

Journal of Universal Language 3
September 2002, 75-111

Universals for the New Structural Level of Clause Representation*

Valery Solovyev

Kazan State University

Abstract

A new predicate-argument relation is introduced in this paper. Some arguments of the verb are distinguished as central to the base of surface marking. Information transfers from arguments to the verb are critical items of distinguishment; central arguments can be found in every language. While offering information transfers and centers classifications, this paper shows that the main property of centers is the scope of semantic roles accessible for central argument. Furthermore, this paper analyzes the relationship between the offered conception and well-known conceptions (subject, focus, etc.). This conception reveals a new view of the passive. In this paper, active-passive relations are interpreted as a choice of center position, but not as a transformation. The offered conception can be used to create a new language typology on the base of center properties.

Keywords: language typology, clause structure, information, universals, agreement, passive

* I sincerely thank Richard Fitzmaurice and Nail Bukharaev for the help in translating this paper.

1. Introduction

In this work, the structure of clauses is studied along with the classical predicate-argument relationship approach. Although this problem has been a focus of linguistic researches and publications, still there is no universally accepted theory. The examination of new data on rare and poorly explored languages gives us a picture of striking variety in predicate-argument structure organization. This data present interesting evidence to looking for the most fundamental universals forming the basis of language and shedding light on brain/mind cognitive mechanisms.¹

It is clear that different arguments have different relations towards predicate and that some of them are more important from the point of view of situation representation than others. We try to formulate to some extent an idea of such "importance" by introducing a concept of central arguments or—centers of clauses.

In the second section of the paper, we define the notion of the center and give the most characteristic examples. In the third section, this notion is compared with other close concepts such as subject, theme, pragmatic peak in the referential role grammar, etc. In the fourth, section the typology of the centers is described. Several parameters for comparison of centers are introduced. In addition, it is shown how the typology of the centers can be used as a basis for typology of languages. Interaction between several centers is investigated in the fifth section. In the sixth section, several examples, demonstrating general utility of the notion of center, are given. Finally, in the seventh section the psychological reality of the centers

¹ The topics are left beyond the boundaries of this research. In the spirit of the work of Li (1976), the topics are understood as something external relatively to the predicate-argument frame. The communicative structures of sentences are also left out of consideration, although certain aspects will be mentioned when necessary.

and cognitive mechanisms of human brain/mind that may be responsible for their appearance are discussed.

2. Basic Definition: Centers

2.1. Definition

All languages use surface marking (with the aid of cases, prepositions, etc.) to indicate semantic roles of noun phrases (NPs). The main statement of this work is to postulate the existence of one more semantic level of language structural organization—namely, the centers of predication. This level is independent; in each language, it includes one or more centers and surface means for their coding. As it has been already mentioned in the introduction, central are those NPs, which represent the most important participants of situation—meaning importance of cognitive representation of the situation, not the one seen from the view of communicative intentions of speakers.

Let us provide the definition of centers, starting from their surface marking, by distinguishing two main types of the marking means. Some languages use one of these types, other languages use the other one, while there are many languages that use both of them.

The first type of the surface marking includes position in sentence and other special means of marking. In languages with fixed word order, the most important NPs, such as subject and absolutive, occupy fixed positions, while placement of other NPs is less strict. In some languages such as Japanese, the central element such as the subject, has the special marker *ga*, which does not mark any specific semantic role.

Another technique of the surface marking is to carry NP information over to a verb.

- (1) Three main forms of carrying are:
- a. Carrying over information specific to an actant—to say, on the permanent basis, i.e., independent of the sentence in which it is met. It is agreement in number, person, gender, and class.
 - b. Registration, i.e., fixation on the verb of the existence or non-existence of the corresponding NP.
 - c. Carrying over information, which the actant obtains in the context of the given sentence—for instance, its semantic role. In this case, the NP itself often remains unmarked (the nominative case).

These instruments are widely used in various languages with reference to such NPs as subject, absolutive etc., evidently representing important elements of the situation.

As centers form another level of organization in comparison with the role structure, then, as a rule, they have also different means of coding. In such a way, one can oppose means of surface marking of semantic roles (non-central arguments) to those used in the predication centers' structure. The opposition is summarized below.

(2) Table 1. Means of surface marking

Role structure	Center structure
Morphological markers	Agreement with verb Registration on verb: rare Context information coding on verb Nominative form on NP Word order Morphological markers: rare

Based upon the aforementioned, the definition of center is given in (3).

(3) Definition 1.

We shall call the center an NP, which has one of the next properties:

- a. It agrees with or is registered on the verb.
- b. Its context information (in the first place, its semantic role) is encoded within a verb structure.
- c. It has the zero marking (the nominative form without prepositions and postpositions), and it has fixed semantic role. Moreover, all NPs with other semantic roles have non-zero marking.

Usually the center has also an additional property: fixed position in a sentence. A typical example of the center is the subject in English. The coding of the semantic role of the subject on a verb (property b) is realized in the form of the voice.

- (4) a. John killed Smith.
- b. Smith was killed by John.

The semantic role of the subject is unambiguously recognized here by the active or passive voice of the verb. Of course, the subject agrees with the verb, as seen in (3a).

Analogous examples in Russian are:

- (5) a. On ubil.
 “He killed.”
- b. On ubit.
 “He was killed.”

Here, the semantic role of the subject is represented in the verb. The example of a center in (3c) is absolutive in Udi (Bokarev & Lomtaduse 1967):

- (6) Shetjin bi-ne ashlah.
 he.ERG do-Pst.3Sg work²
 “He was doing work.”

In Udi, only patient (absolutive) has zero marking. The verb agrees with the ergative NP. Therefore, we have two centers: the ergative NP according to (3a) and the absolutive NP according to (3c). As follows from this example, a sentence can have several centers.

The examples from the next subsection and from the rest of the paper will make the conception of the center clearer.

2.2. Examples

The idea of carrying NP information over to a verb plays the key role in our approach. Consider some striking examples of carrying context information over to the verb.

2.2.1. Tagalog

The famous focus construction in Tagalog and other Philippine languages gives a distinctive instance of center (Schachter 1977).

