

Lexical Meaning and Semantic Derivation: the case of image creation verbs

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Many aspects of linguistic behavior of a word (co-occurrence, meaning of grammatical forms, prosody etc.) are determined by its lexical semantics. Meanwhile a word, as a rule, has more than one meaning: polysemy (namely, systematic, or regular polysemy) is central to language, it is in the nature of language. Meanings of a (regularly polysemous) word are related to one another and to the context of their use. This is why SEMANTIC DERIVATION MECHANISMS that derive one meaning from another and from the context became the primary objective of our investigations in lexical semantics.

We start from the assumption that a non-homonymous word has one basic meaning; non-basic meanings can be connected with more basic ones by means of semantic derivation rules. (The notion of basic meaning and hierarchy of basicness are discussed at length in Keenan 1976.) Derivation rules exploit such general mechanisms as categorial shift (\approx metaphor) and a shift of the focus of attention (\approx metonymy), semantic bleaching and contextual meaning enrichment.

Generative Lexicon theory (Pustejovsky 1995) is one of the first theories addressing the problem of multiplicity of meaning. Obviously, there are substantial links between our derivational (i.e. dynamic) approach to meaning and Generative Lexicon theory. In fact, Pustejovsky 1995 contributed greatly to the idea that the static view of word meaning (Pustejovsky calls it “enumeration method” in lexical semantics) should be rejected. Lexical semantics must be compositional (Partee 1995, Tenny, Pustejovsky 2000). It is only in this way that we can give an account of creative use of words in novel contexts. More than that, derivational (or motivational) relationships connect also those word meanings that are present in the dictionaries; if we haven't revealed these relationships we do not understand how language works.

In this paper I describe an approach to lexical semantics implemented in «Lexicographer» – a Semantic Database for Russian verbs (Kustova, Paducheva 1994). The «Lexicographer» conception of lexical semantics doesn't deny a word its separate meanings. The only condition is that for every separate meaning postulated for a word (except the basic one) it is necessary to find a semantic derivation rule with a sufficiently wide sphere of application, which gives an account of how this meaning is related to the more basic ones. It is in this way that the unity of a word can be preserved.

The internal structure of meaning representations in «Lexicographer» is substantiated, in the first place, by the traditions of Moscow school semantics (Apresjan 1974) and by works of Anna Wierzbicka and her colleagues (Wierzbicka 1980, 1987). The influence of Ch.Fillmore on lexical semantics in Russia in general also cannot be overestimated.

The semantic representation of a lexeme¹ consists of two parts – 1) a structured set of semantic components and 2) the parameters. I make use of the following general parameters of lexical meaning: ONTOLOGICAL CATEGORY (for a verb this amounts, approximately, to Vendler's aspectual class); THEMATIC CLASS (\approx semantic field); ARGUMENT STRUCTURE and DIATHESIS; TAXONOMIC CLASSES of situation participants (descriptions of taxonomic classes are in a way similar to qualia structures of J.Pustejovsky). These parameters are discussed in more details in Paducheva 1998.

¹ Following Mel'chuk 1974, I use the term LEXEME to denote a word taken in one of its meanings - even if these meanings stem from regular polysemy.

Argument structure (AS) is composed of the situation participants taken with their theta-roles. The role of a participant is an abridged denotation of the corresponding component (or components) in the semantic decomposition of a verb (Jackendoff 1991: 60): Agent is the one who is doing something on purpose; Patient is the one who undergoes an acting upon; Theme is a participant that changes its place or state. The object of attention of such verbs as *praise*, *choose*, *look at* is also a Theme; the object of *paint* is a Theme according to Dowty 1991. With this definition roles become a reliable notion in lexical semantics and the AS of a verb is an abridged (though somewhat syntactically oriented) form of its meaning decomposition.

There is an obvious correlation between the AS and the semantic field of a verb: verbs of knowledge, belief, movement, existence, creation, possession etc. differ as to their argument structures. In what follows I shall make use of a verb's AS to testify the change of its semantic field.

