

A SIGN-THEORETICAL MODEL OF SEMANTIC STRUCTURE IN LANGUAGE

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1. Introduction. My methodological premisses are: 1. The one form--one meaning principle, a corollary to the sign nature of language; 2. The principle of hyponymy: each semantic opposition goes ultimately back to oppositions of the marked--unmarked type, i.e. to inclusion relationships; 3. In language, there is very likely a limited number of semantic features, probably six¹, which operate on probably four levels of deixis; 4. The features constitute in turn a hierarchy of implication relationships; 5. All semantic categories of language, grammatical as well as lexical, are formed by either single occurrences or cumulations of these features possibly taken from more than one deictic level²; 6. Lexical meaning is unmarked versus grammatical meaning in that the latter operates with cues for identification which can be handled by any observer of the narrated situation; lexical meaning gives identificational cues which are objective in that they can be utilized by any observer, and not necessarily the observers of the speech situation, i.e. speaker and receiver; 7. Identificational cues, that is, semantic features and consequently meanings, are conceived in terms of the identification act itself.

What is crucial for the discussion of semantic structure is that in all semantic categories of a language, we seem to find, *mutatis mutandis*, the recurrence³ of the same six semantic features: plurality, dimensionality, identity, extension, cancellation, and objectiveness. It seems that we have to do with six cardinal invariant components which have two characteristics. One is that they are arranged in an implication relationship. Each succeeding feature, besides adding its own information, implies the information conveyed by the preceding feature. Thus, each succeeding feature contains the information of the preceding feature and the information of each preceding feature is contained in the next feature. As far as the objects to which the features refer are concerned, the situation

tends to be the reverse. The objects referred to by each succeeding feature are specified by more properties than the object indicated by the preceding feature and constitute therefore subsets of the set of objects designated by the preceding feature⁴.

It is, secondly, of the utmost importance to note that the information carried by each feature is conceived in terms of the act of identifying the objects it refers to. It has always been a cause of great wonderment to me that a set of sound waves produced by the vocal organs are capable of giving instructions to the receiver how to zero in with his sensory organs on one or more elements of a subset of objects in external reality, such as fields, lakes, chairs, tables, trees, rivers, not to mention more abstract notions such as skill, thirst, dream, thought, pride and the like. The central thesis of this paper is that these instructions are conceptualized by languages, to be sure, in various ways, but always in terms of the zeroing-in act itself. In fact, the sentence at the beginning of this paragraph almost contains a contradiction if one thinks of "objects" as "objects in external reality", because it follows from that sentence that the features can indicate only identification acts. It is only indirectly, because one identification technique is better adapted to identify one type of (external) object, and another identification procedure better serves to identify another sort of (external) object, that the conceptual features are able to distinguish between and refer to - that is, to identify - objects in external reality. Thus, the only contact that language has with external reality is the fact that there is an identification act.

2. Deixis. The lexicon is the semantic structure concerned with the narrated situation. Whether we have to do with a verb, a substantive, an adjective or an adverb, they all evoke a scene in the narrated situation. Components of such a scene (referents) may be identified by any observer whatsoever (whether encoder /speaker/ or decoder /receiver/ of the speech transmission /utterance/ or not) or by a more restricted type of observer,

that is to say an identifier who is at the same time encoder (speaker) or decoder (receiver) of the transmitted utterance. In the first type, we have from distinctness on to do with identificational deixis, whereas in the second type we have to do with transmissional deixis. The latter type of deixis is the type that is called "deixis" in traditional grammar. In the first type, which I call the "identificational" type of deixis, one can talk about an initiator of the identification procedure (the first identifier) and respondents (subsequent identifiers who are witnesses of the first identification); in the latter, the speaker and receiver are among the initiator and respondents, respectively.

The second, transmissional (traditional) variety of deixis is based on Saussure's absolutely fundamental distinction between the linguistic code (langue) and the activation of this code in the enunciation (parole).

It seems to me almost trivial to state that the meaning of words provides the listener with the identification cues needed to identify object in extralinguistic reality. When using the word 'dog', the speaker elicits the activation of the concept 'dog' in the central nervous system of the receiver, and the receiver will order his sensory organs to scan extralinguistic reality for one or more members of the set of dogs. When I try to present a simple scheme of the way language works, a situation like the beginning of a naval action comes to mind. A squadron (comparable to the listener) receives a message (parole) (that is, the activation of the code in an actual application) from its Admiralty instructing to scan the ocean for an enemy battleship and engage it in combat. Note that in the message (in Jakobson's sense of parole) one can distinguish the activation of two elements: the radio waves (comparable to the sound waves, or form, to use the term of the Saussurian-Jakobsonian linguistic tradition) and the information (comparable to the meaning of an enunciation in language). Parole has an acoustic and a semantic aspect. The squadron decodes the message, identifying its components to represent units of the given code. Note also that I use here message, as does Jakobson, in yet a second sense. I use message here to mean not the activation

of the code, but the results of the activation of the code: a string of forms (radio waves, or sound waves in a speech situation) and a string of units of information, that is, the meanings which this string of forms conveys.

One identification act has not taken place: the identification of the object(s) indicated by the information conveyed by the sound waves. What does the squadron proceed to do? It starts scanning the ocean for the enemy battleship, just as after hearing 'Look, there is the/an airplane' the listener will start scanning the area of reality that is accessible to his senses for an airplane. We have now switched from a speech situation to a narrated situation: the battleship is the object talked about; it constitutes a mini-narrated situation. If all goes according to the Admiralty's planning the scanning will be followed by an identification; the battleship will be identified (see Figure 1). From the point of view of the code, the transmission of a sign is supposed to result in an identification. A frustration of this expectation creates special types of communication: lies, fairy tales, literary fiction.