² We shall use the next abbreviations:

A: agent	Acc: accusative	Art: article
Dat: dative	Declar: declarative	Erg: ergative
F: female	Gen: genitive	Honor: honorable
Instr: instrumental	Inv: inverse	Neut: neuter
Nom: nominative	Obj: object	Obl: oblique
Obv: obviativity	P: patient	Pass: passive
Past: past time	Pl: plural	Pres: present time
Prox: proximity	Ptcpl: participle	R: recipient
Sg: singular	Strong: strong version	Sub: subject
Superl: superlative	T: thing	Topic: topic
Weak: weak version	1: first person	3: third person.

- (7) a. Mag-bibigay ang babae ng bigas sa bata.
 A-give Topic woman P rice to child
 “The woman will give some rice to a/the child.”
- b. I-bibigay ng babae ang bigas sa bata.
 P-give A woman Topi crice to child
 “A/the woman will give the rice to a/the child.”
- c. Bibigay-an ng babae ng bigas ang bata.
 give-R A woman P rice Topic child
 “A/the woman will give some rice to the child.”

One of the verb arguments is marked in Tagalog by the *ang* particle, which is not a semantic role marker. The semantic role of the argument is encoded within the verb by some affix—namely, *Mag* for an agent, *I* for a patient. Thus, in Tagalog, the center has a special marking and semantic information transfers are realized here in the most pure way.

2.2.2. Tabasaran

An interesting example of the carrying of semantic information can be observed in Tabasaran (Mel'čuk 1998).

- (8) Dumu iz-i?in alarxu-nu-zi?in.
 he-Nom I-Superl attack-Past-1sg.Superl
 “He attacked me.”

Here, the verb agrees with the actant in the first person and the semantic role of the latter is expressed by the verb with the same form of the oblique case as the actant itself.

2.2.3. Korean

For centers, the carrying of other information is apart from the

semantic role and standard agreement one. In other words, in Korean, person information is marked on the NP as well as on the verb. Consider the following example from Haselmeth (1990):

- (9) Abenim-ggeyse say jadongca-lul sa-si-ess-da.
 father-Honor new car-Acc buy-Honor-Past Declar
 “Honorable father bought a new car.”

2.2.4. Montanie

In the Algonquian languages, the verb carries information on a special grammatical category of center—proximity or obviativity. Consider the following example from Montanie (Ford 1981):

- (10) a. Šāwš+Ø wāpame+w nāpew+a.
 George-Prox see-Prox man-Obv
 “George sees the man.”
 b. Šāwš+a wāpame+nu nāpew+Ø.
 George-Obv see-Obv man-Prox
 “George sees the man.”

In Montanie, the verb agrees with subject in obviativity.

2.2.5. Tamil

In Tamil, a verb takes a weak form (with affix *-t-*) or a strong form (with affix *-tt-*) depending on the degree in which a subject is affected by the action described by the verb. If a subject is affected by an action, then the verb takes a weak form, and vice versa.

- (11) a. Racikarkal natikaiyai valain-t-u
 fans.Nom actress.Acc surround-Weak-Ptcpl

- | | |
|--|-----------------------------------|
| kontu | āt-in-ārkal. |
| take.Ptcpl | dance-Weak-Past |
| “The fans surrounded the actress and danced.” | |
| b. Racikarkal | natikaiyai valai-tt-uk |
| fans.Nom | actress.Acc surround-Strong-Ptcpl |
| kontu | āti-tt-ārkal. |
| take-Ptcpl | beat-Strong-Past |
| “The fans surrounded the actress and beat her up.” | |

According to Klaiman (1988), in (11a), the action (surrounding) affects the subject (the fans), while in (11b) the affected entity is the object (the actress).

2.2.6. Lakhota

In languages, like Lakhota, agent/patient roles are marked on the verb independently of transitive or intransitive clauses. For example, if the first person is an agent, then the verb takes the affix *wa-*, and if the first person is a patient, it takes the affix *ma-* (Mithun 1991, Payne 1997).

- (12) a. Wa-škate.
 1Sg-play
 “I play.”
- b. Ma-t’e’.
 1Sg-die
 “I die.”
- c. Wa-Ø-ktékte.
 1Sg-3Sg-kill
 “I kill him.”
- d. Ø-ma-ktékte.
 3Sg-1Sg-kill
 “He kills me.”

Both agent and patient actants are centers marked in two pre-stem slots of the verb. In transitive clauses, the first slot corresponds to an agent and the second to a patient.

2.3. Types of Carrying Information

Let us analyze in more detail the forms used to carry context information—mainly, semantic role information—from the central NPs over to the verb.

In many languages, the center takes the nominative form without any semantic role marker. In this case, some special verb affixes are used for semantic role marking. For instance, in English, Russian and many other nominative languages, the semantic role of the subject is encoded in the active or passive form of the verb and it can be easily restored from this form. This information carrying is extremely important and essential although it has not yet attracted sufficient attention from linguists. When verb structures have affixes or other surface means for semantic role marking (including \emptyset , if it can be postulated), we speak of finite carry or briefly F-carry. In this case, we imply that the marker has reached the terminal. As it was stated above, F-carry exists in Tagalog and Tabasaran languages.

An NP itself may have or may not have the semantic role marker (we assume here, that the language has semantic role markers). In the latter case, we call it inceptive carry or I-carry. This type of carrying is usual for English, Russian and Tagalog, but not in Tabasaran, where semantic role marking is preserved by an NP.

The next type of semantic information carrying is characterized by the fact that verb structure has no affixes directly expressing the semantic roles of actants, but these roles can be "computed" by the given structure. We call this type of carrying virtual or V-carry. Consider an example from the Abkhaz language (Bokarev & Lomtadse 1967):

- (13) Apheyzba lahesh'a i-ly-y-teit
 Girl her-sister 3Sg.T-3Sg.F-3Sg.F-gave
 asheku.
 book
 "The girl gave the book to her sister."