The notion of diathesis was introduced in Melchuk, Xolodovich 1970: a verb has more than one diathesis if a participant with the same role may occupy different syntactic positions and thus have a different syntactic (and communicative) rank. A diathesis of a verb is the set of its participants with the rank assigned to each participant with such and such role. A diathetic change is a change in the hierarchy of ranks of participants (cf. topicalization in Fillmore 1968; topicality hierarchy in Croft 1991). The ranks I need are rather straightforwardly expressed by syntax: *Sbj*, *Obj* (Center), *Periphery* (e.g., for PP), *Off screen*.

Parameters are of dual nature: on the one hand, they differentiate words, placing a word into a network of systematic relationships with other words in language. On the other hand they are the main target of semantic derivation, so that for one and the same word in its different meanings the value of a parameter may be different, cf. a categorial shift transforming *remind*-action (*Remind me to make a call*) into *remind*-relationship (*John reminds a gorilla*).

In Levin 1993 a class of IMAGE CREATION verbs was introduced, which includes such verbs as *inscribe*, *scribble*, *illustrate*, all of them with two characteristic roles – Image and Place. In this paper I examine several thematic classes of verbs that are related to image creation and develop a chain of semantic derivations connecting argument structures of verbs in these classes. Section 1 deals with changes in AS. In section 2 purely diathetic alternations are investigated. In both sections I deal with lexemes, i.e. both with separate words and with separate meanings of one and the same word. In this exposition I shall make use of the English translations of Russian examples wherever possible.

1. Shifts in argument structure

I. Let's begin with PERCEPTION verbs, such as *see*, *hear*, *feel*:

- (1) Only John [Experiencer] *sees* Masha [Stimulus/Image];
Argument Structure – {Experiencer, Stimulus, Image};
Diathesis – <Experiencer-*Sbj*, Stimulus/Image-*Obj*>.

The syntactic Object of *see* in (1) corresponds to two participants: Stimulus in the real world and Image in the consciousness. Only in the context where the Object belongs to the taxonomic class of VISIBLE OBJECTS the role of the Object is identified unambiguously as Image:

- (2) We [Experiencer] *saw* the outlines [Image] of mountains in the distance.

In fact, *outlines* can only exist in consciousness, they do not exist in the real world. Such nouns as *contour, silhouette, profile, sight, view, panorama* belong to the same class (all these words imply an Observer).

But there are verbs of perception that have separate syntactic positions for each of the aforementioned participants.

I' – verbs of IDENTIFICATION, such as *recognize* <whom in whom>, *take* <whom for whom>, *identify, discern, diagnose*:

(3) a. At that moment he *recognized* his brother [Image] in the tramp he was talking to [Stimulus];

b. I *took* him [Stimulus] for a seller [Image].

AS – {Experiencer, Stimulus, Image}, the same as in class I.

D-change: I = <Experiencer-Sbj, **Stimulus /Image-Obj**> ⇒

I' = <Experiencer-Sbj, **Image-Obj, Stimulus-Periph**>;

or vice versa, as in (3b):

<Experiencer-Sbj, **Stimulus-Obj, Image-Periph**>.

Still, even with *recognize* the participants Stimulus and Image can coincide in one surface argument:

(3') He didn't *recognize* me [Stimulus /Image-Obj] = 'didn't *recognize* me [Image] in me [Stimulus]'.

I'' – PERCEPTION verbs in MENTAL MEANING also have separate syntactic positions for each participant:

(4) a. He always *saw* a rival [Concept] in me [Theme];

b. In my joke [Theme] he *saw* an insult [Concept].

The semantic shift from perception to belief results in AS-change: the pair {..., Stimulus, Image} changes into {..., Theme, Concept}. Here Theme is the object of attention.

AS-change: I = {Experiencer, **Stimulus, Image**} ⇒ I'' = {Experiencer, **Theme, Concept**};

D-change: <Experiencer-Sbj, **Stimulus /Image-Obj**> ⇒ <Experiencer-Sbj, **Concept-Obj, Theme-Periph**>.