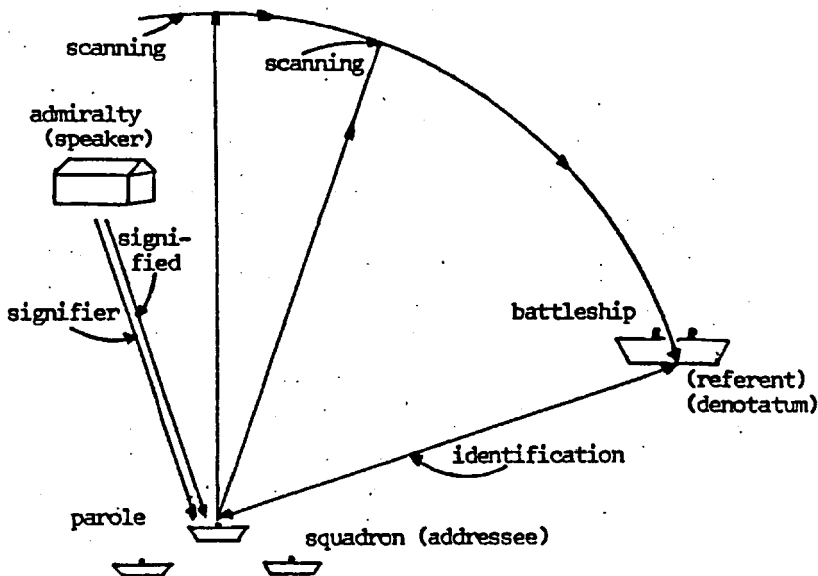


Figure 1

As a rule, then, a speech event involves two identification acts: 1. the identification of the sound waves, and 2. the identification of the elements of the narrated situation as they exist in the external world and as they are indicated by the meaning (information) conveyed by the sound waves. One can say, then, following the insights suggested by Roman Jakobson, that a parole involves 1. an identification directly based upon the perception of a speech act (speech situation), that is, on the perception of the parole (complex of sound waves) itself, and 2. an identification based upon the perception of external reality (the narrated situation) and based indirectly upon the perception of the speech act, since the speech act conveys the information which provides cues for the identification of elements of the narrated situation (external reality).

Linguistics, or at least certain currents of it, up to the present time has paid serious attention only to the speech act, that is, the transmission of the message. This can lead only to a theory of the identification act mentioned under point 1. The identification act of point 2 has never been seen on a par with the identification of the transmission act. Not only do linguists usually not make, in their thinking, as sharp a distinction between norm (code) and act as I have made here, following the Saussurian tradition, but the fact that the linguistic code implies, besides the identification of a referent has never been utilized. In lexical meaning, as in grammatical meaning, however, both identification acts are fundamental facts that serve as the building material from which the code of linguistic semantic features is constructed.

3. Autopoiesis. As I stated, each succeeding feature is more specific than each preceding feature since the succeeding feature incorporates the information given in the preceding feature. This operates apparently in the following manner. As soon as a feature is actually applied in a given identification procedure, additional information is gathered during this identification procedure. The application of a given feature in an identification situation creates a new type of identification situation. It is the invariant

information about this new type of identification situation which is recodified. This (re)codification creates the next feature. Thus, the inclusion hierarchy of conceptual features builds itself by codifying the application of the preceding feature. One might say that each succeeding feature equals the preceding feature plus its codified application. Since this succeeding feature again can be applied in turn, thus leading, via (re)codification of the application, to again a new feature succeeding the preceding succeeding feature in turn, one can say that the feature hierarchy creates itself, is autopoietic, by an intermittence between the application of the code and the code itself. An identification act leads to the codification of a new feature, a new identification act applying this feature leads to the codification of a new feature, this new feature is applied in turn, and so on. According to the recent biological theory of autopoiesis proposed by the two Chilean physiologists, H.R. Maturana and F.J. Varela, the perceptual mechanism of the central nervous system is built up in the same manner⁵. The central nervous system monitors its own perception acts and incorporates in a preconceived manner the results of these observations into the perceptual mechanism, thus creating more sophisticated perception techniques. Autopoiesis is based on the fact that the system can observe and register its own operations. Meaning is evidently conceived in terms of the various perception techniques leading to an identification act. In other words, it seems that meanings, being essentially instructions how to identify, are conceived precisely in terms of the working of the mechanism of the nervous system that actually does the perceiving and identifying. In language the hierarchy of six features apparently exhausts itself with the objectiveness feature; to judge by the statements of Maturana and Varela, in the physiology of the central nervous system this autopoiesis can go on endlessly.

4. The six conceptual (semantic) features.

a. Plurality. The plurality feature indicates a multiple of perceptions. Whether these multiple perceptions apply to more than one object or just one is a secondary matter. Plurality creates an intuitive set; the concept of singleton set is obviously a refinement invented by mathematicians. The plurality feature simply says

that a given perception act has to be repeated. Whether the result is a reference to a plurality of segments in external reality or a multiple of perception operations on the same segment is not specified. Any plurality of identifications will do.

The identificational plurality feature (plur') corresponds to the traditional notion of transitivity in verbs. Plurality says that at the termination of the verbal process there will be more than one actant. Since one actant is automatically given at the beginning of the process as the initial point of identification about which information is given, it usually makes the impression of being the point from which the process emanates. One of the multiple of actants indicated to exist at the end of the process will be identified with the initial actant, and suggest that this actant has existed all along. This, in turn, will implicitly suggest the agent. The other actants will appear to have originated during the process or to have been influenced, that is to say, been the objectives of the process, and hence of the agent. Thus the entire semantic mechanism will suggest that they are patients. All the other features will refer to the patient since they, like the plurality feature focus the information they give upon the terminal situation. Plurality distinguishes in Russian -бавить (+plur') 'to make be' from быть (\emptyset) 'to be', иметь (+plur' +ext') 'to have' from есть (+ext') "emphatic 'am', 'are', 'is'", and German haben (+plur' +ext') 'to have' from wesen (+ext') 'to be' /sein 'to be', like Russian быть, is the lexically unmarked verb/.