Abkhaz does not use postposition with agents, patients and recipients. Agreement is accomplished in number, person and class (male, female, and thing). Its verb structure has no affixes which directly denote the semantic roles of actants, but the agreement affixes take strictly determined positions (object-recipient-subject, for three-actant verbs); the semantic role of an actant can be established by the position of the corresponding affix.

One can observe somewhat different but still similar situation in Yimas, where the semantic role of the agreed arguments is not directly marked but can be easily determined. Consider the following example from Foley (1991):

- (14) a. Pu-ka-tay.
 3Pl-1Sg.A-see
 "I saw them."
 b. Na-ka-tay.
 3Sg-1Sg.A-see
 "I saw him."
 c. Pu-ŋa-tay.
 3Pl-1Sg.P-see
 "They saw me."
 d. Na-ŋa-tay.
 3Sg-1Sg.P-see
 "He saw me."

Both of the nucleus arguments (agent, patient) agree with the verb; the argument, corresponding to the pre-stem position in the

verb, agrees with the verb in person and number and its semantic role is also encoded at the same position. The other argument, corresponding the initial slot, agrees with the verb just in number. By our definition, they both are centers. As the semantic role of one of the arguments can be determined immediately in the verb structure, the role of the other argument can be determined as the one left free from the (agent, patient) pair.

However, also there are cases where the semantic role of the argument cannot be determined by the verb it agrees with. The next example (Kubrik 1997) from the Chirak dialect of the Dargi language shows that: the verb *r-iqan-da* (FEMALE-to lead-1SG) can mean 'I lead her' as well as 'he/she leads me (FEM)'. This situation denotes \emptyset -carry, which means no carry.

Consider the example from the Bagvalal language (Kibrik 2001):

- (15) Çali-r ril' b-aq'i.
 Ali-Erg meat.Nom cut
 "Ali has cut meat."

Here, *b* is an agreement affix for the middle class to which 'meat' belongs. Bagvalal is an ergative language. Transitive verbs agree only with NPs in the nominative case with the semantic role of patient (or stimulus). This semantic role together with the S role (the one-place verb actant) can be united into the semantic hyper-role of *absolutive* (Kibrik 1997). There are no voice transformations in Bagvalal. As verbs always agree only with absolutive, one can conventionally assume that the absolutive semantic hyper-role of actant, agreed with a verb, is encoded in the verb itself. Although in this case the verb structure has no corresponding affix, the semantic role of the agreed argument can be determined by outward appearance of the verb. Let us call this conditional carry or C-carry.

Several types of carry can take place at the same time. For instance, English has both F-carry and I-carry.

Further, this paper suggests that the absence of the semantic role markers on NP does not guarantee the existence of I-carry. Languages may not simply have such markers at all. Consider the Riau-Indonesian language. In accordance with description in Gil (1994), this language has no cases and few existing prepositions, which do not mark the nucleus semantic roles. Besides, there is no agreement. Riau-Indonesian is the closest candidate to have no centers at all. Nevertheless, Gil (1999) presents verb affixes *di-* and *n-*, pointing to the existence in situation of a patient and an agent. Thus, the semantic role of some situation participant (not necessarily presented on the surface level) is still reflected somehow on the verb; hence, the F-carry mechanism also exists in Riau-Indonesian.

The following example from Nocte (Payne 1999) shows that F-carry is not necessarily followed by I-carry.

(16) Nga-ma ate hetho-ang.
 1-Erg 3.Acc teach-1Sg
 “I will teach him.”

(17) Ate-ma nga-nang heatho-h-ang.
 3-Erg 1-Acc teach-Inv-1Sg
 “He will teach me.”

Judged by the verb agreement, the center in Nocte is determined deictically, and its semantic role is encoded on the verb either by zero affix if a center is an agent, or by the affix *h* if it is a patient. Thus, F-carry has a place. Nevertheless, NP marking is preserved here; hence, there is no I-carry.

2.4. Universals

Let us formulate now the main statement of this present paper.

(18) Universal 1.

Each language has at least one center.

Of course, this does not mean that the center has to be present in the surface representation of all sentences of a language; however, it does mean that the language includes corresponding means to uncover the center and the presence of centers can be postulated for that language.

Nevertheless, centers have a high level of necessity in a sentence. If none of the real participants of a situation becomes a center, then the language usually uses the strategy of introducing virtual participants to occupy the position of center. In some cases, the latter are independently phonologically realized; in this way, the empty subjects come in. In some other cases, the presence of centers in mental representation is fixed just by some corresponding forms of verb agreement. For instance, in the so-called impersonal passive form, verbs usually get a form of 3SG or 3PL and neuter gender if there is an agreement in gender. Consider an example of such no-subject construction in Russian:

- (19) Dorogu razmylo dogdiami.
 road.Acc to be washed out.3Sg.Neut rains.Instr
 “The road was washed out by rains.”

As it was mentioned earlier, a clause may have several centers. In this case, they can be compared by level of information carry. As a rule, one of the centers has higher level of carry.

(20) Definition 2.

We shall call the *main center* the one with the highest level of carry.

Summarizing what has been said, this paper proposes a visual

image of clause structure. NP1, NP2 . . . denote arguments of a verb V, MC denotes the main center; C2 and C3 denote the rest of the centers. A, P and R denote an agent, a patient and a recipient, respectively.

(21) Figure 1. Example of clause structure

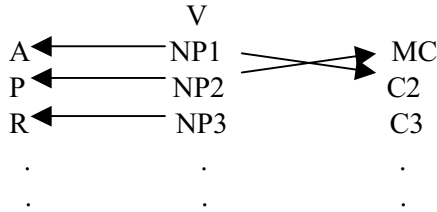


Figure 1 in (21) shows semantic roles of NPs and their central status. Clauses with the pictured structure are possible in Yimas. The graph can be written in a linear form such as V (NP1[A, C2], NP2[P, MC], NP3[R], . . .).

3. Comparison with Other Concepts

Some well-known grammar conceptions are close to the centers, but still differ from the centers. We examine the main conceptions: subject, theme, focus of attention, pragmatic peak, and head-marking.