In the context of a mental act an image is a (potentially) VERBALIZED image, i.e. a concept. An important feature that distinguishes a mental meaning from a perceptual one is MULTIPLICITY of potential concepts associated with one and the same entity: conceptualizations are inherently multiple.

I''' – verbs of IMAGINARY PERCEPTION, such as *imagine, dream, look forward to*. The Stimulus is not present in the situation, so the Image appears in the consciousness of the Experiencer without any Stimulus from the outside world:

(5) – Zvonjat! – Net, tebe [Experiencer] *pokazalos'* \ <chto zvonjat> [Image]

'– Somebody is calling! – No, it only *seemed to you* [Experiencer] <that somebody is calling>'.

AS-change: I = {Experiencer, **Stimulus, Image**} ⇒ I''' = {Experiencer, **Image**}

D-change: I = <Experiencer-Sbj, **Stimulus /Image-Obj**> ⇒ I''' = <Experiencer-Dat, **Image-Obj/Compl**>

There are many verbs like this in Russian because there is a special morpho-syntactic model for their generation, cf.

ja slyshu [I hear] – mne slyshitsja [to me hear+SJA].

The verb *predvkushat'* 'look forward to, wait, expect' has the inner form hinting at food tasting – which in the context of this verb is purely imaginary.

II – verbs of MATERIAL IMAGE CREATION, such as *paint, draw, reproduce, represent, reflect*. (The collocation «material image», M-Image, is used as a translation for the Rus. *izobrazhenie*.) Thus, I distinguish I(deal)-Images and M-Images (Image = I-Image). Mostly, M-Image is a visible image; but there are verbs which imply creating other kinds of M-Images: *to perform <a monologue>*, *to play <a tune>*.

Argument structure of a type II verb differs from that of a type I verb in several respects.

1) The Subject of an M-image creation verb is not an Experiencer but an Agent. Thus, the category of the verb changes: it is a causative verb and an action.

2) What is Stimulus in the case of a type I verb becomes Theme in type II, and Image becomes an M-image.

3) A new participant is added – the Place of the M-Image:

(6) I painted Masha's profile *on the wall*.

In fact, the Image (of an object) created by the one who perceives is imprinted in the consciousness; while an M-Image needs a material bearer. For visible images it is usually a surface of some kind (though there are also statues, songs, etc.).

Thus, the relationship between argument structures of type I and type II verbs can be represented by the following derivation rule:

AS-Change: I = {**Experiencer, Stimulus, Image**} ⇒ II = {**Agent, Theme, M-Image, Place**}.

As for their diathesis, verbs of M-Image creation preserve the peculiarity we noticed for perception verbs – they allow for ambiguous role interpretation of their syntactic Object (the verb *paint* is discussed from this point of view in Fillmore 1968; but perception verbs were, to my knowledge, never mentioned in this context):

(6') I painted Masha [Theme/M-Image-Obj].

Both the girl and the picture are said to be painted. About the two meanings of the sentence *John painted nudes* Fillmore writes: «the difference <...> lies in whether the objects John painted existed before or after he did the painting». And again, as in example (2), in the context of nouns belonging to the taxonomic class of MATERIAL IMAGES (such as *picture, drawing, portrait, illustration, landscape, sketch, study, draft, still-life, water-color*) the ambiguity is resolved:

(6'') I painted a portrait [M-Image] of Masha.

If the syntactic object of a verb belongs to the class of M-Images, as *a portrait* in (6''), the semantic role of the participant can be identified unambiguously. The theme is expressed

in (6'') by a Possessive (*of Masha*), which is not connected syntactically with the verb and, thus, is not included in the AS of the verb.

Thus, in M-Image creation verbs we see the same conflation of the two roles in one syntactic position – and the same ambiguity of role interpretation of the surface Object.

D-change: I = <Experiencer-Sbj, Stimulus /Image-Obj> ⇒
II = <Agent-Sbj, Theme/M-Image-Obj, Place of M-Image-Periph>.

