

As the results of this experiment show, the actual interchangeability of prefixes expressing <excess> is very limited even when it is permitted morphologically. In the majority of cases, the information supplied by context eliminated interchangeability and caused the verb to be prefix-specific. Contrary to the traditional view, which considers the <excess> submeanings of *za-*, *pere-*, *do-* and *ot-* to be roughly equivalent, the above research indicates that each prefix expresses <excess> in its own characteristic way and that semantic overlap among these four prefixes is at best limited. These data contradict assumption 1) and suggest that a reevaluation of prefixal semantics is in order.

## Chapter II

### VARIOUS APPROACHES TO THE SEMANTICS OF RUSSIAN VERBAL PREFIXES

Chapter 1 contained a rough outline of the traditional description of prefixal semantics, along with a discussion of a phenomenon (the non-interchangeability of prefixes with <excess> submeanings) which calls that description into question. The purpose of the present chapter is to present a thorough inventory of traditional and other approaches to the semantics of Russian verbal prefixes and the difficulties posed to them by the language itself.

#### 2.1 THE TRADITIONAL APPROACH

In implementing the traditional approach, instantiations of a given Russian verbal prefix are arranged in groups according to apparent semantic content and lists of these varying contents ("submeanings" or "homonyms") are drawn up. This approach is simple and reductionistic, its aim being to isolate all identifiable submeanings. It is appropriately modeled by set theory (as mentioned in Chapter 1) because: a) it implies no relations between submeanings (i.e., it is atomistic), and b) it suggests that all submeanings have equal status (i.e., no submeaning is more central than any other). In addition, the lists of submeanings are gathered together in a matrix (see

Figure 2). An assumption (labeled 1) and restated in 2.1.1 below) inherent in this approach, was, however, found to be invalid. The following is a list of questions that the traditional approach either does not address or fails to solve.

### 2.1.1 Identity of submeanings

What distinguishes seemingly identical submeanings of different prefixes?

The traditional approach cannot answer this question because it does not recognize any consistent differences in the instantiation of what is considered to be one submeaning of different prefixes. Actual usage of verbal prefixes deviates from what we would expect according to the traditional model and elicits several additional questions, which will be taken up in turn below. These questions are related to each other and overlap somewhat, but they bring to light some of the shortcomings of the traditional approach.

### 2.1.2 System of combination

What is the system for combining verbs with prefixes?

In the traditional model the choice of a prefix for a given verb appears to be no more than an arbitrary selection of an item from a set of equipollent elements. The research discussed in Chapter 1 indicates, however, that this process is all but random and that

speakers agree in their choice of prefixes. Nor is this agreement merely a matter of convention, since the introduction of new verbs into the lexicon does not evoke various idiosyncratic prefixed collocations; rather speakers unanimously associate the same prefixes with given verbs. *Klejmit'* 'brand' and *kal'kulirovat'* 'calculate' form their perfectives with *za-* and *s-*, respectively. The ease and consistency with which new verbs are integrated into the prefixal system testifies to the dynamic character of its semantic structure. This phenomenon, as well as the structure it betrays, is unfortunately ignored in traditional descriptions.

### 2.1.3 Prediction

Given a base verb and a prefix, which submeaning(s) will be instantiated?

Not only does the traditional model fail to predict which prefix will be associated with a given verb, but, conversely, it cannot determine what submeaning or submeanings of a prefix will be instantiated when it is combined with a given verb. However, even when presented with verbs that they did not know, the native speakers I consulted were able to identify and describe the submeaning of the prefixed verb once I defined the base verb for them. It is apparent that Russian has at least a partial system for determining what submeanings of a prefix will be present, based on the meaning of the base verb, but any mention of this is absent from traditional descriptions.

#### 2.1.4 Coherence of submeanings

Is there any relationship between the submeanings of a given prefix?

The traditional model presents a list of disjoint submeanings (cf. the disunion of subsets in Figure 1) devoid of any organization. To emphasize this supposed discontinuity, some Slavists (Axmanova (1957) and Isačenko (1962)) speak of prefixal homonyms. My consultants, however, insisted that all examples of a given prefixal morpheme instantiated one and the same prefix, suggesting that psychological unity underlies the morphological identity of a given prefix. If this is so, the submeanings of a prefix must be related to each other, in spite of the fact that the traditional model does not provide a means for expressing inter-submeaning relations.

#### 2.1.5 Number of submeanings

How many submeanings does a given prefix have?

