suggest the role the participant performs in the situation (e.g. Doer, Tool, Thing, Outcome etc.)

2. PROPOSITIONS

Since a proposition is used to decode (and surely encode) the relations of words to provide a frame for initial interpretation of a sentence, it must be an element of a closed set, or, which is more correct, of a paradigm, based on quite definite and limited number of relations, that permits to calculate its features and use a formalised procedure to identify both its own quality and the character of its components. The arguments of a proposition should also be identified with the help of a formalised procedure.

2.1.Identification of the type of proposition

propositions differ in three features. first, the Predicate may connect arguments of equal or unequal ranks. Second, the Predicate may present the relation of the nominal element either as time-dependent (that is developing, proceeding, dynamic) or time-independent (static). Third, the Predicate may predict different number of arguments.

Conjunction of the values of the first two features produce four basic classes of propositions while the number of arguments break each of the basic classes into variants.

The procedure of identification of the type of proposition includes two tests — for ranking the arguments and for temporal dependence — the answers to which sort propositions into four groups. Before applying diagnostic tests the sentences were normalised. A normalised sentence for English is a declarative sentence with the Predicate in the Active Non-Perfect and Non-Expanded Indicative form. Elliptical sentences were restored to find out if they are actually elliptical and excluded since they do not possess a verbal element in their surface structure. Complex and composite sentences were split into clauses and each clause was analysed as a simple sentence.

ISBN: 0 08 043 438X

The test for ranking the arguments, which implies that the relation of the arguments presented by the Predicate has or has no direction, employs permutation of the actants of a previously normalised sentence. If the initial and resulting sentences are both obligatory and simultaneously true, the actants are of equal rank and the proposition is non-directed. If not, then the actants are of unequal ranks and the proposition is directed.

E.g. (1) John resembles Mary & Mary resembles John.
(2) John meets Mary & Mary meets John.

These pairs of sentences are obligatory and simultaneously true. Thus their Predicates and their propositions are non-directed.

(3) John has a house & *The house has John.
(4) John eats an apple & *The apple eats John.

In these pairs the second sentences are impossible (or at least they are not obligatory and simultaneously true if the first in the pairs are true). Thus the Predicates and as a result the propositions are directed.

The second test, the test for temporal dependence, is in fact finding if the predicate of the sentence belongs to the dynamic or the static class (Quirk et al. 1982). The difference is usually made evident by a set of transformations including: a) possibility of use of the Expanded form; b) possibility of being an answer to a "Wh + do?" question; and c) possibility to include adverbs indicating a degree of speed or force. If though one of the tests is positive, the Predicate is to be treated as dynamic. If not, it is to be treated as static.

E.g. (5) John resembles Mary — *John is resembling Mary — *John quickly and easily resembles Mary; What does John do? — *John resembles Mary.
(6) John meets Mary — John is meeting Mary — John often meets Mary; What does John do? — John meets Mary.
(7) John has a house — *John is having a house — *John often has a house; What does John do? — *John has a house.
(8) John eats an apple — John is eating an apple — John quickly eats an apple; What does John do? — John eats an apple

It is evident that the sentences in items (5) and (7) show the negative reaction to the test, while the sentences in items (6) and (8) respond to them positively. As a result we may conclude that propositions of sentences (6) and (8) are dynamic while those of items (5) and (7) are static.

Application of these two criteria (for directiveness and dynamism) to a large number of English sentences yielded the following results.

A small quantity (approximately 0, 2 % of the total of 45, 000 sentences) of sentences were of the structure that did not allow to use any of the tests. These were one-member nominal sentences. (Verbal one-member sentences were normalised and analysed as two-member ones.). Such sentences are known to have a concealed Predicates of existence. But the verbal element is not presented in their surface structure. Such sentences could not be normalised and were excluded because they demand a different form of analyses.

ISBN: 0 08 043 438X

A much bigger group (approximately 30 % of the total) is constituted by sentences which could not be subjected to the first test, the test for direction, because they had only one actant. The group included sentences with nominal Predicates and intransitive verbs (though for English it would be more correct to speak about intransitive usage of verbs). The value of the direction feature of such sentences was calculated through the time-dependence property of the sentence. It was assumed that static Predicates in case they have only one argument, should belong to the non-directed group (e.g. John is young), while the sentences with dynamic Predicates should belong to the directed group (e.g. John runs).

The majority of sentences responded to both tests and fall into four groups:

a) non-directed and static Predicates form scalar propositions ("resemble" type);

b) non-directed and dynamic Predicates form development propositions ("meet" type);

c) directed and non-dynamic Predicates form relationship propositions ("have" type);

d) directed and dynamic Predicates form vector propositions ("eat" type).

Each type of propositions has its own number and quality of arguments, i. e. its own frame of deep cases in which their actants are actualised. Each language system has its own means of formal indication of these deep cases This makes us limit our further description only to one language and namely: English, comparative study being a task for the future.