Let's return to (6). What strikes us here is that ambiguity Fillmore speaks about is not felt as hindering understanding (cf. the same kind of non-genuine ambiguity in *Zvenjat gitary* where the NP *gitary* 'guitars' denotes an instrument that emits sounds and sounds themselves). More than that, there are contexts where one and the same NP in its given occurrence in a sentence must be interpreted as having different meanings in order to interact compositionally with other words, see (7):

- (7) Once in his father's studio Sasha saw a portrait.
Depicted in the portrait was *a young general*.
"Who is it?" – Sasha asked. (Nekrasov. The grandfather)

Here *in the portrait* is, obviously, a Place of the M-Image; but what about *a young general*? On the one hand, the participant *a young general* has the role (and denotes) the M-Image – in fact, it is said that a young general is depicted on the portrait. On the other hand, the question «Who is it?» concerns a person and not an M-image. Normally such double reference gives rise to a pun. In fact, there is *One meaning per occurrence Law*: a word cannot be used in such a way that it must be interpreted in different meanings in its relationships with different other words in the same sentence or text. Meanwhile in this case the two interpretations of the NP *a young general* perfectly coexist: the NP *a young general* denotes both a person and his image. The explanation is that these are not just two entirely different interpretations but interpretations connected by a METONYMY. And this condition is already known for its capacity to violate the *One meaning per occurrence Law*. Other examples with M-Image creation verbs:

- (8) a. I *saw Jakobson* not only on the photograph =
'I *saw* both the photograph of Jakobson and himself';
b. She looked at the young tsar portrayed full length among some brilliant hall (Bunin. Light breathing).

Thus I have made it obvious that the argument structures of classes I and II show a non-trivial similarity.

If the role Place is fulfilled by a NP belonging to the class M-IMAGE (*draw on a portrait*) then the AS is simplified – roles Place and M-Image are conflated; you can say *I draw Masha's profile on the wall* but not *on the portrait* (though *Na portrete ja narisoval Mashu v profil'* isn't excluded):

<Agent-Sbj, Theme-Obj, M-Image-Periph>.

In fact, sentence (9) sounds strange:

(9) I *depicted* in the engraving [Place = M-Image] the sight [Image] of Malaja Neva.

II' – verbs of VERBALIZED IMAGE CREATION, such as *describe*; verbs *paint*, *draw*, *depict*, *portray* in their figurative meanings also belong to this class (verbalized image = concept):

(10) Our friend Tamanskij [Agent] *described* Odessa [Theme] in sonorous verse [Text];

(11) The author [Agent] *depicted* in his novel [Text] the mode of life of contemporary youth [Theme].
AS-change: II = {Agent, Theme, **Place**} \Rightarrow II' = {Agent, Theme, **Text**}.

III. The third semantic field that would have gained much from implications connected with the role Image is that of BELIEF. In fact, an hypothesis can be put forward that verbs of belief can be treated as giving a MENTAL IMAGE of some fragment of reality. Thus, it is reasonable to suppose that verbs of belief should have an AS similar to that of perception verbs.

In fact, there are verbs of belief with a diathesis that confirms this hypothesis:

(12) I *consider* him [Theme] a good specialist [Concept]; AS = {Agent, Theme, Concept};
I *find* nothing ridiculous [Concept] in that [Theme].

The verb *imagine* can mean ‘wrongly believe’, and in this meaning it is a verb of belief:

(12') He *imagined* himself [Theme] a great musician [Concept].

2. Diathetic shifts

Diathetic shifts are, basically, shifts of the focus of attention. Diathetic shifts (within one verb) and conversion (Apresjan 1974: 188), a relationship between different verbs (such as *buy* and *sell*), are, semantically, one and the same phenomenon.

There are two diatheses eliminating the human being from the concept of the situation: Place promotion and Theme promotion to the Subject position. To be precise, the human being is not eliminated from the AS but removed Off screen as to its rank.

Diathetic shifts in type II verbs

Place promotion to the Object position. Diathetic shifts resulting in that Place is promoted from peripheral position to the position of the Object are discussed in Levin 1993:

embroidered an ornament [M-Image-Obj] on the cushion [Place-Periph] \Rightarrow
embroidered the cushion [Place-Periph].