The number of submeanings postulated for a given prefix varies widely and seems to be determined only by how doggedly a given scholar chases to carry out the atomistic tendencies of traditional description. Bogusławski (1963), for example, lists about three times as many submeanings as the Academy Dictionary and, as Gallant (1979) has pointed out, the identification of ever more narrowly-defined submeanings could be pursued indefinitely, producing a

potentially infinite list. If submeanings do exist, it should be possible for scholars to agree on their quantity and identity.

#### 2.1.6 Classification

Can every instantiation of a prefix be identified with a single submeaning?

If one makes a serious attempt to classify prefixed verbs in dictionary entries and in examples from literature according to submeaning, this turns out to be a much more difficult and less clear-cut task than the traditional description suggests. Many verbs are ambiguous and assigning them to one submeaning may be done only arbitrarily. Is *zabolet'* *za-'hurt'* 'fall ill' an example of <change of state> or <inchoative>? Is *zaplesnevet'* *za-'grow moldy'* 'grow moldy' an example of <covering> or <change of state>? In addition, a few prefixed verbs are in isolation, having no association with any submeaning. *Zabyt'* *za-'be'* 'forget' seems to bear no relation to the submeanings of *za-* and to constitute an isolated example. There is no place for multiply-classifiable and unclassifiable prefixed verbs in the traditional model.

#### 2.1.7 "Empty" prefixes

Are there empty prefixes?

For every prefix (except foreign and Church Slavic prefixes and *v-*, *nad-*, *pere-*.) the Academy Grammar lists a submeaning "dovesti do rezul'tata/konca dejstvie." In these cases it is customary to talk about empty prefixes which carry no meaning except "perfective." Arguments defending the existence of empty prefixes are fraught with problems. According to Tixonov (1962), who is perhaps the most outspoken proponent of empty prefixes, they differ in principle from prefixes having real meaning; they signal only an internal limit to the process -- the natural outcome of the process. The term "natural outcome" is never defined and the vagueness of this notion has resulted in significant disagreement among lexicographers in the identification of verbs having empty prefixes, as Isačenko (1962) and Forsyth (1970) have pointed out. Further scrutiny of the empty prefix problem yields more questions.

1. What causes prefixes to become empty? Tixonov states that prefixes that have lost their spatial meaning or are rarely used and unproductive in their spatial meaning are candidates for empty prefixes. This statement may be relevant to *po-* and *iz-*, but what about the other thirteen prefixes which have empty submeanings, but whose spatial submeanings are vigorous and productive: *na-*, *o(b)-*, *ot-*, *vz-*, *vy-*, *do-*, *za-*, *pod-*, *pri-*, *pro-*, *raz-*, *s-*, *u-*? Evidently the vitality of the spatial submeaning cannot be correlated with the presence or absence of an empty submeaning.

2. Is there any way to characterize the base verbs which attract empty prefixes? Or, conversely, why does a given verb use one empty prefix and not another? Tixonov (1961, 1962) repeatedly insists that the base verbs constitute semantic groups, but fails to characterize them and is forced to list exceptions which are unsystematic.

3. Is the simplex verb indeed lexically identical to its empty-prefixed perfective? Typically the dictionary entries of the two forms are compared in an attempt to illustrate this point. Maslov (1958), Avilova (1959) and Tixonov (1962) implement this technique, producing similar results, although they interpret them differently. In every case (the number of examples is far from significant, each author presents only one or two pairs of verbs which are classic cases of empty prefixation, e.g., *na/pisat'* *na-* 'write' 'write', *s/delat'* *s/-* 'do' 'do', *po/stroit'* *po/-* 'build' 'build'), the empty-prefixed perfective is found to be more limited in semantic scope than the simplex verb. Maslov, for example, gives three meanings of *pisat'* 'write' (1) 'be good for writing', 2) 'produce literature', 3) 'work for the printed media') which are excluded by the prefixed perfective *napisat'* *na-* 'write' 'write' and concludes that the so-called empty prefixes carry more than purely grammatical meaning. Tixonov and Avilova, however, persist in claiming that despite its limitations, the empty-prefixed verb is semantically equal to its simplex base,

thereby implying that equality and "emptiness" are relative, rather than absolute, terms. Avilova (1959) states that with some verbs a supplementary meaning introduced by the prefix is "clearer" than with others. Tixonov asserts that there is not a clear boundary between "purely aspectual" (i.e. empty) and "lexical" manifestations of prefixes. He also speaks about the gradual weakening of the meaning of prefixes that are empty. Thus adherents of the empty prefix hypothesis have concluded that absolute semantic identity of the prefixed perfective with the base is *not* requisite for empty prefixes and that in some instantiations a prefix can be more empty than in others. Given these guidelines it is difficult to understand how we are to identify empty prefixes: how are we to know when the prefix is empty enough and the prefixed verb semantically equal enough to the base so that the prefix may be designated as empty? Tixonov and Avilova do not draw any definitive lines.