3.1. Subject

If a language has a traditional subject, then it will be (the main) center. In fact, in some languages, the subject agrees with the verb. Besides, in the majority of the languages, it is expressed by the nominative, i.e. I-carry has a place. The proposed concept of the center is a generalization of the notion of subject. Although subjects

comprise an important class of (main) centers, they are not alone. From elementary properties of subjects, enumerated in Keenan (1976), the following ones are taken as the basis for generalization: case marking and verb agreement. From the point of view of our approach, other properties of subjects (syntactic, referential, etc.) are properties of centers, because usually they are not implicitly connected with the role properties of NPs. Hence, one can expect that in languages with no subjects, centers will still have some of their properties. Exactly such a situation exists in Tagalog. The NPs, usually called in Tagalog “focuses”, are not regarded as subjects (Schachter 1976), but as it is shown in Schachter (1977), they have a considerable part of typical subjects properties.

3.2. Theme, Focus of Attention, Pragmatic Peak

A theme is what a sentence tells about. The theme is related to the communicative level of sentence organization, that is what differs it from centers, which belong to the semantic level.

The close notion of attention focus is also related to the communicative level (Tomlin 1994). In many cases, the theme and the center coincide. In English, a subject is at the same time a theme. But examples from Russian show that it is far from being a general rule (Tomlin 1994). These clearly demonstrate the difference between the focus of attention (theme) and center.

- (22) a. Krasnaia rybka s'ela beluiu rybku.
 red fish.Nom to eat.Past white fish.Acc
 b. Beluiu rybku s'ela krasnaia
 white fish.Acc to eat.Past red
 rybka.
 fish.Nom
 “The red fish has eaten the white fish.”

In (22a) and (22b), the center (subject) is the same; however, as in (22a), the themes in these sentences are different. In Russian, theme is marked sentential-initially, while subject is marked by the nominative case and verb agreement.

Note, that in Russian, there is also a passive voice and the following sentences are also grammatically correct:

- (23) a. Belaia rybka s'edena krasnoj
 white fish.Nom to eat.Past.Pass red.Nstr
 rybkoj.
 fish.Instr
- b. Krasnoj rybkoj s'edena belaia
 red.Instr fish.Instr to eat.Past.Pass white
 rybka.
 fish.Nom
- “The white fish has been eaten by the red fish.”

Thus, semantic/cognitive importance (center) and communicative importance (theme, focus of attention) are independent concepts. Consider one more example dialogue from Tagalog (Schachter 1977):

- (24) Speaker A: Nasaan ang katulong?
 where Topic maidservant
 “Where is the maidservant?”
- Speaker B: Inihahanda niya ang pagkain.
 P-prepare A-she Topic food
 “‘She’s preparing food.”

Despite the fact that in this situation the focus of attention is ‘maidservant’, in the answer ‘food’ is marked as a topic, while ‘maidservant’ is represented by the pronoun in the form of agent/non-topic. Hence, in Tagalog, the topic/center is not necessar-

ily related to the focus of attention—a topical constituent, in the generally accepted sense.

The pragmatic peak is defined in van Valin & Foley (1980) as the most valuable NP in elementary sentence from the point of view of speech selection and the focus of speaker's interests. This leads us to a distinction between the pragmatic peak and the center. For instance, according to van Valin & Foley (1980) in the Choctaw the main candidate for the status of subject is the NP, marked with *-t*, which is defined on a purely semantic basis as the NP of the highest rank in the hierarchy: agent > patient > dative > oblique; hence it can not be regarded as a pragmatic peak. Consider the following example from Heath (1977):

- (25) Hattak a-t oho:yoh ã:
 man Art-Sub woman Art-Obj
 Ø-Ø-pisa-h.
 3A-3P-to see-Pres
 “The man sees the woman.”

Here, the NP with the *t*-marker agrees with the verb; its semantic role is marked on the verb; therefore, it is the main center in the sense of our definition. Moreover, Choctaw also has the second center. In (25), it is the patient. In this language, centers are the most semantically important participants of verbalized situation.

3.3. Head-marking and Dependent-marking

The approach we have developed is conceptually close to that of Nichols (1992), who classified syntactic connection marking as head-marking and dependent-marking and then compared languages in this respect. Our approach is narrower because we are only considering connection between the verb and actants. On the other hand, we have introduced much more detailed classification of connec-

tions, which makes it possible to specify some of empiric data. For instance, according to Nichols (1992), clauses in Chechen are dependent-marked.

- (26) Da:-s woça-na urs-Ø tú:xira.
 Father-Erg son-Dat knife-Nom struck
 “Father stabbed son.”
 (lit. “Father stabbed a knife into son.”)

However, in Chechen, ergative as well as dative NPs are not central and, in particular, have no verb agreement. That is why the presence of semantic role markers corresponds to the presence of those in oblique objects. In the example, the clause position of center is held by the NP *urs* (knife) in the nominative case, which points to I-carry. Surely, the fact that the instrumental NP occupies here the place of center is somewhat extraordinary; it is an exception having a place for the given verb. Thus, clauses in Chechen can't be interpreted as dependent-marked.

Therefore, we see that the centers differ from other concepts.

4. Classification of Centers

Our next goal is to select those basic properties of centers, which allow the building of their classification.

Types of carrying information over to the verb are the main parameters of classification. Depending on the combinations of the types of context information carry described above, centers can be characterized as V-, I-, IF-, IV- centers. Besides, centers either do or do not demand verb agreement.

4.1. Degree of Mobility Relative to Semantic Roles

The next parameter is the degree of mobility of centers relative to semantic roles, i.e., answering—NPs with what kind of semantic properties can be central. This parameter can take three values: fixed, non-fixed deterministic and non-deterministic.

The center is fixed if it has the same semantic role in any sentence. Such are centers in Udi (6) and Bagvalal (15). On the contrary, centers, which are not fixed, can have various semantic roles.

The center is deterministic if it is unambiguously determined by the set of situation participants—at least in the majority of sentences. Centers in Choctaw (25) are deterministic (but non-fixed). Respectively, non-deterministic center can be selected differently in the same situation.