Though the number of arguments of propositions is fixed, not all of them are actualised in sentence structures. The difference in the number of arguments which produces the variants of propositions appears as a result of their reference to particular classes of situations since in some of them the number of participants is less than that of the arguments and the arguments which do not find an element to represent remain vacant (Fyodorova (1992).

And the last remark before we start describing the procedure of identifying the deep cases. The names given to the propositions are highly arbitrary and do not reflect their actual semantic features. In this respect they are very similar to N. Chomsky`s kernel structures which have a meaning (if any) only as a result of oppositions to one another. Strictly speaking we should indicate not classes of propositions but four kernel structures which derive their meaningful and structural features by contrast to other kernel structures.

2.2 Scalar proposition

The sentences incorporating these propositions respond positively to the first tests (that is they permit transmutation) and negatively to the second (no Expanded Forms, no adverbs of force and speed, no question "Wh + do?"). Thus they are non-directed and non-dynamic. The lexical elements that are used to word their Predicates mostly name situations of semblance (resemble, be similar, seem, be like, etc.); spatial relations (be close, stand near, be at, etc.); qualification (be + Adj, prove to be + Adj, appear + Adj, etc.); state (be asleep/afraid/aflame etc.). The latter two groups appeared in the list, because sentences with nominal Predicates also belong here.

ISBN: 0 08 043 438X

The number of argument in this proposition is two. Yet there are sentences having only one nominal element. In these structures the only component is bi-functional and incorporates both actants (e.g. The girl is beautiful = The girl is a beautiful girl).

The actants do not exhibit any specific property of the elements they name, but the very fact of their existence. Thus it seems natural if the term for them should be derived from the stem "object". Since the number of actants is two and they are of equal ranks their deep cases are indicated by their position in the surface. formal structure of the sentence, which for English means the place of the actant. The actant in the Subject position (the left-hand nominal phrase) will further on bear the name of "Objective", while the other actant (the right-hand nominal phrase) will be named "Counterobjective". E.g. in the sentence "John resembles Mary" "John" is the Objective and Mary is the Counterobjective of the sentence. in the sentence "Mary resembles John" "Mary" is the Objective and "John" is the Counterobjective of the sentence.

Because the deep cases of the actants are clearly evident through their position, there is no necessity in any special formal procedures to identify them. The formalised representation of the proposition here is O:S:CO, where O stands for the Objective, S is for Scalar Predicate, and CO — the Counterobjective.

2.3 Development proposition.

The sentences that are the embodiment of the proposition respond positively to the both tests. It means that their Predicates are non-directed and dynamic. The lexical items used to fill in the Predicate belong to the semantic groups of motion (meet encounter, accompany, etc.) and mutual (joint) activity (co-operate, co-ordinate, etc.).
Here we meet with a predictable difficulty. Some of the verbs may respond differently to the first (transmutation) test, depending on the nouns in the argument positions. For instance, in the sentence "John accompanied Mary" transmutation ("Mary accompanied John") seems possible, but if we put the word "Queen" before "Mary" transmutation is prohibited. The same is true for other verbs of these groups including the head word "meet". If we add to the sentence "John met Mary" different adverbial modifiers of place, we receive sentences having different transformational possibilities: "John met Mary at Victoria Station" can hardly actually mean that Mary met John at Victoria Station, unless they both arrived there to meet (or to be met by) some third party.

This is an indication of the fact that we cannot assume that verbs are names of Predicates of propositions. Verbs as any lexical unit *are* names, but (as any lexical unit) are names of the components of situations (in their case — of relationships of participants). The Predicates of the proposition (as well as arguments) cannot have names in natural languages, otherwise they could not function as frames for interpretation of all types of situations. N. Chomsky was quite right when he insisted that his deep (kernel) structures do not and cannot contain any lexical items and meanings. Unfortunately we cannot (at least at present) find any other way of identifying propositions and their elements but to use the lexical items of natural languages. But while using the words we have to take into account that one and the same word (here a verb or a verbal structure) actualising the same lexical meaning may yet be representations of different propositions.

ISBN: 0 08 043 438X

The development proposition has two arguments. The actants are of equal rank and represent anything as active entities, because the proposition is dynamic. Thus the terns for the deep cases should be based on the stem ac/ag: the Agentive for the actant in the Subject position (in normalised, that is active sentences) and Counteragentive for the actant in the Object position. The definitions are given for the normalised sentences, which in this case is important, because the proposition permits Active and Passive forms. The formalised representation of the proposition here is A:D:CA, where A stands for the Agentive, D is for Development Predicate, and CA — the Counteragentive.

2.4 Relationship proposition.

The sentences with this proposition negatively respond to both tests. It means that the proposition is directed and static.