In the adjective, tr' is the marking of the maximalizing member of the adjectival lexical oppositions maximalizing (approbative) vs. minimalizing (unmarked) good (+tr') vs. bad (\emptyset), long (+tr') vs. short (\emptyset), big (+tr') vs. little (\emptyset), old (+tr') vs. new (\emptyset), and others. It has been claimed that the maximalizing (approbative) member is unmarked, since in the interrogative phrase how + maximalizing adjective the maximalizing member comprises the minimalizing concept: How good is he?, How long is it?, How big is it?, How old is it?, all include the possibility that the substantival referent is minimally good, long, big or old; in other words, that the referent is bad, short, little or new⁶. However, the usage of the maxim-

alizing adjective after how is induced by the fact that expressions like how big, how long, how old, how good, etc. imply an intent to measure. Hence the adjective is used which implies a measuring of more than one minimal unit. The existence of more than one (minimal) unit is precisely the information conveyed by plurality. In this connection it is interesting to note that languages tend to ask the quantitative question by means of a qualitative interrogative adverb, how (and its homologues in other languages). How is used because the maximalizing (approbative) adjective itself implies a calibration implying a substantive (plurality) operation. The only task which remains for the qualitative interrogative adverb how is to ask after the method by which this calibration (plurality operation) is done since the speaker is interested in the resulting quantitative measurement. The minimalizing adjectival type is unmarked for plurality. Like the substantival singular, it does not state whether we have to do with a multiple or with a singleton. Within the opposition: marked for plurality vs. not marked for plurality, what will the general meaning of such an unmarked adjective be? Obviously, it will convey a doubt whether we have to do with a plurality or not, that is to say, it will minimalize. It cannot state outright that we have to do with a singleton, just as the substantival (grammatical) singular by itself does not indicate that we are concerned with one single item; this has to be done contextually; the cow is a useful animal obviously refers to cows in general, whereas the cow of my uncle ran away yesterday refers to one single cow. The difference in the working of plurality in adjectival lexical meaning and substantival lexical meaning is due to the difference in categorial meaning between adjective and substantive. The adjective signifies an enduring property of the substantivity it modifies, comparing at the same time the property with the way this property would be manifested in other substantivities. The adjective cannot make a choice between a single measurement of property and a multiple of these measurements. It can only imply that the measure of property conveyed by the adjective which is unmarked for lexical plurality is less than the measure of property indicated by the adjective marked for lexical plurality. Hence the former will minim-

alize, whereas the latter maximalizes.

Thus the adjectival lexical plurality feature creates an extended continuum rather than a multiple of discrete elements, as is the case in the grammatical substantival plural. In substantival lexical plurality, too, we find an extended continuum: it creates collective nouns like iron or sugar (+plur') vs. house or dog (\emptyset). The grammatical adjectival plural gives an extended continuum of an enduring property (enduring property being the categorial meaning of the part of speech adjective), that is to say, it creates the comparative.

b. Dimensionality. The dimensionality feature assumes a set as background, but considers only a section of this set relevant as its perceptual objective. Thus the dimensionality feature instructs the sensory apparatus to scan for (an) element(s) that is (are) set off from its background altogether, or (an) element(s) that has (have) outlines. There is a limited number of relevant elements viewed with reference to a universal set of similar elements. The common semantic denominator of all these examples is the selection of one area, coupled by one or more elements, within a larger area; in other words, the creation of a subset. The selection of a subset from a given background is guided by contextual criteria; the subset itself, just as in mathematics, can have any properties that are capable of setting off its elements from their peers. If one considers the extensional subset of mathematics as randomly selected and the intensional subset as selected according to a priori given criteria, then one can say that the dimensionality subset is of the intensional type; with the understanding that the selection is according to criteria chosen ad hoc. The selection performed in the dimensionality operation will involve a set which stands out conspicuously from its background.

Dimensionality (dim') in the verbal lexicon lends outlines to the agent or the patient, respectively; it opposes to stand and to sit to to lie. In the adjectival category, big is marked for dimensionality and plurality.

It is evident that the concept of dimensionality implies the concept of plurality; a subset is created within a (containing) set. This is to say that the two features, plurality and dimension-

ality, are ordered: plurality precedes dimensionality.

c. Identity. Dimensionality identifies any subset within a containing set. There are no flexible criteria: any set that stands out within a larger set will do. There is no generally identifiable immutable criterion which distinguishes the subset from its background. Dimensionality is a quantitative, not a qualitative operation; the quality which makes the subset stand out is ad hoc. The application of dimensionality results in one (sub)set being identified ad hoc. In identity, the ad-hocness of the choice of the set selected is codified. Ad-hocness itself becomes the new invariant. The identity of the identification act itself becomes relevant. Having to do with a given identification act with the exclusion of all others is at the basis of the instructions for identification conveyed by the identity feature. The identity feature announces that one specific referent (the question whether the referent consists of a multiple set or a singleton set is irrelevant /unmarked/) has been identified before encoding; this identification belongs to the code; it is codal. The identification act has become codal. The identity feature has deixis of the identification act. It has identificational deixis. The identity feature introduces deixis into the hierarchy of conceptual features. Within this hierarchy, it is the first feature to carry identificational deixis.