4. What is the status of imperfective derivation from empty-prefixed perfectives? Forsyth (1970:41) uses the existence of a derived imperfective as a criterion for sorting out non-empty and empty prefixes. According to him, empty-prefixed verbs do not form derived imperfectives: "If any 'new' meaning were perceptible in such perfectives as *sdelat'*, *napisat'* and *razbudit'*, imperfectives such as *\*sdeliyvat'*, *\*napisyyvat'*, *\*razbuzhdat'*/*razbuzhivat'* would have come into general use."

Tixonov (1958) does not agree, nor could he, as a true proponent of empty prefixes, since this definition would drastically reduce the incidence of empty prefixation, which would be a marginal phenomenon of much less interest. But if a secondary imperfective *can* be derived from an empty prefixed verb, is it semantically identical to the simplex base? From Isačenko's (1962) point of view, the answer to this question was a definite "No" and it clinched his argument against the existence of empty prefixes. Following the reasoning of empty prefix proponents, he argued that if the prefix were indeed empty, then the simplex and the derived imperfective would be synonyms. Isačenko rejected the possibility that the members of pairs such as *čitat'* 'read' and *pročityvat'* 'pro-read' 'be reading through' could be considered synonymous. Tixonov (1958) insists, however, that secondary imperfectives of empty-prefixed verbs *are* synonyms of the corresponding bases, although their usage is more limited. Here Tixonov and Isačenko stand at loggerheads, with no way to reconcile their differences, since there is no absolute scale for judging when the base and derived imperfective are "equal enough" to be considered synonyms. Isačenko, however, does seem to have an edge -- why would Russian derive secondary imperfectives if their semantic niche were already filled to satisfaction by the simplex verb? It is impossible to arbitrate an unequivocal solution to this disagreement due to the subjective framework of the given arguments.

5. Can a prefix (or any morpheme) turn its meaning on and off? If we compare the two verbs *sletet' s-'fly' 'fly down, off'* and *sdelat' s-'do' 'do'*, we find that, according to traditional descriptions, the prefix *s-* in the first example carries the semantic freight of 'down, off', whereas in the second example it is empty. Is there any linguistic precedent for this sort of phenomenon? This question, which must be answered affirmatively if the empty prefix hypothesis is to be accepted, is not discussed in the literature. I do not know of any undisputed\* example of a morpheme in any language which embodies meaning in some cases and which is capable of altogether suppressing its meaning in other cases. A corollary of this question is suggested by Avilova's observation that prefixes containing meaning engage in form-formation, since the perfective partner of a verb is but another form of that verb: can a prefix (or any morpheme) be at times derivational and at other times inflectional? Perhaps there are some morphemes in extant languages which can turn their meanings on and off and which can alternate between derivational and inflectional functions. If there are morphemes with such

\* There are linguists (e.g., Curme (1914) and Fraser (1976)) who claim that some verb-particle constructions in English contain empty particles which signal only "perfectivity." Examples are *out in figure out*, *eke out up in make up*. The function of particles in these constructions closely parallels that of prefixes in Russian verbs. The semantic emptiness of these particles is, however, anything but an established fact. Lindner 1982 contains a discussion of English empty particles and a strong argument against their existence.

properties, they deserve special investigation. In the meantime, we must be very cautious about attributing such properties to morphemes since the existence of such properties is uncertain and, if they do exist, the role of morphemes in language in general will have to be reexamined.