The proposition is usually found in sentences the Predicates of which belong to three big semantic groups: possession (have, possess, belong to, own, etc.); inclusion (contain, include, comprise, etc.); position (hang, lie, be on, etc.). The proposition has two arguments. Since the proposition is directed, one of the actants is of the higher rank, the one which is at the beginning of the directed relation. The other is of the lower rank and is at the end of the relation. Thus the terms of them should be the Initiative for the higher rank actant, the one that is the Subject of the sentence, and the terminative, the one that is the Object of the sentence, because the sentences with this proposition have no variants in English and the surface structure coincides with the normalised sentence. E.g. in the sentence "John has a house" "John" is the Initiative, and "house' is the Terminative, while in the sentence "The house belongs to John" the Initiative is "house" and the Terminative is "John".

The formalised representation of the proposition here is IN — R — T, where IN stands for the Initiative, R is for Relationship Predicate, and T — the Terminative.

2.5. Vector proposition

This proposition is found in the largest number of sentences with Predicates belonging to all semantic groups. The proposition is variable in its surface structure. The sentences formed by this proposition react negatively to the first test and positively to the second test. Thus its Predicate is directed and dynamic.

The number of arguments of this proposition present a certain problem. L. Tesnière insisted that the largest possible number of actants should be three. But the surface variants of sentences suggest that they must be no less than four. The criterion of coexistence (it states that in a sentence no actants of the same value can coexist, which means that if we find coexisting actants then all of them are elements of the proposition) shows that in one sentence we can find four different actants : e.g. "John bought Mary a dress for 100$".

Since the relation is directed it is necessary to define the relative ranks of the actants. The relative ranks of the actants can be found through shifting lower rank actants to a higher level. Shifting a lower rank actant to a higher position demands deletion of the higher rank actants. It means that the less deletion is necessary the higher is the rank of the actant.

ISBN: 0 08 043 438X

The shifting procedure shows that one actant appears in the Subject position with the Active verb form and does not demand deletion of any element (John looks at Mary; Mike builds a house for his children; etc.). Since this actant indicates the source of a dynamic relation we term it the Agentive.

Another actant can appear in the subject position only if the verb is Passive ("Mike sold a car to Peter — Peter was sold a car by Mike). This actant can be considered as indicating the final element of the relation. Yet another actant can be used as the Subject of a Passive verb form, inducing one of the actants, the one which also can be a Passive construction Subject, to employ a preposition (The car was sold to Peter by Mike). This actant can also be used as the Subject of the Active form verb demanding deletion of other actants (The car sells well), though the actant which we classified as final may sometimes appear, but with an obligatory preposition (The car sells well to new Russians). As a result we receive two final actants. But one cannot actually be moved into the higher rank position because it can fill in the Subject position only in the Passive construction. It indicates that this actant is at the extreme position in the relation, and since the other final actant influences its form, we may conclude that this extremely final actant is the addressee of the entire proposition and give this deep case the name of the Addressee. The other actant has the traditional name of the Patientive.

A fourth actant cannot become the Subject of the Passive construction but can replace the Agentive in its Subject position, becoming a new Agentive, e.g.: Mary bought the house with John's money — John's money bought Mary the house. This indicates that its rank is between that of the Agentive (the upper actant) and that of the Patientive (the lower actant). Its function can be treated as transmitting the force from the Agentive to the Patientive. and we shall name it the Instrumentative.

The four actants of the Vector proposition can be formally represented as; A — IN — V — P — AD, where A stands for the Agentive, IN — for Instrumentative, V — for the Vector Predicate, P — for the Patientive, and AD — for the Addressee

Variability of the sentences with the Vector proposition makes it necessary to employ special formal procedures to identify the deep cases. The procedures, that can be formulated as rules for the respective cases, are sets of formal features and transformations.

Rules of the Agentive. In a normalised sentence the Subject is the Agentive. If a sentence is not normalised (a passive sentence) the Agentive is a prepositional phrase which in the course of normalisation takes the position of the Subject. E.g. in sentences "John runs; John looks at Mary; It was proposed by John" John is the Agentive. The Agentive found according to the rule in the sentences "The water boils; Mary looks nice; The door opens", because they permit the Expanded Form and should be treated as dynamic.

The rule for the Instrumentative. In normalised sentences the Instrumentative is a prepositional phrase with the preposition "with" (seldom "by"): "John cuts the cheese with his knife". But the prepositions are often ambiguous because they may introduce not only objects: "John cuts the cheese with difficulty".
One of the operations which helps to identify the Instrumentative is shifting the alleged phrase into the Subject position (deleting the preposition and the former Subject), making it the Agentive of the transformed sentence. If the operation is successful the prepositional phrase in

ISBN: 0 08 043 438X

the initial sentence is its Instrumentative: "John cuts the cheese with his knife — This knife cuts the cheese", but "John cuts the cheese with difficulty — *This difficulty cuts the cheese". Unfortunately this test is too strong because some lexical elements in the Predicate position suppress the transformation and the opposite statement ("If the phrase cannot be shifted into the subject position it is not the Instrumentative") is not always true: "John eats the soup with a spoon — *The soon eats the soup"

A universal means of identifying the Instrumentative is to use the lexical synonyms for the idea of instrument: "with the help of", "by means of", or "using" — "John eats the soup with a spoon — John eats the soup with the help of a spoon / John eats the soup using a spoon".