We can therefore see deixis as the restriction of the prerogative of identifying to the initiator alone. To be sure, this does not mean that the respondent has no cues in the situational context leading him or her to the identification of the referent which is, consequently, an extensionally defined set. He or she must now look for the intention of the initiator as his only cue.

Identity (id') in the verbal lexicon indicates that there is a third distinct element present on a par with the agent and/or the patient; it opposes to sit (+id') to to stand, to ride to to go and to cut to to break. In the marked types, an instrument is involved.

d. Extension. The simplest way to distinguish one perception procedure from another is by repetition. This is why plurality is the first conceptual distinctive feature; it represents the simplest

way of distinguishing one type of identification technique from another. In extension we find the same thing, except that extension is derived from the identity feature and gives the instruction to identify more than once a referent that has already been identified before the encoding. In other words, extension amplifies the deixis initiated by the identity feature. It instructs to reidentify the same referent. Extension introduces the notion of time into the semantic system.

In extension, the notions of (identificational) deixis and of repetition are crucial. What does deixis mean? That we are concerned with a referent (set) that has already been identified by the initiator. What does repetition mean? That we reidentify this referent a non-limited number of times. In other words, extension signalizes a plurality of reidentifications of a referent that has already been identified. Extension demonstrates to us how the identification mechanism observes itself observe (perceive, i.e. identify the referent).

Extension (ext') signalizes that the agent or patient, after having been involved in a process (a fully characterizing property evolving in time) remains minimally affected by this process. It opposes to step to to go, to stay to to be, to throw to to cast, and German wesen to sein.

e. Cancellation. Cancellation elaborates on extension. Extension de facto divides the narrated situation up into an initial period and a (non-finite) second period. For instance, the preposition out is marked for cancellation since it indicates an in situation that is cancelled (in is unmarked for cancellation). Cancellation states that only the second period is relevant with the exclusion of the first period. The new subset consists of the unbounded second period. It is evident that the concept of space is based on the concept of time, since in order to establish space one needs at least two points. Two or more points imply in turn counting, and counting implies a succession in time. Thus cancellation develops the notion of space out of the notion of time, which is created by extension. It also should be noted that cancellation brings up the quest for the identity of the space in which the referent is located,

or rather the two spaces which are relevant for the location of the referent, three times. First in the initial period of the narrated situation the identity of the first space is asserted. Second, the identity of the first space in the ensuing non-finite period of the narrated situation, with emphasis on the continuity of the identity of this first space throughout the two periods, is established. Third, the separate identity of the second period is established and the relevance of the first period and consequently of the first space is denied. Thus cancellation incorporates in its conceptualization not only identity but also the ensuing extension feature.

Cancellation (canc') assumes an initial situation and informs us that it is cancelled. Thus, to give assumes an initial 'have' situation which is cancelled. Likewise, to end signifies the cancellation of a 'make' situation. In the prepositions, it opposes out to in. In verbal grammar it opposes the past tense to the present.

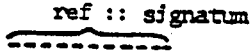
f. Objectiveness. In objectiveness, both the initial and non-finite second spaces are considered to be of equal relevance; the referent is potentially maximally distant from either. Spatially continuous relations tend to change into a relation of mere synchronization. In objectiveness, the feature hierarchy seems to reach its limit. The referent has become maximally independent in the narrated situation, the initial referent all the same remaining the orientation point for the identifiability of the referent.

Objectiveness (obj') states that the terminal situation is potentially maximally distant from the initial situation. The feature marks to hold vs. to have, to let vs. to give, to run vs. to go, to grasp vs. to take, to shout vs. to speak and to create vs. to make. (The second members of these oppositions are unmarked). In verbal grammar it opposes the perfect to the present.

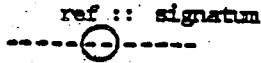
The hierarchy of the six semantic features is represented in diagram form in Figure 2 (see next page).

5. Transmissional deixis. As I have mentioned, the linguistic code distinguishes between two types of identifiers. One type of identifier is general; the identifier can be anybody, whether he/she is at the same time the encoder or decoder of a speech transmission or not. The second type of identifier constitutes a subset

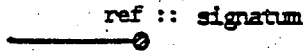
Plurality



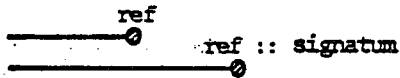
Dimensionality



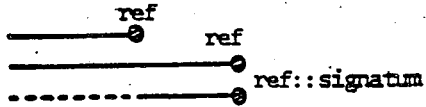
Identity



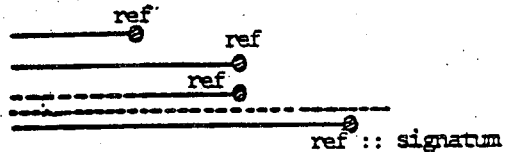
Extension



Cancellation



Objectiveness



:: means : corresponds to

the horizontal lines indicate the narrated situation

the broken lines in Plurality and Dimensionality indicate a non-finite set

the broken lines in Cancellation and Objectiveness indicate cancellation.

Figure 2

of the first type. It is restricted to the identifiers who are at the same time the encoders (speakers) or decoders (receivers) of a transmitted utterance. The six features are differentiated into two varieties depending on whether we have to do with an identifier who perceives in general or with the "transmissional" identifier, so that there exist two varieties of six features, a mere "identificational" type and a "transmissional" type. In this connection, the notions of "identificational" deixis and of "transmissional" deixis are relevant.