In addition to inconsistencies in the arguments supporting empty prefixes (such as Tixonov's claim that empty prefixes are generally those whose spatial meaning is weak and unproductive, see above), the empty prefix hypothesis requires us to accept several questionable assumptions: a) that the evaluation of the terms "empty" and "equal" is relative and subjective (rather than absolute, as is generally accepted) b) that the simplex verb is semantically equivalent to the imperfective derived from its empty-prefixed perfective c) that prefixal morphemes turn their meanings on and off, alternating between derivational and inflectional functions. If any one of these prerequisites cannot be tolerated theoretically, then the empty prefix hypothesis must be rejected. The presence of three such strong obstacles to the acceptance of empty prefixes is certainly enough to make us question their existence. Van Schooneveld (1958) attacked the notion of empty prefixes not on the basis of the above objections, but because he perceived semantic redundancy on the part of the verb and prefix of so-called empty-prefixed verbs. Since the meanings of the prefix and verb overlap,

that of the prefix is less salient and it appears to be empty. Van Schooneveld considers empty prefixation an illusory phenomenon and presents a strong, albeit brief argument to this effect. Given the multitude of problems associated with empty prefixation, it is reasonable to accept van Schooneveld's hypothesis that empty prefixes are an artifact of the linguist's perception, motivated by semantic overlap on the part of the verb and prefix.

### 2.1.8 Summary of questions

The preceding sections of this chapter have presented questions and problems which the traditional approach to prefixal semantics does not address and which cannot be resolved given the traditional framework. All of these questions concern the organization of meaning in prefixes, an issue that has traditionally been sidestepped. In order to cope with these problems one at least has to make a beginning at reexamining the semantic structure of verbal prefixes.

## 2.2 STRUCTURALIST APPROACHES

Several of the problems listed above have not gone unnoticed by structuralists<sup>5</sup> who have turned their attention to Russian verbal

<sup>5</sup> Here I am using the term "structuralist" rather loosely. For the purposes of this dissertation "structuralists" includes all contemporary Slavists who have presented interpretations of (prefixal) semantics which do not deviate significantly from the structuralist approach to meaning and do not, therefore, represent altogether different approaches.

prefixes. As a reaction to the fractured view of the prefix presented by traditional scholars, the tendency among structuralists has been to search for a semantic invariant which would unify the submeanings of a given prefix, although this search has yielded various results. Indeed, because of the basic problem of invariance, it has proved very difficult to overcome these difficulties, which the structuralists addressed. Isačenko (1962) was also moved to engage in this search. He explored the submeanings of the prefix *s-*, seeking semantic unity, but concluded that there was none since he could not isolate an invariant. This line of reasoning lead Isačenko back to the traditional description of prefixal semantics in spite of his own misgivings and his rejection of the notion of empty prefixes.

### 2.2.1 Flier 1975

Flier rejected traditional atomistic approaches to prefixal semantics because they ignore the possibility of relationships existing between submeanings. The goal of his approach is to represent the semantic unity of a given prefix by means of invariant semantic features. In keeping with structuralist distinctive feature theory, each prefix is said to be either marked or unmarked for each of a small and finite set of semantic features. He analyzes four verbal prefixes (*po-*, *pere-*, *pro-*, *ob-*) in terms of three semantic features; *ob-*, for example, is "±spanned, ±lateral, -dominial." Thus Flier claimed that "each prefixal morpheme is semiotically linked with an invariant meaning manifested as variants depending on syntactic and lexical

environment," echoing Jakobson's Gesamt- and Grundbedeutung. Flier's article constitutes a significant step toward overcoming the atomism of traditional descriptions, an attempt to expose the unity behind the submeanings. Flier also discussed the function of prefixal meaning in the prefixed verb (a matter previously ignored -- it had been heretofore assumed that the meaning of the prefix is somehow added to that of the base verb), which he envisioned as an interaction between the prefix and the verb, likening prefixes to "prisms or camera angles, which alter the perspective of a given object...they flesh out perspectives inherent in the object itself." Both Flier's unified view of the prefix and his comments on the interactive dynamics of prefixal and verbal semantics are important contributions. In his effort to unify the submeanings of the prefix, however, he may have oversimplified its internal semantic structure. As a result, Flier's semantic features are quite abstract, lacking the fine tuning needed to account for the actual variety of submeanings (how, for example, can the feature specifications "\*spanned, -lateral, -domainial" account for the diversity of submeanings present in *pere-* and at the same time distinguish them from the submeanings present in other prefixes?). In positing invariant features, he has been forced to sacrifice internal diversification to semantic unity. This problem is somewhat alleviated by the connotations which Flier associates with given features (i.e., -lateral can signal "directness" or "error") which are insightful and would be more valuable if they