Rules for the Patientive and the Addressee. These two deep cases may have similar surface forms and this fact makes it necessary to use certain procedures to discriminate them. The procedure thus is necessarily joint.

The strongest test for the Patientive is to make it the Subject of a Passive construction ("The house is built; The letter is written; John is looked after", etc.). But the Addressee can also be used as the Subject of a Passive construction ("John gave Mary a watch — Mary was given a watch by John"). It might be possible to use the ability of the Patientive to shift to the Agentive position (The butler opens the door — The door opens), but for many sentences the transformation is prohibited by specific relations between the proposition and the situation. Fortunately the Addressee has at least two variant of its formal representation the use of which is predicted by the place and formal syntactic function of the Patientive. It makes it necessary to formulate the rule as a series of sub-rules for each combination of formal features of the deep cases.

1. A sentence may have no non-prepositional phrases. Then the prepositional phrase which can become the Subject of a Passive construction is the Patientive ("Mike spoke about Peter — Peter is spoken about; They lived in a big house — This big house is (not) lived in"), and the prepositional phrase which is introduced with the prepositions "to" or "for" is the Addressee ("John came to Mike").

2. A sentence may have one non-prepositional phrase and a prepositional phrase with the prepositions "to" or "for". Then the non-prepositional phrase which can become the Subject of a Passive construction is the Patientive, and the prepositional phrase which is introduced with the prepositions "to" or "for" is the Addressee ("John built a house for Mary — The house was built for Mary by John ").

3. A sentence may have two non-prepositional phrases. Then the Addressee is the phrase which takes a preposition if the phrases are transmitted, and the phrase which does not take a preposition in transmutation, is the Patientive (Mary gave John a cup of tea — Mary gave a cup of tea to John")

2.6 Summary.

Concluding this brief description of the significational aspect of the sentence meaning we can state:

ISBN: 0 08 043 438X

1.The significational aspect of a sentence can be presented as a set of four propositions: a) non-directed and static (scalar): b) non-directed and dynamic (development): c) directed and static (relationship): d) directed and dynamic (vector).

2.Each proposition has its own set of deep cases: a) the Scalar proposition has Objective and Counterobjective; b) the Development proposition has Agentive and Counteragentive; c) the Relationship proposition has Initiative and Terminative; d) the Vector proposition has Agentive, Instrumentative, Patientive and Addressee.

3. The meaning of the propositions is only indirectly connected with the lexical meaning of the verbs, which fill in the position of the Predicate of the proposition. The propositions are closer in their functions to the kernel structures proposed by N. Chomsky than to any other logical structure.

4. The surface (formal) structure of the sentence is rather closely connected with the propositional structure. Yet, no absolute one-to-one correspondence between these structures can be postulated. This compels us to use on some occasions special formalised procedures to identify the elements of the significational level. For English such procedures are necessary for identifying the type of the proposition and deep cases of the Vector proposition.

3. SITUATIONS

The denotational aspect of the sentence reflects the structure of our knowledge, but not exactly the "state of things" as it is usually formulated. The difference seems insignificant for the use of the linguistic forms within a certain culture, but becomes important while comparing languages (or which is close to it, speaking a foreign language) because, as it was proved by I.F. Vardul (1977), these "states of things" are dependent upon culture and, as a result, language specific.

It means that we cannot suppose that the situation structures are universal as the proposition structures. Nor can we calculate the number and the structure of situations even within one language, because they are results of generalisation of our experience. The inductive character of the situations on the other hand permits to use explanatory dictionaries to construct the situation patterns. In this paper we shall use the results of denotational analysis done by J.I Markot (1990), N.N. Fyodorova (1992), A.I. Beskorsy (1990), and V.N. Panina (1983). The situations that will be sketched here are motion, coercion, physical perception..

3.1. The situation of coercion

The situation of coercion as described by J.I. Markot(1990), has at least four participants, one of which may be not exactly "a participant", that is not exactly a thing, and a dynamic relation (RD). The first participant (a) is the source of activity, the doer of the action incorporated in the process of coercion. Then we find a participant, employed by the doer (a) as a tool (b) to perform the act of coercion. The next is the object (c) which is operated upon

ISBN: 0 08 043 438X

by the doer (a) with the help of the tool (b). And finally we find the result (d) of the operation of coercion, which can be either a new thing ("John (a) made a fishing hook (d) with his pliers (b) out of a piece of steel wire (c)"), a new feature or state of the object (c) ("John(a) warmed the water (c) hot (d) with his new boiler (b)"), or a new position of the object (c) ("John (a) opened the door(c) wide (d)") or its part, or even the old feature, state or position of the object (c) in case the operation of coercion is aimed at preserving the object (c) ("John (a) repaired (RD+d) his car (c)")

The situation has many variants which are caused by different relations between the object (c) and the result (d). Variants may appear also in case of physical coincidence of the source (a) and the tool (b) or the object (c) and the result (d)..These variants can be shown by the formulae: all participants are different objects: a — b — c — d; the source and the tool are in one thing: (a + b) — c — d; the object and the result are in one thing: a — b — (c + d); the source and the tool on the one hand and the object and the result on the other are in one thing: (a + b) — (c + d).