Lexical transmissionally deictic plurality (plur") indicates that the terminal situation is a reality to speaker and addressee and is characteristic of verbs like make, create, build, speak, paint, write and others and in German of the intransitive verb werden. The emphasis on the fact that the terminal plurality is a reality to speaker and addressee, and not just from the point of view of any observer of the narrated situation (as is the case with plur'), tends to create in (identificational) transitive verbs (plur') the implication that there was non-existence of the plurality at the initial point of the process; hence, only the agent existed. Consequently, plur" implies a transition from non-existence to existence of the patient. In intransitive verbs (verbs unmarked for plur'), i.e. verbs of the type of German werden the situation is somewhat harder to pinpoint, but essentially analogous to what happens in transitive (plur') verbs. We must realize that the actant at the initial point (usually the agent) is always given, but it is a given posited by the speaker as a point in space that he takes as the point of departure (theme) for his predication. This usually implies that the theme (agent) existed before the moment of speaking or before the verbal process began, but this is not necessarily so, since the existence may start at the moment of the pointing out or even later. This is precisely what German er wird may mean; in fact, it explains why one of the meanings of German werden consists of its being an auxiliary of the periphrastic future. As far as the principal meaning 'become' is concerned, the Slavic languages as well as English and French have no separate lexical morpheme for it; in Russian the determinate of стоять 'to stand' (i.e. стать) is

used and English and French use compounds of the verb to come: de-venir. What we have in werden is a verbal process that has no point of departure actually existing before the beginning of the process, something which is not the case in transitive (plur') verbs, where the agent is usually posited to exist. Apparently, this situation is not tolerated in languages like Russian, English or French. This must be due to the rules, different for each individual language, that govern the relation between point of departure in space (the modified, the topic, the theme) arbitrarily set by the speaker, which may be abstract, and other points in extralinguistic reality (modifiers, the comment, the rheme) which give information about it. I call the relationship the "semantic coefficient" or the "semantic dominant" of the given language. An attempt to get closer to the semantic dominant is made in two of my recent papers⁷. Maturana and Varela evidently posit the existence of such semantic dominants in stating that for each species the nervous system is organized differently⁸.

Transmissionally deictic dimensionality (dim") creates location and provides the marking for verbs like sit, lie, stand, walk, run, step, hand, fall, dig, drag, hang, see, hear, seek and others.

Transmissionally deictic identity (id") indicates an extra link between the comment and an element in the narrated situation (usually, the topic) and creates fields implying physical or perceptual contact or linking. It marks verbs like touch, beat, push, pull, drag, and on a more abstract level, verbs of perception like hear, feel, see, smell, show, speak, paint, write and others.

Transmissionally deictic extension (ext") indicates that the terminal situation remains a reference point to speaker and addressee. In Russian, it occurs in the well-known opposition between so-called determinate verbs of motion, which carry an inherent goal, and the unmarked indeterminate verbs, but actually, the feature also occurs widely outside verbs of motion. In English, which never has been the subject of a systematic investigation on my part, it occurs quite likely in to come and it seems that in Germanic languages in general it occurs in a number of strong verbs; cf., e.g. to go vs. to walk (unmarked for determinacy), and it recurs

also in a considerable number of Russian adjectives; in English, a parallel example is fast vs. quick (unmarked). In fast, the question may be asked outright when the actant will get to the terminal point, e.g. in a fast horse vs. a quick horse. The terminal point figures in the eyes of speaker and receiver as a point of reference. Also in to make fast or fast living, a resulting enduring reference point is implied. The lexical morphemes carrying the extension feature tend to refer to the same segments of extralinguistic reality as their unmarked counterparts since extension in general qualifies its referents as having undergone a minimal change in comparison to what is indicated by the unmarked members of the opposition; hence the opposition presents particular difficulties for the analysis, and requires special techniques. In Russian grammatical tradition for instance, determinacy is often a grammatical category within the verbal system and to be characteristic primarily of verbs of linear motion, whereas actually, although not easy to identify, it is much more widespread and belongs to the lexicon. It occurs, for instance, in the oppositions видать 'to see' (indet.) vs. видеть 'idem' (determinate) and слыхать 'to hear' (indet.) vs. слышать 'idem' (determinate) while in бросать 'to throw' (indeterm., imperfective) vs. бросить 'idem' (determinate, perfective) there is syncretism between the lexical opposition indeterminate and determinate (ext") and the aspect opposition. This is typical of Russian verbs of non-linear separation; cf. also падать 'to fall' vs. пасть 'idem' (determinate).

Transmissionally deictic cancellation (canc") is the marking of verbs like take, grasp, haul, hunt, steal, pull, drag, dig, want, will, seek, guess and others; it means, generally speaking, the (forced) abandonment by the patient or agent of an independently given initial point.

Finally, transmissionally deictic objectiveness (obj") means that the terminal situation is potentially maximally remote from speaker and addressee and, by implication, from the initial situation of the agent. The verb merely marked by obj" and no other feature is shall, but in general obj" creates what in English are called 'modals'; thus, can, which is marked by plur" besides obj", signifies a reality (plur") which is potentially maximally distant

(obj") and indicates that the condition for the terminal situation to materialize is the disruption of an original situation (restr") which is outside the control of the agent as well as speaker and addressee (obj"). Seek in addition to restr" and obj" is marked by location (dim"). The obj" feature combined with dist" creates verbs like to know; combined in addition with plur" it creates to think, whereas obj" cumulated with id" and dim" creates verbs of perception like hear, see; adding to this cumulation plur" generates such verbs as to show, to speak, to point, and to write.

The same features can be found in the lexica of adjective and substantive, with the understanding that the categorial meanings of adjective and substantive as parts of speech are different from the categorial meaning of verb as a part of speech. The adjective means enduring perceptibility since as a word category (part of speech) it is marked by objectiveness, whereas the verb is marked by dimensionality; thus, canс' + plur' within the adjectival category gives deep (Russian глубокий) whereas dim' + plur' in the adjectival lexicon gives big (Russian большой). Ext" added to the latter adjectival lexical unit gives great (Russian великий). The latter adjective, in contradiction to big, implies a point of reference with regard to the point where the speaker is. It creates perspective.