were systematized and integrated with the rest of his model.<sup>6</sup>

## 2.2.2 van Schooneveld 1978

Van Schooneveld's approach to the semantics of Russian verbal prefixes (and prepositions) is very similar to that found in Flier 1975, although he carried it out on a much more grandiose scale. In his ambitious *Semantic Transmutations*, van Schooneveld tackles the entire set of Russian prefixes and prepositions (which he regards as an integrated set, not making any major distinctions between its two kinds of members) and endeavors to uncover the systematicity of their meanings. He has devised a distinctive feature hierarchy, in order of increasing "alienation of the modifier from the modified and from the prepositional modification situation": "dimensionality," "duplication," "extension," "restrictedness," and "objectiveness." His volume does contain many insightful observations of the meanings of individual prefixes, such as:

As a preverb *za-* should mean that at the end of the verbal process a situation will follow which is both (a) ascertainable only during the process -- that is to say, this situation is not a natural consequence of that process; and (b) dependent on the volition of the subject of the verb -- that is to say, an agent ascertainable only in the narrated situation. ... *za-* says that at the end of the verbal process the modified will be in a relationship to an unpredictable element. The unpredictability consists in the fact that this element is directly identifiable with neither the subject or the object...nor with an element directly inherent in the lexical meaning of the verb.

<sup>6</sup> Indeed, Flier suggests in this article that the semantic connotations of features demand further investigation.



but it also includes dubious statements that seem to have been invented in order to incorporate recalcitrant examples into his system:

*Zakričat'* 'to begin to shout' means that in order to reach the final situation, 'shouting', the preceding stage is 'shouting'. *Zakričat'* means, then, 'to shout beyond shouting', or rather, 'to shout in such a way that the shouting will pass the initial factuality of shouting'.

*Semantic Transmutations* suffers from the same restrictions as Flier 1975: because emphasis is placed on the semantic unity of the prefix almost to the exclusion of variation, the definitions of the prefixes in terms of invariant semantic features are too vague and abstract to capture the variations in meaning of individual instantiations. He characterizes *na-*, for example, as unmarked: "the meaning of the preverb reduces to 'manifestation', 'evidence'." How, then, would one explain the variety and distinctiveness of the submeanings which *na-*, allegedly devoid of semantic features, comprehends, such as its quantitative meaning (*napadat' na-* 'fall' 'fall in great quantity') or its submeaning "train" (*naezdit' na-* 'ride' 'break a horse')? The gap between van Schooneveld's theoretical system of meaning and the meaning of actual examples of prefixed verbs can be bridged only by a straining leap of both the intellect and the imagination. Both van Schooneveld and Flier have reacted against the overly atomistic traditional descriptions by seeking semantic invariants and focusing on semantic unity, yet their approach downplays the true diversity manifest in concrete examples.

### 2.2.3 Gallant 1979

Dismayed by the seemingly unbounded lists of submeanings which were generated by traditional scholars such as Bogusławski (1963), Gallant sought to unify the prefix and he, too, posited invariant features. According to him, each prefix may be marked for either "vertical" or "horizontal" plus one "relational" feature e.g., *vz-* is "horizontal, 'transgression.'" Gallant's approach differs in that the features do not signal semantic content on the part of the prefix, but rather specify the direction (in an abstract sense) of the verbal action. In Gallant's view, prefixes do not embody independent meaning, but act as catalysts in the semantics of the verb, selecting and fleshing out meanings already present in the verbal base. Gallant illustrates his point with verbs prefixed in *vz-*, trying with every example to match the dictionary definition of the prefixed verb with at least one of the definitions given for the corresponding simplex verb. Unfortunately his results are less persuasive than his argument: in examining approximately 200 verbs, in 38 examples he failed to find a definition of the simplex verb which matched that of the *vz*-prefixed perfective, these he listed as having "no equivalent" in the simplex verb. If the prefix, as Gallant claims, is semantically hollow, bringing no meaning to the prefix-verb collocation, how can a prefixed verb have a meaning not present in the simplex? Contrary to his own hypothesis of prefixal semantics (or, in this case, the lack thereof), Gallant must admit to the existence of prefixed verbs which have no simplex correlates, since such examples are legion in Russian, to cite a few:

ZA-EST' (za-'eat') -- 'get jammed (of a machine)'  
 ZA-SIBIT' (za-'hit') -- 'drink (alcohol)'  
 RAZ-NESTI coll. (raz-'carry') -- 'berate'  
 POD-DELAT' (pod-'do') -- 'falsify'.