3.2. The situation of motion.

The situation of motion, as it was shown by N.N. Fyodorova (1992) and V.N. Panina (1983), includes beside the action (RA) the following participants: the source (a) of force, the element (b), transmitting the force, the object(c) effected by the force and moving as a result of this influence (a+b), the medium (d), in which the object (c) moves, the path (e) of movement of the object (c), and specially the initial (f) and final (g) points of the path (e) ("John (a) drove (RA+D) Mary (c) in his car (b) from New York (f) to Washington (g) by the federal highway (e)."). This situation is presented in English as dynamic and with a quite definite direction of the force; from the source (a) to the object (c), through the element (b) and farther to the final point (g). The situation may have variants depending on coincidence of the first three participants or more exactly due to incorporating by the source the functions of the following the force transmitter (b) and the moving object (c). There may be at least three variants of the situation: a) all elements are presented: a — b — c — d — e — f — g; b) the source of force is also the source transmitter: (a+b) — c — d — e — f — g; c); the source of force and the source transmitter are also the moving object: (a+b+c) — d — e — f — g. These variants will be rather important in the analysis of the ways of presenting the situation in proposition.

Comparison of the structure of the situation of motion and the situation of coercion shows that they have certain common features. Both situations presuppose a source of energy and a certain direction of the energy; both include an element transmitting this energy to an object affected by the energy and both presuppose a certain result. The difference between the situations is in the quality of the result: the situation of motion limits a possible result to a new position of the object, while the situation of coercion suggests any other, and the situation of motion is freely modified by merging the Doer, the Tool and the Object in one element.

3.3. The situation of physical perception..

The situation of physical perception appears to be a complex of at least three simple situations. Still in English these situations form a united situation in which each of them presupposes the other two.

ISBN: 0 08 043 438X

The basis of this complex is the situation of perception. which includes at least five elements: the object (a), which initiates the process of perception (R), the organ of perception (b); the person (c) who perceives the object (a); and the image (d) that appears as a result of the act of perception. The elements (a) and (d) here are usually considered as one object. The element (a) at the same time can be divided in two sub-elements: the object and the source (e), e.g.; "Paul (c) tasted (R+b) sugar (e) in his coffee (a)".

The other two minor situations incorporate the basic as an element and add a relation comparable to the relation found in the first (coercion) situation. We can say that these situations cause the basic situation. In addition to the basic situation these situation include the causing action (RC) and the person (f) who causes the perceiver to perceive physically. The person (f) may be the perceiver (c) ("John (f+c) looks (RC+b) at Mary (a+d).") or may be a different person ("Mary (f) shows (RC+b) John (c) her new pen (a).").

The variants of the general situation of physical perception depend on the organ of perception and presence or absence of the causative situations.
The formalised representation of the general situation of physical perception is complicated by the necessity to indicate two opposing directions of action: one from an external causative participant and the other from the internal causative participant (the one coinciding with the perceiver). It might be shown in the following way: f(= c)—>(d<—c<—b<—a<—e)<—f.

3,4. Summary.

The situations, a brief description of which is given above, are the results of generalisation of a great number of individual situations. The essence of generalisation is, as is known finding common features in them and forgetting about all that is different. The process of generalisation stops when no common feature can be found in the situations compared. If we compare the situation of coercion, motion and physical perception we can see that they have at least one common feature: they include an active component, an action that has a certain direction. All the situations have a participant which exerts a certain kind of power or the Doer. All of them also have a participant on which the power is exerted or the Object. And also all of them have a participant which appears as a result of application of power or the Result, though in some of them this participant always coincides (or is thought to coincide) with the Object. There might be a fourth participant, a participant which transmits the force from the Doer to the Object. which we shall call the Tool. The direction of force is from the Doer to the Tool, then to the Object. and finally to the Result, where it ends. However these roles can be performed by one element ("The wind (D+T) has blown the foliage (O) off (R); The cat (D+T+O) ran out of the room (R)); John (D+T) looked at Mary (O); John (D+T) saw Mary (O+R)".).

Thus all these (and many other) situations may be grouped together into one class the subclasses being determined by the specific properties of the actions in which the participants are involved.