The number of features that can, speaking theoretically, cumulate, exclusive of word-formative complexes, within one lexical morpheme within one part of speech is probably eighteen (six on three levels of deixis: identificational, transmissional and singulative identificational). The complexity of the resulting cumulations is comparable to that of molecules in organic chemistry.

6. Two varieties of identificational and transmissional deixis: four deictic strata. There is a second stratum of identificational deixis (my notation for it is by three primes), which is characteristic of several categories, among which pronouns present the most conspicuous type. In the singulatively identificational deictic type, all identifications, the initiator's as well as the respondent's have to be performed at the same moment.

In the demonstrative pronouns the procedure is obvious. To be sure, in pronouns in general the moment of identification does not

does not have to be the moment of encodement; in a sentence like he who kills his neighbor should be punished the referent of the pronoun he is identifiable beyond the moment of encodement. Another way of formulating singulativity is to say that while (non-singulative) identificational and (non-singulative) transmissional deixis generalize individual identification acts through recodification, the ultimate recodification represented by singulativity generalizes the non-generalizability, that is, the absolute individuality of the identification act⁹. This is why pronouns have no generic meaning but are purely deictic in the sense of ostension, or, in other words, pointing (cf. Gr. deiknumi).

The second zone of deixis, singulativity, exists also in transmissional deixis. My notation for it is by four primes. By singulative transmissional deixis a form refers to the fact of its own pronunciation as a unique event. It is characteristic in relatively antique (inflectional) Indo-European languages of the categorial meaning of word formation (an operation on a preceding morpheme), of the categorial meaning of grammatical morphemes, which relate the referent of the morphemes which precede in the same word to the speech situation, and of agreement.

Thus, four types of deixis multiply the six semantic features by four. In a relatively antique type of Indo-European language like Latin, the semantic features are implemented to constitute the signifieds of morphemes forming a word as indicated in Table 1. I am listing the optimal number of features; to be sure, only a few of them occur in a word at the same time. Lex indicates "lexical meaning", wf "word formation", and p.o.s. "part of speech" ("word category").

We can represent the four types of deixis by the following diagram:

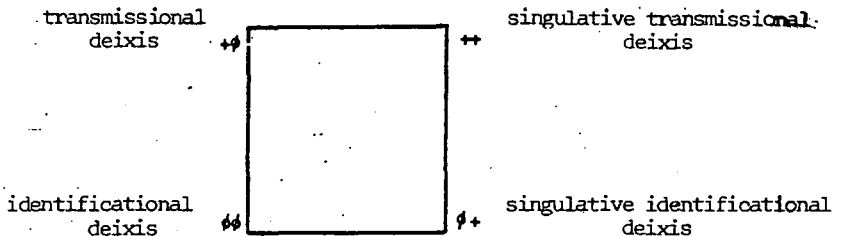


Figure 3: deixis square

Ø ^{'''} (lex)	plur ^{'''} (wf)	plur ^{''''} (wf)	dim ^{'''} (p.o.s.)	id ^{'''} (grammatical)	ext ^{'''} (agreement)	canc ^{'''} (agreement)	obj ^{'''} (agreement)
hab	- ili	-	tat	- em	[case] [number]	[p.o.s.] [gender]	[pers. pron.]
<u>plur'</u> <u>dim'</u> id' <u>ext'</u> <u>canc'</u> obj'	plur' <u>dim'</u> id' <u>ext'</u> <u>canc'</u> obj'	plur' <u>dim'</u> <u>id'</u> ext' canc' obj'	plur' <u>dim'</u> <u>id'</u> ext' canc' <u>obj'</u>	plur' <u>dim'</u> id' ext' canc' obj'	plur' <u>dim'</u> id' ext' canc' obj'	plur' <u>dim'</u> id' ext' canc' obj'	plur' <u>dim'</u> id' ext' canc' obj'
plur'' dim'' id'' ext'' canc'' obj''	plur'' dim'' id'' ext'' canc'' obj''	plur'' dim'' id'' ext'' canc'' obj''	plur'' dim'' id'' ext'' canc'' obj''	plur'' dim'' id'' ext'' canc'' obj''	plur'' dim'' id'' ext'' canc'' obj''	plur'' dim'' id'' ext'' canc'' obj''	plur'' dim'' id'' ext'' canc'' obj''
plur ^{'''} dim ^{'''} id ^{'''} ext ^{'''} canc ^{'''} obj ^{'''}	plur ^{'''} dim ^{'''} id ^{'''} ext ^{'''} canc ^{'''} obj ^{'''}	plur ^{'''} dim ^{'''} id ^{'''} ext ^{'''} canc ^{'''} obj ^{'''}	plur ^{'''} dim ^{'''} id ^{'''} ext ^{'''} canc ^{'''} obj ^{'''}	plur ^{'''} dim ^{'''} id ^{'''} ext ^{'''} canc ^{'''} obj ^{'''}	plur ^{'''} dim ^{'''} id ^{'''} ext ^{'''} canc ^{'''} obj ^{'''}	plur ^{'''} dim ^{'''} id ^{'''} ext ^{'''} canc ^{'''} obj ^{'''}	plur ^{'''} dim ^{'''} id ^{'''} ext ^{'''} canc ^{'''} obj ^{'''}

Table 1. The morphemic composition of the Latin accusative singular habilitatem 'aptitude'. The features for which the word is actually marked are underlined.

From id' on, single primes are identificationally deictic.

Double primes: transmissional deixis.

Triple primes: singulative identificational deixis.

Quadruple primes: singulative transmissional deixis.

What singulativity does is synchronize identifications into one single pulse in time.