Determinacy may be influenced by different factors, such as the semantic roles of situation participants, their deictic status (i.e., their level in the deictic hierarchy), animation, definiteness, etc. In a language, there can also be found hierarchically ordered combinations of these factors. For instance, the deictic hierarchy—1st person > 2nd person > 3rd person—may serve as the first factor. In a transitive sentence where there are no 1st or 2nd persons and correspondingly two situation participants are 3rd person, the semantic roles hierarchy—agent > patient—come into force as the other factor.

Above, there were given examples of languages with deterministic centers; in Choctaw, the center is determined by semantic roles, and in Yimas, it is determined by the deictic hierarchy. To be more precise, in Yimas, the center is ruled by two hierarchies—the deictic and the role ones. If one of the nucleus arguments is higher in the deictic hierarchy, it occupies the position of the main center, and if both arguments are in the 3rd person, then the agent becomes the main center. Consider the following excises (Foley 1991):

- (27) a. Pu-n-tay.
 3Pl-3Sg.A-see
 “He saw them.”
 b. Na-mpu-tay.
 3Sg-3Pl.A-see
 “They saw him.”

Animation plays the main role in Navajo (Witherspoon 1977). For instance, it is possible to say:

- (28) Hastiin líí' bi-ztał.
 man horse Pass-kick
 “The man was kicked by the horse.”

Here, the presence of the affix *bi-* points to the passive role of the actant, standing in the first place. However, it is impossible to say:

- (29) *Łíí hastiin bi-ztał.
 horse man bi-kick.

In Navajo, the participant of the situation, occupying the highest place in the animacy hierarchy (man>animal>inanimate object), must take the first position in a sentence regardless of its semantic role. In Navajo, the main center is marked by the initial position and, for the third person, it is determined by animation.

In the Diaru, the selection of the actant agreeing with the verb depends on quantity. Consider the following example from Tsunoda (1981):

- (30) Lampara-lu ŋa-ø-anu yin-a
 father-in-law-Erg aux-3Sg.A-3Pl.Obj to give-Past
 yampa-ø murkun-ku ŋumpir-ku.
 child-Nom three-Dat wife-Dat

“Father-in-law gave the child to (his) three wives.”

Here the verb agrees with the agent and also with the plural form of the object, which has the semantic role of the recipient.

(31) Lampara-lu	ŋa-ø-anu	yiŋ-a
father-in-law-Erg	aux-3Sg.A-3Pl.Obj	to give-Past
murkun-ø	yatra-apa-ø	ŋumpir-ku.
three-Nom	child-Pl-Nom	wife-Dat
“Father-in-law gave three children to (his) wife.”		

Two concepts—admitted values domain and priority position—are also important for description of the centers.

We shall call the set of semantic roles of central NPs its admitted values domain (Dom, for short). It can be equal to {A, P}, {A, P, R}, etc. Centers in the Philippine languages have greater domains.

We shall call the most frequent position of the center its priority position. In language, the position of the center is most often held by an NP with some definite semantic role. For instance, in Russian, the main center is usually an agent. The priority position of the main center in many languages is characterized by the fact that verbs in such sentences are found mostly in their shortest form. At the same time, if the main center does not hold its priority position, then the verb has additional passive-type affixes. Most likely, this is not incidental and arises from reasons of economy—the most frequently used constructions should be shorter.

4.3. Other Parameters

One more parameter is provided by the constraints not connected with semantic roles but imposed on an NP to make it a center. Say, in Tagalog, focus-topic (or center, in our terminology) should be defined (Schachter 1977).

The least parameter is type of variation of verb marking, depending on the semantic role of center. For instance, in Welch, verbs agree only with agent subject and become morphologically invariable in passive constructions including subjects with different semantic roles (Keenan 1976); morphological marking of subject remains the same.

5. Interaction of Several Centers

If some language has several centers, then the following question arises: Can one NP make several centers at the same time? A priori, the answer is positive, if these centers implement independent ideas of NPs "importance". For instance, in Kapampangan, a verb agrees with two NPs, one of which has the semantic role of the agent and the other is a topic. Consider the following example from Keenan (1985):

- (32) I-sulat-na-ya (-ne) ning lalaki ing poesia.
 P-write-Neut/3Sg.A boy Topic poem
 "The poem was written by the boy."

These two roles can coincide on one NP. In this case we get the following sentence shown in (33).

- (33) Su-mulat-ya ng poesia ing lalaki.
 A-write-3Sg Obj poem Topic boy
 "The boy will write a poem."

Here, the verb agrees with the agent-topic, the agent-agreement marker is preserved, and FI-carry from the topic is fulfilled in the standard way.

Another question, concerning the interaction of centers, is the

following one: Do different centers establish their values independently from each other? Let us distinguish two cases.

- (34) a. One of the centers is fixed.
 b. Both centers are not fixed.

In the case (34a), to speak of the influence that one center has on the other is rather difficult. In the case (34b), the situation is more complicated. In this case, again two cases can be distinguished: coupled centers and hierarchically ordered centers.

In terms of coupled centers, value of the main center determines the value of the other one rigidly. The examples (14, 27) from Yimas are exactly of this type; if agent NP is the main center, then the second center is a patient and vice versa. In fact, in languages of this kind we have not two but "one and a half" centers, as the second one is completely dependent.

On the other hand, in terms of hierarchically ordered centers, an initially chosen value of one of the centers is then included in the admitted values domain of the other.

Take Indonesian for an example. Here, we have two centers marked with pre-verb and post-verb positions without prepositions. The pre-verb position is occupied by the subject (the main center) and the post-verb position is occupied by the direct object (the second center). According to Johnson (1977), post-verb positions may be occupied by NPs with semantic roles of patient, recipient and benefactive. Pre-verb positions may be occupied only by an agent and the NPs, which earlier held the position of the direct object. Immediate occupation of pre-verb position, for example, by recipient, is impossible. In our terms, the fact can be expressed in the following way: $\text{Dom}(C2) = \{P, R, BEN\}$, $\text{Dom}(MC) = \{\text{agent}, C2\}$, where C2 is the second center and MC is the main one.

We do not know an example of a language with two non-fixed independent centers, i.e. with the centers receiving their values

completely independent of each other.