ISBN: 0 08 043 438X

4.PROPOSITIONS AND SITUATIONS

As we have stated before, the structure of the propositions and the structure of the situations are not isomorphic, because otherwise Language could not perform its function of a means of delivering new information. And at the same time these two structures must interact with one another to make the informative function of Language possible. The formal structure of the sentence indicates the type of the proposition. This can be and in fact was shown by artificial sentences which are not only partially "understood", but even "translated" as the Walrus's poems from L. Carroll's "Alice's Adventures in Wonderland". To actually understand those poems we must ascribe lexical meanings to all the words at least as it was done by Humpty-Dumpty in "Through the Looking-Glass and What Alice Found There". The operations of Humpty-Dumpty show with all possible clarity that the reference of an utterance to the situations is done by words and their lexical meanings. The lexical elements that occupy argument positions name also certain elements of the situation described and thus the position of the lexical unit in the sentence imposes a certain propositional meaning upon the situation participant in question. This propositional meaning depends exclusively on the position of the word in the proposition and may be as is well known in direct opposition to the situational role as in the sentence "Mary gave John a smile" the Patientive "smile" is the action of the situation. From that follows that the basic categorisation, about which we hear so much nowadays, is ultimately determined by the propositional structure.

The lexical units are names of elements of the situations. These elements may be either participants or the relations connecting them into the situation, a complex of the relation and some other components of the situation. The names of the participants are usually nouns, while the names of the relations are verbs or verbal constructions. But if the noun has only one semantic orientation — towards the situation, the verb is double orientated — to the situation, naming some part of it, and to the proposition, representing the proposition Predicate. In the semantic structure of a verb we find, as a result, two substructures, one connected with the proposition, and the other included into the situation. These two substructures can be in accord or in discord with each other.

The elements in the argument position, on the other hand, have only one connection, to the elements of situation. This fact is responsible for rather rigid structure of the so called lexical fields in which the components are tied with clearly definable relations and if at least two of them (that is presupposing certain relations) appear in the argument positions of a sentence, they impose that relation on the predicate (e.g.: Mary gave John a book and Mary gave John a smile — where the actualised meaning of the verb depends upon the situational relations of the nouns "book" and "smile").

But this shift of the lexical meaning of the verb does not usually causes altering the prepositional structure. On the contrary, the proposition normally remains unchanged (cf. Fyodorova (1992). This supports the idea that the propositional and the situational structures are heteromorphic and there should be a special mechanism for correlating these structures. This mechanism is responsible for choice of the manner of representation of situation (choice of the proposition) and choice of the fillers for the predicate and the arguments. The choice of the proposition may result in employing one whose structure is either similar or in contrast with structure of the situation. We shall term the former (when the proposition and the situation are similar) homomorphic, and the latter – heteromorphic. But this choice may result in using a non-sentential representation of the situation (different degrees of nominalization, for

ISBN: 0 08 043 438X

instance). We shall name this type of choice inclusion, because a situation is presented as included into another situation where it fills in the positions of actants or "circonstants" (following the terminology of Z.Tesnière).

The choice of the fillers for the proposition places largely depends on the possibilities presented by the situation and the decision on the choice of the filler for the first actant of the proposition, then the next, etc. (see the hierarchy of influence of nominal elements on the lexical meaning of the verb in Fyodorova (1992). This choice we shall call, after Kuno, "empathy".

As it was mentioned above, the choice of fillers for the proposition depends on the possibilities, presented by the situation. It means that there are certain restrictions on empathy for different situations and of different types of presentation (homo- or heteromorphic or inclusion).

We shall describe the restrictions on empathy of the homomorphic representation only for the situations accounted for in the previous portion. Actually we shall take the situations, named by the verbs "build", "burn", "break", "open", "move", "walk", "go", "see", "look", "taste" and some of their synonyms.

All these verbs are used to fill in the predicate of the vector proposition, because sentences with them do not permit transmutation, and positively respond to the dynamic test. Thus their proposition has a frame with four actants: Agentive, Instrumentative, Patientive and Addressive.

When these verbs are used to name the situations described in the previous section the Addressive position is constantly vacant because the situations have no appropriate participant to fill it in.

Yet in the sentences with these verbs we can find nominal structures that imitate the Addressive. These are nominal phrases with prepositions "for" and "to" ("Mike tasted the coffee for Nelly", "Bob opened the door to (for) Mell" etc.). These structures can hardly be treated as Addressives because they do not participate in the process of shifting to higher positions and, thus, are outside of the proposition form. The question about these external "actants" needs special investigation for which we have neither place nor adequate analytic procedures.

Different relations are found in sentences with the verbs of motion. The nominal phrases with the preposition "to" in some of sentences seem to take part in the shifting process: "We slowly moved to the bridge – The bridge moved closer". But in fact we find here something resembling transmutation: "The bridge moved close of us". Yet we cannot recognise it as true transmutation because all other transformations typical of the development proposition cannot be used here ("*We (we and the Bridge) moved closer; *We and the bridge moved close to each other") It means that in this case we encounter a very special variant of empathy: mirror empathy when the final participant of the situation fills in the position of the first actant and the Doer occupies the position of an external actant. Thus we cannot find Addressive in sentences with these verbs.