If such identification is done in the narrated situation, then we have to do with singulative identificational deixis. Singulative identificational deixis occurs in pronouns, proper nouns, gender, numerals and moods. I shall briefly discuss, as an especially easily understood example, pronominality. Pronominality in its simplest form is found in the demonstrative pronouns. What the demonstrative pronoun, that is, singulative identificational deixis, tells the respondent to do, is to identify at the same moment the initiator identifies. Demonstrative pronouns like this and that are usually described by linguists as indicating closeness or remoteness from the speaker. This is only indirectly correct. What pronominality does is invite all potential observers of the referent to a reunion devoted to one spell of identification of the referent for all of them at the same time. When singulative identification is applied in an actual parole, it creates a separate plane supporting identification relations which is visible, among others, from the plane of the speech situation. Thus the speaker and addressee can project themselves upon the singulative identification plane as the once-occurring observers of the singulative (once-occurring) identification (narrated) situation. However, these once-occurring observers may have a more general nature than speaker and addressee. Singulative identificational reference also creates anaphora. The projection onto the singulative identification plane from the parole plane is very much comparable to the omniscient author projecting himself (and his readers) onto the plane of the narration contained in a novel.

The relation between the plane of the speech situation and the plane of singulative identification can be represented as follows:

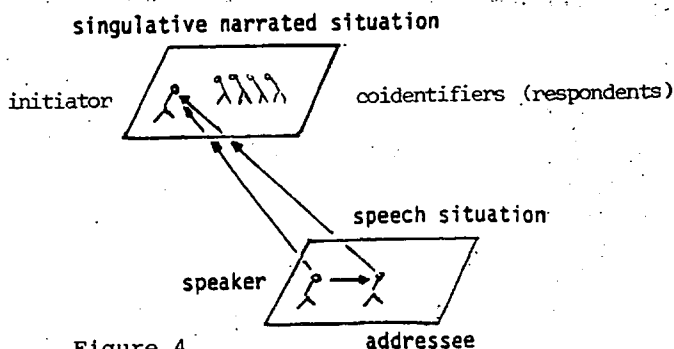


Figure 4

When transmissionality is cumulated with singulativity, initiator (encoder, speaker) and respondent/s/ (decoder/s/, receiver/s/) must all identify in the same time pulse. This means that they all must hear the transmission of the utterance, that is, the parole while it is being performed. The set of identifiers is restricted to those who hear the utterance while it is being pronounced. Singulative transmissional deixis causes the sign to signify its own once-occurring pronunciation. Thus, singulative transmissional plurality means that a morpheme is a component of a multiple of at least two "morphemic" pronunciations (i.e. of morpheme/s/): it signifies word formation. Singulative transmissional distinctness asks the question what the speaker intends (means) by pronouncing this form. It tells the addressee that the speaker invites the addressee to deduce by circumstantial evidence what significance the referent has for the speaker and addressee at the moment of speaking. It signifies grammatical meaning.

Thus, the fact of a sign's being pronounced is a sign in its own right and gives rise to a new range of signifieds. To give one striking example: extension means that a referent as it is seen at the moment that information about it is relevant has minimally changed since it was affected by the influences of the original narrated situation. In other words, after the original situation to which the sign makes a reference in retrospect has taken place, the referent remains maximally the same. What will "ext" mean? The referent is the signifying power of the given pronunciation of the given sign (morpheme). The moment about which the information is given is the moment at which the signifying power of the given pronunciation takes its effect; that is, the moment of pronunciation of the given morpheme. The original narrated situation is a situation to which the morpheme refers back, in casu, an earlier actualization of the same signifying power. It is not hard to see that "ext" means agreement¹⁰. The agreement ending -am of novam in the Latin phrase mensam novam 'the new table (fem. acc. sing.)' concerns the signifying power of the pronunciation of the agreeing and not of a direct grammatical morpheme. This signifying power has remained maximally the same since an earlier situation of the signifying power of a morphemic pronunciation, to wit, the pronunciation of the direct

grammatical morpheme (-am in Latin mensam). By means of restr" and obj", agreement seems even to be able to distinguish between various morphological categories, such as gender, lexicon and grammar, to which the agreeing morpheme may refer back¹¹. (see Table 1.)

Singulative transmissional deixis (Ø"", plur"" etc.) creates signata of an entirely novel nature and leads in the antique type of Indo-European language, like Greek, Latin, Sanskrit or Russian, to the concatenation: lexical morpheme - word formative morpheme - part of speech morpheme - grammatical morpheme - agreement morphemes¹².

Syntax contains the rules of coordination of deictic levels between morphemes belonging to different words¹³. Agreement is just one instance. Another example is the deictic coordination of the grammatical extension feature in an object case like the accusative with the lexical plurality feature in the verb (that is, with verbal transitivity)¹⁴. Yet another example is the syntax of the tenses and of the subjunctive and optative moods in Ancient Greek¹⁵. All syntactic rules are based on the identity of referents.

FOOTNOTES

1. In attempts to characterize the semantic contents of the six features, I have changed the names of several of them in the course of the years. I give here the list, with the earlier names in parentheses: 1. plurality (transitivity), 2. dimensionality, 3. identity (distinctness, duplication), 4. extension, 5. cancellation (restrictedness), and 6. objectiveness.
2. C.H. van Schooneveld. Contribution to the Systematic Comparison of Morphological and Lexical Semantic Structures in the Slavic Languages. In: American Contributions to the Ninth International Congress of Slavists. Kiev, September 1983. Vol. 1, Columbus, Ohio, pp. 321-347; idem, Praguean Structure and Autopoiesis: Deixis as Individuation. To appear in: The First International Roman Jakobson Conference: New Vistas in Grammar: Invariance and Variation. October 10-13. 1985, Benjamins, Amsterdam. As far as identificational deixis is concerned, I used to call it perceptual deixis.