The participant with the role Image goes off screen.

Place promotion to the Subject position: the participant M-Image (Place) goes from the Periphery to the Subject position, leaving the Theme in the Object position. The participant that was in the Subject position before (i.e. the Agent) goes Off screen:

• Place promotion in type **II**; derived diathesis of M-Image creation verbs:

(13) The artist [Agent] *depicted* in his picture [M-Image] a forest in winter [Theme] \Rightarrow
The picture [M-Image] *depicts* a forest in winter [Theme],

D-change: <Agent-Sbj, Theme-Obj, M-Image-Periph> \Rightarrow <M-Image-Sbj, Theme-Periph>.

- Place promotion in type **II'**. The same shift is possible for verbal descriptions, i.e. for verbs of Verbalized image creation (when Place = Text):

(14) The author [Agent] *depicts in his novel* [Text] the mode of life of contemporary youth [Theme].

⇒ The novel [Text] *depicts the mode of life of contemporary youth* [Theme].

With the human being eliminated, the AS of an M-Image creation verb acquires a secondary meaning of a SEMIOTIC verb expressing the relationship between the Signifiant and the Signifié of de Saussure.

Diathetic shifts in type I verbs

There are diatheses of perception verbs (type I) with no place for the Experiencer: the Experiencer is Off screen, see examples (15'), (16).

Concept promotion to the Subject position. Russian sentence (15') can be looked upon as derived from (15), which has the same AS and diathesis as (4) above.

(15) John [Experiencer] distinctly *hears* disappointment [Concept] in Martha's voice [Theme]:

John – Experiencer-*Sbj*;

disappointment – Concept-*Obj*;

Martha's voice – Theme-*Periph*.

(15') Otchetlivo *slyshitsja razocharovanie* [Signified] v golose Marty [Signifying]

'distinctly *is heard* disappointment in Martha's voice':

Experiencer-*Sbj* ⇒ Observer-*Off-screen*;

disappointment – Concept-*Sbj* ⇒ Signified-*Sbj*;

Martha's voice – Theme-*Periph* ⇒ Signifying-*Periph*.

Sentence (15') has the same AS and diathesis as (16) with the verb *sound*:

(16) Disappointment [Signified-*Sbj*] *sounds* in Martha's voice [Signifying-*Periph*].

Thus, (15) and (15') are connected by the following diathetic shift:

D-change: <Experiencer-*Sbj*, Concept-*Obj*, Theme-*Periph*> ⇒

<Experiencer-*Off Screen*, Signified-*Sbj*, Signifying-*Periph*>

Theme promotion to Subject position. Sentence (16') is also derived from a (15)-like sentence but this time Theme is promoted to the Subject position. Thus, (16'') turns out to be an inversion of (16'):

(16') Disappointment [Signified-*Sbj*] *rings* in Martha's voice [Signifying-*Periph*].

(16'') Martha's voice [Signifying-*Sbj*] *rings with disappointment* [Signified-*Periph*].

If so then we have the fourth semantic field involved in the wide class of image creation – that of verbs expressing the relationship between a sign and its meaning:

IV. For SEMIOTIC verbs, such as *express*, *convey* the diathesis with the Observer Off screen is the basic one, see (17) with the diathesis (17*):

(17) A word [Signifying-*Sbj*] *expresses* the meaning [Signified-*Obj*];

(17*) <Signifying-Sbj, Signified-Obj, Experiencer-Off Screen>.

Clearly, such verbs as *express* semantically presuppose an Observer.

In this paper we tried to demonstrate the advantages of a derivational approach to lexical semantics. The notion of semantic role (\approx deep case) was central for our investigation. One role presupposes another (this fruitful idea can be traced back to Fillmore 1968 and Fillmore, Atkins 1992); in case of image creation verbs, Image presupposes Theme syntagmatically, while Concept and The Signified are paradigmatic specifications of the role Image. Thus, our analysis proves the notion of semantic role to be of great use in revealing systematic relationships between word meanings belonging to different semantic fields.

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