(35) Universal 2.

- If language has two centers, then
- a. at least one of them is fixed, or
 - b. they are coupled, or
 - c. they are hierarchically ordered.

6. Application of the Concept of Center

In this section, the main linguistic applications of the centers are examined.

6.1 Theoretical Linguistics

Distinguishing the new level of language organization makes it possible to take another look at old problems and to propose some new decisions. Let us demonstrate it by observing the passive sentences. Under the influence of generative linguistics, there has formed the prevalent view that the passive is a transformation of active structures to passive ones. At the same time, some of the most fundamental questions remain unclear. What is the main function of passive—demotion of agent or promotion of patient? Convincing arguments in favor of the both points of view were stated in Comrie (197) and Perlmutter & Postal (1983).

Introduction of the center level makes it possible to reconcile these points of view and to propose a non-transformational approach to the passive. Within the framework of the transformational approach, there are postulated two stages of sentence formation: constructing of an active form and, if it is necessary, its transformation into a passive one. Along with this development, the construction of sentences also pass through two stages, but of different natures—

namely, distinguishing and marking of semantic roles and the selection of centers. In the first stage, semantic roles are assigned to all participants of a situation and each of these roles receives a corresponding marker. In the second stage, the values of all centers are selected. The values of fixed and deterministic centers are unambiguously defined by the situation participants set, the values of non-deterministic centers are freely chosen from the admitted values domain; the latter is usually used to express communicative intentions of speaker.

A typical nominative language with the passive form has the main non-deterministic center with the admitted values domain {A, P}. Marking of this center is the nominative case on NP and verb agreement. If an agent is chosen as the value of the center, then it is marked with the nominative, while a patient is marked by the accusative. The semantic role of the center as an agent is carried to the verb and is expressed by the active form (the form without additional affixes). In the case where a patient is chosen as the center, it is marked by the nominative and the agent is marked by an agentiveness marker. The semantic role of the center as a patient is carried to the verb and is expressed by a passiveness affix; the result is a passive sentence.

Compared with the traditional transformational point of view on the passive, this view differs in two fundamental aspects:

- (36) a. Active and passive forms are equally basic; they differ only by center value selection.
 b. In passive forms, the marker of agent is interpreted not as a *chômeur*, the special demotion marker, but as an agentiveness marker, equal in rights with other semantic role markers.

According to the item a, the function of the passive is putting a patient in the center in the same way as the function of the active is

putting an agent in the center. In the framework of described conceptual apparatus the question of "promotion" or "demotion" does not arise at all because there are no transformations present.

Let us deduce some consequences from the item b, which can be regarded as arguments in its favor. As the item a, the item b telling about non *chômeur*-likeness of agentiveness marker in the passive makes it possible to take a new look on some properties of the passive. Consider the law of exclusiveness of advancement to the first position (the position of subject) from (Perlmutter & Postal 1984). It holds that for a simple sentence there is only one advancement to the first position. In the above-mentioned work it is demonstrated on examples from Sebuano. Below are examples of one active sentence and two passive ones, which are regarded as results of various advancements into the first position.

- (37) a. Nagsulat si Lito sa balita kang Maria.
 A-write Nom Lito Obl news Obl Maria
 "Lito wrote the news to Maria."
 b. Gisulat ni Lito ang balita kang Maria.
 P-write Gen Lito Nom news Obl Maria
 c. Gisulatan ni Lito si Maria sa balita.
 R-write Gen Lito Nom Maria Obl news

In the sentences (37b) and (37c) the marker *ni* is regarded as a *chômeur*, but from the point of view of our approach it is an agent marker.

Further, Perlmutter & Postal try to apply one more advancement transformation to the sentences (37b) and (37c) and end up with grammatically incorrect constructions:

- (38) *a. Gisulat ni Lito ni Maria ang balita.
 P-write Gen Lito Gen Maria Nom news
 *b. Gisulatan ni Lito ni Maria ang balita.
 R-write Gen Lito Gen Maria Nom news

From our point of view, former first position holders can be marked only with ordinary markers of their semantic roles. Therefore, after advancement of, say, the NP *balita* in (37 c) into the first position, the NP *Maria*, which formerly occupied this position, should be marked by its initial marker of the indirect semantic role ‘kang’. Instead of (38) one would expect to get the following sentence:

- (39) Gisulat ni Lito ang balita kang Maria.
 P-write Gen Lito Nom news Obl Maria

The point is that when we change ‘advancement’ of NP to ‘selection’ of the position of the center, ‘double’ advancement would be changed to double selection, which can be regarded as an intermediate selection in some mental operations. However, surely the result of double selection is simply equal to the result of the last one. In such a way, the concept of centers gives a cognitive explanation of the impossibility of ‘double advancement’.

Let us look at one more important aspect of the theory of the passive. The generally recognized point of view on the function of passive holds that it provides the right realization of communicative intentions of a speaker. If a patient is more topical, then the speaker uses a passive form. However, this point of view, despite its apparent obviousness, is not completely right.

For example, in Russian, it is quite possible to move a patient to the topical position without using the passive. So, why is the passive used in Russian? For the answer to this question, look in cognitive, not communicative, structures of situation representations. If a center is free, i.e. it can be selected from two or more NPs, then the selection is made from several possible cognitive structures. The fact that this selection can be used in communicative purposes is a derived phenomenon.

6.2. Typology

There have been put forward the idea to build a new typology of languages. It was proposed to take as its basis semantic roles and several other parameters, including character of verb agreement. Regrettably, up to now, this idea remains unrealized.

Distinguishing the structural level of predication centers provides a new impulse to this idea. Since verb agreement is most often used for the marking of centers, then the construction of a centers-based typology is well correlated with the Fillmore's idea. The centers-based typology should classify languages by quantity and types of centers. In this paper, we are unfortunately not able to present this typology in its final form.

However, we would like to address the two essential features regarding this issue.

The first is that the main classes of languages are described well in the terms of semantic roles and centers: relationships between them become clearer. Let us introduce compact notation for the principal properties of centers and apply it to description of the main centers of the nominative and ergative languages.