In addition to this problem, Gallant's approach shares the limitations of Flier (1975) and van Schooneveld (1978). Since he has posited abstract invariants in an attempt to describe the prefix as a unified whole, Gallant has likewise been forced to deny its real variation.

#### 2.2.4 Summary of structuralist approaches

Flier, van Schooneveld and Gallant all aimed to correct what they viewed as excessive atomism on the part of traditional scholars by isolating invariant features which would reveal the semantic unity of the prefix. Despite individual differences in their understanding of the semantic content of the prefix and how it interacts with that of the base verb, all three presented essentially the same approach. It, appears, however, that, due to their structuralist framework, they were forced to overcompensate for the reductionism of their predecessors, attributing semantic homogeneity to prefixes which are in fact varicolored. Thus the structuralists strove to solve the problem inherent in the traditional approach listed above in 2.1.4 "Coherence of submeanings" and, as a corollary, rejected the existence of empty prefixes (2.1.7), but several problems remained.<sup>7</sup>

<sup>7</sup> Flier (1975), for instance, has recognized the need to study "the systemic interrelation of meaning types on both the intra- and interprefixal planes," although the main focus of his article is on

### 2.3 INVARIANCE AND MEANING

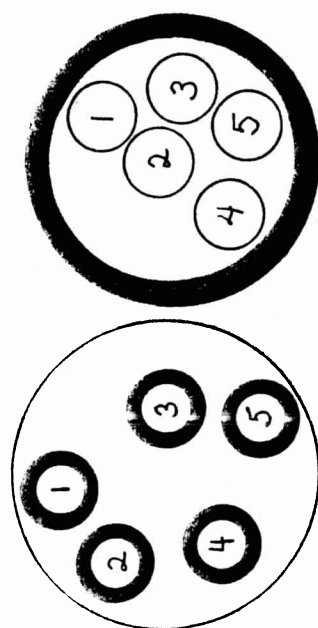
Before exploring alternative ways of modeling prefixal semantics, it is necessary to compare the assumptions made by traditional and structuralist scholars about the nature of prefixal meaning and to examine how these assumptions led them to draw the conclusions they did.

#### 2.3.1 Diversity vs unity

In the semantics of Russian verbal prefixes, two opposite phenomena compete for the linguist's attention: the diversity of instantiations of a given prefix and the tangible yet elusive unity they betray. Thus far it has not been possible to reconcile these aspects of diversity and unity; one of these properties is typically favored to the virtual exclusion of the other. Traditional descriptions concentrated on diversity, positing sharp distinctions between submeanings (see Figure 3). In this model, the submeanings behave like hard billiard balls, unable to interact with each other (emphasized in the figure by the heavy lines) and the only thing that corrals them into one set is the shape of the morpheme which they share (represented by a thin line). Structuralists abolished the distinctions between submeanings and focused on gathering all the instantiations of a given prefix together in one unified set. Since each approach concentrates on only one of the basic properties of prefixal semantics, neither captures both of them: the traditional model denies the unity of

the former rather than the latter.

Figure 3: Traditional and Structuralist Models



submeanings and the structuralist model produces a mass of instantiations, the diversity of which must be handled by additional specifications such as the "connotations" of Flier's features. The schematic diagrams in Figure 3 are admittedly an oversimplification, but they emphasize the fact that neither the traditional nor the structuralist approach had the apparatus to thoroughly integrate both unity and diversity in semantic analysis.

### 2.3.2 The common denominator

Despite differences pointed out above, the traditional and structuralist concepts of meaning are very similar and are founded on identical assumptions, as will be shown below.

The meaning of any lexical item is comprehended by the group of objects or concepts it signals. Thus the meaning of the word *chair* must in some way include all of the objects which we refer to as "chairs." This group of objects or concepts can be termed a category. Obviously the structure and properties attributed to the category are crucial to an understanding of meaning. As Lakoff (1982:11) points out, "linguists have simply taken for granted the classical theory of categorization which has been with us since the time of Aristotle, and which has been given a contemporary mathematical treatment in terms of set-theoretical models." This is not surprising, since classical set theory has always been the favored, if not exclusive, way of modeling groups of objects or other entities. Contemporary linguistics traces its philosophical roots to the positivist movement, which arose in the mid-nineteenth century, hallmarks of which were scientific empiricism, grounded in mathematical logic. In this atmosphere, it is clear that set theory would be unhesitatingly preferred as a model for meaning. Positivists of the Vienna Circle struggled to formulate an empirically verifiable criterion<sup>8</sup> of meaningfulness without success. Although Husserl, who had a profound influence on the work of Roman Jakobson and through him on structuralism, broke away from this movement, his teachers were positivists and he remained faithful to reductionism and mathematical logic. Even generative grammar, which arose as a