3. Regarding the recurrence of the semantic features in various categories of Russian, see, besides the literature quoted in the other footnotes, C.H. van Schooneveld. *Semantic Transmutations: prolegomena to a calculus of meaning*. Vol. 1 (I, Physsardt Series in Prague Linguistics), Bloomington, Indiana, 1978; idem: *By Way of Introduction: Roman Jakobson's tenets and their potential*. In: Roman Jakobson. *Echoes of his Scholarship*. Lisse, 1977, pp. 1-11; idem, *The Place of Gender in the Semantic Structure of the Russian Language*. In: *Scandoslavica*, 23, 1977, pp. 129-138; idem. *Contribution a l'étude comparative des systemes des cas, des prepositions et des catégories grammaticales du verbe en russe moderne*. In: *Studia Slavica hierosolymitana*. II, Jerusalem, 1978, pp. 41-50; idem. *A Semantic Approach to Word Formation in Contemporary Standard Russian*. In: *American Contributions to the Eighth International Congress of Slavists*. Columbus, Ohio, 1978, pp. 579-615; idem. *A Semantic Proteus: the transitivity feature in Russian*. In: *Studia Linguistica in Honorem Vladimiri I. Georgiev*. Sofia, 1980, pp. 377-385; idem. *The Extension Feature in Russian*. In: *Slavic Linguistics and Poetics. Studies for Edward Stankiewicz on his 60th Birthday*. 17 November 1980. *International Journal of Slavic Linguistics and Poetics*. Vol. XXV/XXVI, Columbus, Ohio, 1982, pp. 445-457. Concerning their possible applicability to other languages, see also: C.H. van Schooneveld. *The Place of the Ergative Within the Category of Case*. In: *Signs of Friendship: to Honour A.G.F. van Holk, Slavist, Linguist, Semiotician*. Amsterdam, 1984, pp. 225--256; idem. *Is the Vocative a Case? To appear in: International Journal of Slavic Linguistics and Poetics*. Volume XXXI-XXXII. Columbus, Ohio, 1986, pp. 495--514. J. Levenberg. *A semantic analysis of aspect in Russian and Serbo-croatian*. Ann Arbor, Michigan (University Microfilms); idem. *K дистрибуции двух славянских грамматических категорий*. In: *Revue des études slaves*, 57, 1985, pp. 461--468; H.K. Temiseva. *The Semantic Conceptual Features in the Finnish Case System: the inner and the outer local cases*. Brigham Young University, 1979; D. Soudakoff. *A Semantic Comparison between Polish and Russian Prepositions*. Ann Arbor, Michigan (University Microfilms), 1985; L.R. Waugh. *A Semantic Analysis of the French tense system*. In: *Orbis*, 24/2, pp. 436--485.
4. C.H. van Schooneveld. *Contribution...*, *American Contributions..* Kiev, pp. 328--330; H.R. Maturana and F.J. Varela. *Autopoiesis and Cognition* (Boston Studies in the Philosophy of Science, 42), Dordrecht, 1980.
5. Maturana and Varela. *Autopoiesis and Cognition*, pp. 98, 29, 41.
6. In C.H. van Schooneveld. *Programmatic Sketch of a Theory of Lexical Meaning*. In: *Quaderni di Semantica*, Vol. IV, 1, June 1983, Bologna, pp. 163--164, I argue incorrectly that the minimalizing type is marked for plurality. I repeat the same erroneous opinion in *Quaderni di Semantica*, IV, 2, 1983, p. 119.
7. C.H. van Schooneveld. *Contribution...*, *American Contributions..* Kiev; idem. *Ancient Greek and Modern Russian Prepositions*. *IJSLP XXXI--XXXII*. See also the works of D. Soudakoff and J. Leverberg.

8. C.H. van Schooneveld. Contribution... , American Contributions. Kiev, pp. 330--331; Maturana and Varela. Autopoiesis... pp. 133, 43--44 and 46.
9. C.H. van Schooneveld. Praguean Structure...
10. C.H. van Schooneveld. The Extension Feature in Russian. IJSLP XXV--XXVI. pp. 456--457.
11. C.H. van Schooneveld. Agreement in Russian. Language and Literary Theory: In Honor of Ladislav Matejka. Ann Arbor, 1984, pp. 189--214.
12. C.H. van Schooneveld. The Morphemic Structure of the Slavic Word and Greenberg's Twenty-eighth Universal. In: Slavic Word (ed. D.S. Worth), The Hague, 1973, pp. 443--448.
13. C.H. van Schooneveld. By Way of Introduction... pp. 7--10; R.B. Sangster. Roman Jakobson and Beyond; The Quest for the Ultimate Invariants in Language. Berlin, 1982, Ch. V 4: The Place of Syntax in the Sign Theory of Language.
14. C.H. van Schooneveld. Jakobson's Case System and Syntax. In: Case in Slavic. (eds. R.D. Brecht and J.S. Levine), Columbus, Ohio, 1986, pp. 373--385; idem. The Place of the Opposition Active-Passive in Linguistic Structure. To appear in: Zbornik matice srpske in honor of Milka and Pavle Ivic; idem. Paradigmatic Structure and Syntactic Relations. In: Proceedings of the Prague School and Its Legacy Colloquium. Be'er Sheva, May 1984. To be published by Benjamins, Amsterdam.
15. C.H. van Schooneveld. Syntactic Relations and Paradigms: Tenses and Moods in Ancient Greek Verbal Structure. In: Proceedings of the "From Sign to Text" Colloquium. Be'er Sheva, May 1985. To be published by Benjamins, Amsterdam.