ISBN: 0 08 043 438X

The situations named by the verbs "build", "break", "open" and "move" have enough participants to fill in all remaining four actant positions:

(1)John built his house only with a file and an axe.

(2)John built his house out of (with) oak trunks.

(3)Mike broke the windowpane with a stone.

(4)Mary opened the door with a small key.

(5)Jim moved that heavy block with a lever.

Sentences with the verbs "burn", "see", "look" and "taste" normally leave the Instrumentative position vacant, because the tools are presupposed by the verb (incorporated into the lexical meaning of these verbs). But sometimes the Instrumentative position is filled in ("Sam burnt the paper with a lighter"; "Arty saw it with his own eyes"; "Ann looked at him with her blue eyes"; "Robert tasted it on his pallet").

The sentences with the verb "walk" normally represent such variant of the situation in which the Doer, the Tool and the Object fall together in one person (or thing). The sentences with the verb "go" always represent the variant of the situation of motion in which the Doer, the Tool, and the Object are incorporated in one person (or thing). Thus the positions of the Instrumentative and Patientive in these sentences are vacant.

These general remarks are necessary to frame presentation of operation of empathy in selecting fillers for the arguments of the proposition from different situations.

The first situation to be described is the situation of coercion and namely the subsituation presented by the verbs "break" and "burn".

The most popular empathy choice is to place the Doer in the position of the Agentive then the Tool is chosen for the Instrumentative, and the Object is selected for the Patientive. The Result, if appears, is formed as an attached, external actant: (3) Mike (A/D) broke the windowpane (P/O) with a stone (I/T). (The letters in the parentheses represent the actants (deep cases) – the symbol to the left participant – the symbol to the right of the slant).(6)Sam (A/D) burnt the paper (P/O) with a lighter (I/T). Sentences (3) and (6) may be developed by adding the result:(3a) Mike (A/D) broke the windowpane (P/O) with a stone (I/T) into pieces (0/R).(6a) Sam (A/D) burnt the paper (P/O) with a lighter (I/T) to ashes (0/R).

But this is only the most popular variant of empathy. These verbs allow two more variants. It is possible to choose the Tool as the filler for the first, Agentive, position:(7)The stone (A/T) broke the windowpane (P/O)(8)The lighter (A/D) burnt the paper (P/O). These sentences can be developed by indication of the Result:(7a) The stone (A/T) broke the windowpane (P/O) into pieces (0/R)(8a) The lighter (A/T) burnt the paper (P/O) to ashes (0/R).

But the Doer cannot be used in direct syntactical connection with the predicate. It can appear as an attribute to the Agentive / Tool: (7b) Mike's (D) stone (A/T) broke the windowpane (P/O) into pieces (0/R) (8b) Sam's (D) lighter (A/T) burnt the paper (P/O) to ashes (0/R).

ISBN: 0 08 043 438X

As we can see, the choice of the Tool for the Agentive position makes the Instrumentative slot of the proposition vacant (or in fact deleted) and also the role of the Doer cannot be directly represented in the proposition. We may say that the initial actant of the proposition "slid" along the vector of the situation causing appropriate alterations in its own structure and its possibility to represent the participants of the situation. It seems as if displacing the empathy centre from the initial participant further to its final point "cuts off" all the participants preceding the chosen centre of empathy.

This interpretation is supported by the third variant of presenting the situation: choosing the Object for the function of the Agentive: (9)The windowpane (A/O) broke (10)The paper (A/O) burnt. And again the sentences can be easily developed by the Result: (9a) The windowpane (A/O) broke into pieces (0/R) (10a) The paper (A/O) burnt to ashes (0/R).

Such position of empathy causes deletion of the places for the Instrumentative and the Patientive and makes direct reflection of the Doer and the Tool in the proposition impossible.

At the same time we cannot but see that this slide of the empathy centre is reflected in the shift to the higher position process if we look at it from the point of view of the Object of the situation.

A possible fourth variant of the empathy, placing the Result in the Agentive position is not realised. This fact seems significant. Its significance becomes clear after we describe the variants of propositional (homomorphic) presentation of the other subsituation – the situation of creation.

The situation of creation has the sane set of participants (the Doer, the Tool, the Object, and the Result) as the situation of destruction. The difference between them is in assessment of the Result: the situation of creation presupposes positive assessment of the Result and imparts it with greater importance, while the situation of destruction presupposes negative assessment of the Result and imparts greater importance to the Object. This fact causes an important difference in the manner of presentation of the situation of creation by the vector proposition: the situation has less variants of positioning the empathy centre.

The variant of the empathy positioning which covers almost all the sentences with the verbs of destruction we have found fills the Agentive with the Doer :(11) John (A/D built his house (P/R) out of oak logs (O) only with an axe and a file (I/T)1.