<sup>8</sup> As will be seen below, the notion of criteria is inherent to a set theory model of meaning.

reaction against positivism, retained the classical set-theoretical model of the category.<sup>9</sup>

Lakoff (1982) outlines the properties of categories according to classical set theory:

1. clear boundaries -- everything either is or is not a member of the category
2. shared properties -- necessary and sufficient conditions for category membership (i.e., invariants)<sup>10</sup>
3. uniformity -- all category members are equal and all conditions for membership are equal
4. inflexibility -- category boundaries are immutable
5. internal definition -- category definitions do not take factors external to the category itself (other categories, the system as a whole) into account.

Clearly the rigorous objective properties of classical set theory are in keeping with the "scientific" approach to language promoted by positivism. A set theory model of meaning requires only that the linguist determine the criteria which define the category. Membership vs. non-membership of instantiations is deduced automatically from the presence vs. absence of the criteria and is absolute. The linguist's

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<sup>9</sup> cf. Lakoff (1982), who cites the generativists' use of features to define sets.

<sup>10</sup> "Shared properties," "necessary and sufficient conditions," "criteria," and "invariants" are all terms for one and the same thing. Likewise note the multiplicity of names for theories of meaning based on set theory, "checklist," "discrete semantic feature," "minimal definition," to name a few.

work would theoretically be finished once the criteria had been established since classical sets have no internal structure and are uninfluenced by external factors. Both the traditional and the structuralist approaches to prefixal semantics were modeled after classical set theory, since the goal of both approaches was to discover criteria which would include all members of a category (be it a submeaning or a prefix as a whole) while excluding all non-members.

Every property of sets is strictly prescribed by classical theory except one -- the actual membership criteria which are ascribed to each set. This is the only variable allowed in the set theory model which is under the linguist's control. When the linguist selects appropriate criteria for a category, there is potential for variation along the parameter of specificity. It is up to the linguist to decide how specific or abstract the criteria should be. Thus a scale of specificity/abstractness is inherent to this framework. It is precisely their place in this spectrum of specificity which differentiates the traditional and structuralist approaches: they represent the two extremes. As discussed above, the traditional approach has relatively specific criteria (invariants), producing therefore relatively small sets (submeanings), whereas the structuralist approach uses relatively abstract criteria to define relatively large sets (whole prefixes). It is evident that, except for variations in relative specificity, the traditional and structuralist approaches are virtually identical in their conception of the nature of meaning, being essentially logical alternatives of a single approach.

### 2.3.3 The paradox of the invariant

Although some of the drawbacks of the traditional and structuralist approaches are obviously the direct result of applying classical set theory (which necessarily ignores both infra- and extrastructure and requires that membership be absolute), one might ask whether it is possible to solve these problems within the given set-theoretical framework. Perhaps both the traditional and the structuralist approaches are just too extreme and it is possible to find appropriate criteria, a "happy medium" on the scale of specificity/abstractness. It turns out, however, that this is not the case. Both Fillmore (1975, 1978) and Langacker (1982) have demonstrated that no matter how abstract or specific the criteria are, it is impossible to write adequate definitions in terms of necessary and sufficient conditions. Not only are all such definitions *either* too narrow, excluding valid members, or too broad, including non-members, but frequently they are *both* too narrow and too broad at the same time. This claim may seem at first glance to be oxymoronic, but examples reveal that it is true and non-contradictory. If we were to try to define the word *chair*, using necessary and sufficient criteria, we might start with the following definition:

D1 "a chair is a four-legged object with a back upon which people sit"

Soon we would realize, however, that this definition is inadequate since it excludes barber chairs (having one leg) and beanbag chairs (having neither legs nor back). Based on this observation we might make our definition more abstract:

D2 "a chair is an object upon which people sit"

Upon encountering an example like *broken chair* we would again be dissatisfied with our definition and might refine it to read:

D3 "a chair is an object that was made for people to sit on"

In each case we found fault with the given definition because it was perceived to be either too narrow or too broad. The fact is that all three definitions are *both* too narrow and too broad. D1, D2, and D3 all exclude the valid member *toy chair*, yet include the non-member *bench*. In addition, D2 and D3 include the non-members *stool*, *bleachers*, *swing*, *see-saw*, *sofa*, and *rocking horse*. No matter how we may try to adjust the specificity/abstractness of successive definitions, the result will be the same: our definition will be too narrow and/or too broad.