The nominative languages are the languages with the main center, which is either fixed on an agent or free with the set of admitted values including an agent. The semantic roles A and S are united into one hyper-role, which is the priority position of the main center. Let us denote it like this:

(40) Main center of a nominative language:

Quantity: 1
 Domain: {A, . . . }
 Type: fixed or free
 Priority position: A

The ergative languages are the languages with the main center,

which is either fixed on a patient, or free with the set of values, including a patient. Let us denote it like this:

(41) Main center of an ergative language:

Quantity: 1

Domain: {P, . . .}

Type: fixed or free

Priority position: P

In the same way, the active languages can be characterized as those having two centers, one of which is fixed on an agent and the other one is fixed on a patient and the languages with inverse structure as the languages with two ‘coupled’ centers. Special attention should be paid on the uniformity of these descriptions with a conceptual apparatus of centers as its basis.

The other feature is that on the new metalanguage some new questions, unnoticeable in other terminology, can be put forward. Naturally, there appears the question—what combinations of centers are possible in language?

The proposed metalanguage is especially effective in complicated cases. Thus, for the Kapampangan language, various descriptions as an ergative, a nominative and even as an inverse language were given (Kibrik 1997, Keenan 1985). Let us return to the examples (32) and (33). One way to interpret the structure of these sentences is the following: (33) is an active sentence and (32) is a passive one that the agent is not deleted. Moreover, it preserves verb agreement. This is the nominative structure interpretation.

The other version is to regard (32) as an initial ergative structure with the verb, agreeing with both nucleus arguments and (33) as anti-passive with the usual promotion of the ergative to the absolutive and removal of the latter into the peripheral position.

This divergence of opinions indicates that the traditional set of concepts used in modern typology sometimes does not reflect clause

structures adequately. In the beginning of the section above, a new interpretation of the Kapampangan data, based on the approach developed in this paper, was given.

It seems that the metalanguage of centers and semantic roles is universal and complete enough to build a consistent typology of language on the clause structure level.

6.3. Artificial Languages

The language universal in subsection 2.4. must be taken into account in the process of artificial language planning. Let us examine Esperanto, one of the most famous artificial languages.

In Esperanto, there is no agreement between verbs and actants; there is a semantic information transfer.

- (42) a. Mi skrib-is letero-n.
 I write-Past letter-Acc
 “I wrote a letter.”
- b. La etero estis skrib-ita de mi.
 Art letter was write-Pass.Ptcpl.Past by I
 “The latter was written by me.”

In (42a) and (42b) the subject is nominative independently of its semantic role. At the same time, the verb’s forms are different. If the subject is a patient, then the predicate consists of the auxiliary verb *estis* ‘was’ and a participle in the passive voice. The agent-nonsubject is marked by the preposition *de*.

Thus, although the center conception was unknown, it is possible to reveal centers in Esperanto. Their properties are typical for nominative languages. This is not surprising, because Esperanto was created on the basis of Indo-European languages.

Another example is from Unish (Lee 2002). In Unish, the subject takes the fixed initial position in a sentence and also does not have

the markers of the semantic roles.

- (43) a. Me skrib-ed buk.
 I write-Past book
 “I wrote a book.”
- b. Buk be-skrib-ed be me.
 book Pass-write-Past by I
 “The book was written by me.”

If the subject is agent, then the verb has a main form, and if the subject is a patient, then the prefix *be* is added to the verb. Unish also has the center. However, Unish has one peculiarity. The morpheme *be* is also used to mark the agent-nonsubject. It is a strange decision. The morpheme *be*, as a verb prefix, is a marker of patient role. Therefore, *be* has two diametrically opposite values. As we know, in natural languages, the passive form of the verb and the agent-nonsubject can not be marked by the same morpheme. This means that conception of centers can be useful in different aspects for creation of artificial languages.

7. Are Centers Real?

In this section, we will discuss in brief the issue of whether centers exist. Can they claim to have the same ontological status as, say, constituents and semantic roles? Surely, the latter notions are old, well studied, and have become universally accepted. We hope that further studies into centers will show that they are not just convenient instruments for describing language, but are also primary element of human language faculties.

The main argument in favor of such a strong statement is based on the fact that centers can be found in all the languages; in different languages, they have the same cognitive functions of structurally

important elements selection, as well as similar methods of coding, easily distinguishable from methods for coding elements of other levels such as semantic roles, communicative structure of sentence etc. The independence of centers is proved by presence of the virtual centers expressed by such means as empty subjects, PRO, verb agreement in impersonal passive etc.

It is important to note that the mutual usage of conceptual apparatus' of centers and semantic roles allows for the building of uniform descriptions of nucleus parts of clauses for languages of different structures. As it may be supposed, the psychological mechanism, responsible for forming in language the level of predication centers, is the mechanism of the cognitive schemes (frames) for knowledge representation. Let us explain what this means.

Obviously, things and actions have fundamental differences in mental representation. Verbs, having no direct references in the physical world, obtain (in general) a higher level of abstraction in comparison with nouns. To represent them, there is a need for schemes, 'binding' verbs to some real substances, directly participating in the corresponding actions. Thus, if behind the word 'a rock' stands some visual image of a typical rock with no other objects concerned, then to imagine the action 'to kill' with no connection to who kills and who is to be killed is hardly possible. Exactly these parameters, which are necessary to operate with verbs, are expressed in language by centers.

Thus, languages use various concretization mechanisms such as incorporation, verb constituents, actants. In all of these cases the matter concerns the formation of the complex 'verb-noun' systems with connection between components of various degree and forms.

While preserving their independence, verbs and centers are so closely connected to each other that carrying a part of information (agreement, semantic carry) from parameters-centers to a verb can be regarded as the most natural and providing at least partial interpretation of abstraction, expressed by the verb. If in language a cen-

ter is free, then it means that an abstraction, included in verb, can be interpreted ('brought in to land') by several different methods. For many languages, the abstract verb *kill* due to presence of substantially valued variables is realized in the form of one of two more specific schemes: 'Somebody killed' and 'Somebody is killed'.