Other participants appear in the Agentive position oily sporadically. It is possible to find the Tool in the Agentive position: "His cutter made a smooth surface". No less seldom the Object appears in the Agentive position: "Those oak logs made a strong house". Yet such sentences do not seem quite natural and their use is lexically restricted. The Result can never be met in this position. Here we see that the restriction for the use of the Result as the centre of empathy that was found in the previous situation seems to become universal.

The correlation of the situation of motion exhibits a similar relation. If the Result takes the position of the Patientive (e.g. in the sentences with the verbs like "approach" "reach" etc.), the empathy centre can hardly be moved away from the Doer John reached the theatre in a quarter of an hour". In fact occasionally the Path ("The road reached the village at the North

ISBN: 0 08 043 438X

end"), or the Object ("John's hand reached her shoulder") may appear in the Agentive position, but filling in this argument with the Result has not been found.

The importance of the resultative semantic feature for limitation of the empathy centre is evident in peculiarities of the possibilities of transitive and intransitive employment of verbs of motion. Such durative verbs as "move" and "walk" may have both intransitive ("John walked"), and transitive ("John walked his horse") usage, while terminative verbs like "go" and "come' can be used only in intransitive structures.
The restrictions on positioning the empathy centre in the complex situation of physical perception provides us with additional evidence for the importance of the positioning of the Result. The lexical units for naming the Source or the Initiator (Object) of perception are the same as the lexical units for naming the Result. The basic situation, that is named by the verbs like "see" and "hear", cannot shift the Patientive to a higher position, while the verbs naming a broader situation, the variant in which the Controller coincides with the Perceiver, can be used with the Object in the Agentive position ("John looked at Mary. Mary looked nice"). In view of the outcome of the previous analysis we may say that in the sentences with the verbs like "see" the Patientive represents the Result of the situation, while the same actant position in the sentences with the verbs like "look" is occupied by the Object. This may be supported by sentences where the Result of perception has a separate place in them: e.g. (12)"John looked at Mary and saw trouble in her eyes" or (13)"Mary looks a nice young lady".

Sentence (12) presents the situation of physical perception in details, each of the subsituations having its own clause and proposition. Comparison of the clauses shows that their propositions have a common Agentive/Doer (John) and different Patientives (Mary and trouble respectively). The direction of activity is from John to Mary and then to Mary's state of mind. Thus the Result of the situation is "trouble". and since it does not (and cannot: "John looked at trouble in her eyes" if can have any interpretation it is rather that Mary considered John troublesome but hardly otherwise, for that we have to substitute the proposition: "John looked for trouble in her eyes") place the Result in the Patientive position the empathy centre can move to the Object: (14) Mary(A/O) looked troubled. The same shift is found in sentence (13) in which both the Agentive/Object and the Result are presented as participants, substances, by nouns (Mary and lady respectively).

The restricting force of the resultative component is clearly evident, and can be traced in possible transformations of sentences homomorphically reflecting the situation of motion. The verbs which are used as the Predicate fillers for this situation fall into two distinct groups: verbs which can be used both transitively and intransitively ("move", "walk", etc.) and verbs which are used only intransitively ("go", "come", etc.). The intransitive use of these verbs, though, is different from the similar use of the verbs of coercion or physical perception: the intransitive meanings of verbs of motion most often imply that the Doer, the Tool and the Object are incorporated in one thing (or person): "John moved / walked /went / came", while the other verbs remove the Doer and the Tool from the representation of the situation. It suggests an idea that connections of the participants in the situation of motion are believed to be much stronger than those of the other situations mentioned before. Then the resultative component may be incorporated in the lexical meaning of some of the verbs of motion and prevent then any possible shift of the empathy centre from the complex Doer+Tool+Object, as it actually happens with the sentences employing "go" and "come" as the Predicate fillers.

ISBN: 0 08 043 438X

Comparative description of homomorphic presentation by propositions of three different situations makes it possible to conclude that there exist some restrictions on use of variant of choice of the empathy centre in the situation structure (for these situation the restricting power belongs to the Result).

5. CONCLUSION

The variant of syntactic description which we called here "COMPOSITIONAL" is designed as an attempt to co-ordinate and unite within one theoretical framework different concepts of semantic syntax, concepts which seem sometimes conflicting. Their co-ordination however gave possibility not only to understand some features of understanding and producing syntactic units, but also to propose explanations of some facts which till now where thought as those that we simply have to accept, as the restrictions on the placing the element in the Subject position which was discussed above. We think that further development of such approach to the syntactical sphere of Language can yield more profound results. As an example of possible development we may indicate the problem of the referential properties of some word-building affixes (the English affix -er has an obvious propositional reference since it indicates that the resulting noun names a possible Agentive but not the Doer: reader — is one who reads and is also the book which can be read), syntactically bound forms (surface cases, voice forms, etc.). We also think that spread of the approach to other domains of syntax and first of all investigating restrictions on heteromorphic representation of situations can give a new impetus to understanding one of the most miraculous features of all languages — the metaphor.

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