Similarly, any description of prefixal semantics using invariants will either be too atomistic (traditional), or too vague (structuralist). As seen above, these two kinds of descriptions are in fact the two endpoints of the spectrum of abstractness inherent in a theory of meaning that has semantic invariance as its central concept. Given the assumptions that the traditional and structuralist descriptions hold in common, both may be referred to as "classical." The application of this theory produces a paradox, since two very real aspects of meaning, the variety of specific instantiations and the unity which encompasses them, are irreconcilably opposed in this framework.

#### 2.3.4 Other arguments against invariance

In addition to the paradox described above which arises when semantic invariance is used as a criterion for meaning, there are several phenomena which do not have any place in this model. Although most of these phenomena are not directly relevant to prefixal semantics, they all point out further inadequacies of the theory of meaning involved.

1. Fillmore (1978) found the "minimal definition" principle (that the semantic description of each vocabulary item should consist of exactly those features which will distinguish it from every other item and no more) unsatisfactory since "adding or subtracting a single item will often call for revisions in large sectors of the lexicon." Sangster (1982) provides (albeit unwittingly) an excellent example of this potential of the "minimal definition" principle. In praising the efficiency of distinctive features, Sangster claims that "a system of twelve oppositions can distinguish 2<sup>12</sup> or 4096 verbs." Given the "minimal definition" principle, this is true, but what happens when the language in question borrows one new verb? Logically it would need to add a thirteenth feature and all other extant verbs would now have to have their feature specifications updated to indicate the presence or absence of that feature. It does not seem reasonable to assume that this is a realistic description of what actually happens. Besides, what would become of the 4095 "vacancies" created by the addition of a thirteenth feature?

2. Lakoff (1982) gives many examples of phenomena which should not exist, given the set-theoretical principles of clear boundaries and uniformity. Gradience is a property of many adjectives, expressed by adverbs such as *very*, *somewhat*, *not very*. If category membership were indeed absolute, then collocations such as *extremely hot*, *somewhat tired* would be as nonsensical as *\*a little bit pregnant*. With nouns, membership gradience is expressed by modifiers such as *a good/poor example of*, *typical*, *representative*. An ostrich, for example is a poor example of a bird, but a robin is a representative bird.
3. In some cases there are instantiations which belong to either or both of two categories at once. Lakoff (1982) gives this example: "A color in between blue and green might not be considered a very good example of either category, but it might be a color you that could call blue or you could call green, depending on the circumstances." Likewise, in 2.1.6 it was suggested that prefixal submeanings also overlap on occasion.

4. If instantiations of meaning were indeed arranged in sets, then multiple-word collocations which have a single referent should select items in the intersection of the sets associated with the words involved. Lakoff (1982) lists numerous exceptions to this corollary of the classical set theory model of meaning. For example, *electrical engineer* does not refer to the

intersection of the set of electrical things and the set of engineers and *topless bar* does not refer to the intersection of the set of topless things and the set of bars.

5. Perhaps the most persuasive argument against the use of invariants was provided by one of their most ardent proponents, Roman Jakobson. Jakobson discusses the nature of the invariant at some length, concluding that its most essential characteristic is that it is *relative* rather than absolute. Can a noun like *invariant* really be correctly modified by the adjective *relative*? Is an invariant that allows variation really an *invariant*? It seems that Jakobson himself felt the need to hedge on this issue and by doing so called the whole notion of invariance into question.

## 2.4 SUMMARY

In this chapter the traditional and structuralist approaches to prefixal semantics were briefly outlined. It was shown that both types of approach are based on the same understanding of the nature of meaning. Both assume that the relationship between instantiations and meaning can be felicitously modeled after classical sets and that semantic invariance is essential in determining set membership. Since, however, these basic assumptions do not reflect the true semantic structure of Russian verbal prefixes, the two approaches share many of the same difficulties. In addition to the problems posed by prefixes, there are other phenomena (of English) which

indicate that the classical set-theory model of meaning is not appropriate for describing natural languages. Some sort of modification of extant approaches appears to be in order.