Lastly, it is worthwhile to pay attention to the terminology used in this paper for building the classification of centers. Terms which are used such as fixed, deterministic, information carry, coupling, priority position, etc. have no special linguistic (morphological, semantic etc.) character, but general cognitive character. The presence of the proper cognitive metalanguage of descriptions is one more argument in favor of the existence in our language faculties of an independent mechanism, which provides the existence and the functionality of centers.

8. Conclusion

In a number of previous studies, some verb arguments were called central, but the word was not used as a precise theoretical term. In this work, an attempt was made to make this term explicit. The definition of centers and their classification have made it necessary to develop a proper descriptive metalanguage and have allowed for the formulation of new universals. Further research should show if the proposed universals are just statistic or if they may have absolute status.

Further developments in this proposed conception will provide a possibility for the construction of a new typology of languages, based on semantic roles and centers. The other consequence of the distinguishment of centers is the possibility to take a new look at the general structure of sentences and the basic cognitive mechanisms, which lay at the basis of human language faculties.

References

- Bokarev, E. & K. Lomtaduse. 1967. *Jazyki Narodov SSSR* 4. Moscow: Nauka.
- Comrie, B. 1977. In Defense of Spontaneous Demotion: The Impersonal Passive. *Grammatical Relations*. In P. Cole & J. Sadock (eds.), *Syntax and Semantics* 8, 47-58. New York: Academic Press.
- Foley, W. 1991. *The Yimas Language of New Guinea*. Stanford, CA: Stanford University Press.
- Ford, A. 1981. L'obviation en Montagnais. *Linguistique Amérindienne 2: Études Aalgonquiennes* 65-82. Montréal: Recherches linguistiques à Montréal.
- Gil, D. 1994. The Structure of Riau Indonesian. *Nordic Journal of Linguistics* 17, 179-200.
- Gil, D. 1999. Riau Indonesian as a Pivotless Language. In E. Rakhilina & Y. Testelets (eds.), *Typology and Linguistic Theory* 187-212. Moscow: Languages of Russian Culture.
- Haspelmath, M. 1990. The Grammaticization of Passive Morphology. *Studies in Language* 14, 25-72.
- Heath, J. 1977. Choctaw Cases. *Proceedings of the Third Annual Meeting of the Berkeley Linguistics Society* 204-213. Berkeley, CA: Berkeley Linguistic Society.
- Johnson, D. 1977. On Relational Constraints on Grammars. In P. Cole & J. Sadock (eds.), *Syntax and Semantic* 8, 151-178. New York: Academic Press.
- Keenan, E. 1976. Towards a Universal Definition of "Subject". In C. Li (ed.), *Subject and Topic* 303-333. New York: Academic Press.
- Keenan, E. 1985. Passive in the World's Languages. In T. Shopen (ed.), *Language Typology and Syntactic Description* 1, 243-281. Cambridge: Cambridge University Press.
- Kibrik, A. 1997. Beyond Subject and Object: Toward a Comprehensive Relational Typology. *Linguistic Typology* 1, 279-346.

- Kibrik, A. 2001. *Bagvalal*. Moscow: Nasledie.
- Klaiman, M. 1988. Affectedness and Control: A Typology of Voice Systems. In M. Shibatani (ed.), *Typological Studies in Languages 16: Passive and Voice* 25-83. Amsterdam: Benjamins.
- Lee, D. 2002. A Comparison of Unish Grammar with Esperanto. To appear in *Journal of Universal Language* 4.
- Li, C. & S. Thompson. 1976. Subject and Topic: A New Typology of Languages. In C. Li (ed.), *Subject and Topic* 457-489. New York: Academic Press.
- Mel'čuk, I. 1998. *Cours de Morphologie Générale 2*. Moscow & Vienna: Jaziki Russkoj Kul'tury.
- Mithun, M. 1991. Active-agentive Case Marking and its Motivation. *Language* 76, 510-546.
- Nichols, J. 1992. *Linguistic Diversity in Space and Time*. Chicago & London: University of Chicago Press.
- Payne, T. 1997. *Describing Morphosyntax: A Guide for Field Linguists*. Cambridge: Cambridge University Press.
- Payne, T. 1999. A Functional Typology of Inverse Constructions. In Y. Testelefs & E. Rakhilina (eds.), *Typology and Linguistic Theory: From Description to Explanation* 245-254. Moscow: Languages of Russian Culture.
- Perlmutter, D. & P. Postal. 1983. Toward a Universal Characterization of Passivization. In D. Perlmutter (ed.), *Studies in Relational Grammar 1*, 3-29. Chicago, IL: University of Chicago Press.
- Perlmutter, D. & P. Postal. 1984. The 1 Advancement Exclusiveness Law. In D. Perlmutter & C. Rosen (eds.), *Studies in Relational Grammar 2*, 81-125. Chicago, IL: University of Chicago Press.
- Schachter, P. 1976. The Subject in Philippine Languages: Topic, Actor, Actor-Topic or None of the Above. In C. Li (ed.), *Subject and Topic* 491-518. New York: Academic Press.
- Schachter, P. 1977. Reference-related and Role-related Properties of Subjects. In P. Cole & J. Sadock (eds.), *Syntax and Semantics 8*, 279-306. New York: Academic Press.

- Shutova, E. 1991. *Sintaksis Sovremennogo Kitaiskogo Jazyka*. Moscow: Nauka.
- Tomlin, R. 1994. Focal Attention, Voice, and Word Order: An Experimental, Cross-linguistic Study. In P. Downing & M. Noonan (eds.), *Word Order in Discourse* 517-554. Amsterdam: Benjamin.
- Tsunoda, T. 1981. Interaction of Phonological, Grammatical, and Semantic Factors: An Australian Example. *Oceanic Linguistic* 20, 45-92.
- Van Valin, R. & W. Foley. 1980. Role and Reference Grammar. In E. Moravcsik (ed.), *Syntax and Semantics* 13, 329-352. New York: Academic Press.
- Witherspoon, G. 1977. *Language and Art in the Navajo Universe*. Ann Arbor, MI: University of Michigan Press.