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FUZZINESS AS A FACTOR OF DYNAMIC SEMANTICS

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Михайленко В.В. Розмитість як фактор динамічної семантики. Мовці впевнені, що концепти, виражені мовними знаками, мають точне визначення, що відокремлює їх від інших концептів. Проте, не всі концепти, як і домінуючі лексеми-репрезентанти мають строго окреслені межі: це явище прийнято називати семантичною розмитістю, що характерно для наївної картини світу. Концептосфера, для прикладу, “young” у наївній картині світу, яка семантизована за допомогою семантичного поля, вирізняється від такої у науковій картині, яка семантизована професійним дискурсом. Об’єкт дослідження – концепт “young”, вербалізований домінуючою лексемою “young”. Аналіз семантичної розмитості зазначеної лексеми у текстах, представлених різними регістрами дискурсу, може привести нас до відповіді на питання: «Наскільки лексема “young” відображає концепт “young”?»

Ключові слова: розмитість, поле, парадигма, лексикон, динамічна семантика, концепт, картина світу

Михайленко В.В. Размытость как фактор динамической семантики. Говорящие на родном языке уверены, что концепты, выраженные лингвистическими знаками, обладают точными определениями, которые и отделяют их от других концептов. Однако, не все концепты обладают точно очерченными границами, что принято называть семантической размытостью, которая преобладает в наивной картине мира. Концептосфера, например, “young” в наивной картине мира, представлена семантическим полем «young», отличается от таковой в научной картине мира, вербализированной в профессиональном дискурсе. Объект исследования – концепт “young”, выраженный доминирующей лексемой “young”. Изучение семантической размытости указанной лексики в текстах, представляющих различные регистры дискурса, может привести нас к ответу на вопрос: «Насколько лексема “young” отображает концепт “young”?»

Ключевые слова: размытость, поле, парадигма, лексикон, динамическая семантика, концепт, картина мира.

Mykhaylenko V. V. Fuzziness as a Factor of Dynamic Semantics. Native speakers believe that concepts expressed by words and phrases of their language have precise definitions with clear-cut boundaries distinguishing the words from other concepts, though not all concepts are so straightforward. It is what we call a fuzzy concept. It is believed that this type of fuzziness pervades the human conceptual system. A conceptual system in the naïve worldview verbalized in the language system differs greatly from that in the scientific worldview verbalized in the professional discourse. The object of investigation is the concept “young”, represented by the semantic domain “young”. The study of semantic fuzziness of the lexeme “young” may bring us closer to the answer: “How young is young?”

Key words: fuzziness, field/domain, paradigm, lexicon, dynamic semantics, concept, worldview.

INTRODUCTION. Language speakers depend heavily on the ability to collect, classify and store any kind of information. And to employ information we must develop a classification matrix. C.Craig (1986) on the basis of the prototype theory claims that semantic grouping must be classified as having fuzzy edges. It may give a possibility to avoid their “static” character and stress their dynamic nature. Native speakers believe that concepts expressed by words and phrases of their language have precise definitions with clear-cut boundaries distinguishing the words from other con-

cepts, though not all concepts are so straightforward [see: 19, 444–447]. It is what we call a fuzzy concept. It is believed that this type of fuzziness pervades the human conceptual system.

Fuzziness occurs when the boundary of a piece of information is not clear-cut [see: 8], for example, an adjective of age such as *young* "in an early stage of life, growth, or development; not yet old" or "being in the first or an early stage of life, growth, or development" (Merriam-Webster).

In the collective English worldview there is a conceptual system of human age developed in the English society: (1) newborn (Birth - 1 month) → (2) baby (1 month and 1 day - 2 years) → (3) toddler (child) (between 1 to 2 years/2-5) → (4) kid (before puberty 5-3) → (5) teenager (13-19) → (6) adolescent (12-16 or so) → going through puberty (roughly) so tends to coincide a lot with teenager → (7) teenager (after puberty but < 19 years) → (8) adults → in theory everybody over 18 → (9) young adult /young man/woman (between 19 to 25 years) → (10) simply called adult → (11) middle aged person (40-60) → (12) senior citizens/older people not elderly (rather "60 and better" than "elderly" which includes components of "frailness" and "helplessness"), see the correlation of the conceptual and componential types of analysis [20, 77–86].

In Genesis a 17 year-old boy could be treated as much older, e.g.:

1. *Joseph, a young man of seventeen.* (Genesis 38:20).

Evidently, at that time young men were coming of age much earlier than at present. There is also a common feature address younger men by older people in the following way:

2. *Whose son are you, young man?* (Isaiah 17:53).

The semantic structure of "young" can also actualizes the component "inexperienced":

3. *My young son Solomon is young and inexperienced.* (Chronicles 22:5).

But mainly "young" denotes "young age", e.g.:

4. *I am young in years, and you are old.* (Job 32:6).

In the given chart "child" is a toddler between 1 to 2 years, however, in Isaiah the noun child is additionally modified by the adjective young, e.g.:

5. *Young child put his hand into the viper's nest.* (Isaiah 11:8).

In Scriptures the adjective young is registered in 297 cases (see: Concordance, 1990), wherein it is combined with nouns of LSP's "men, women, birds, animals".

The verification of age nominations with a component "young" puts more questions than it gives answers. We believe, every epoch has its own standards as well as its own socio-cultural features.

Now we can compare a conceptual system in the English naïve worldview with that from the scientific worldview verbalized in the professional discourse:

(1) denarian: someone age 10 to 19; (2) vicenarian: someone in his or her twenties; (3) tricenarian: someone in his or her thirties; (4) quadragenarian: someone in his or her forties; (5) quinquagenarian: someone in his or her fifties; (6) sexagenarian: someone in his or her sixties; (7) septuagenarian: someone in his or her seventies; (8) octogenarian: someone in his or her eighties; (9) nonagenarian: someone in his or her nineties; (10) centenarian: someone 100 or more; (11) supercentenarian: someone 110 years old or more (no upper limit).

All these nominations of both worldviews can reflect the concepts constituting the system "age". The human mind actively constructs various types of cognitive representation (that is, codes, features, meanings, structured sets elements) that interprets linguistic input [14, 145–174; 28]. These cognitive representations may incorporate words, phrases, sentential semantics, speech acts, dialogue patterns, rhetorical structures, pragmatics, real and imaginary worlds. Each cognitive level is important during the processes of comprehending text and talk [15, 293; c.f.: 12].

Of course, an investigation along these lines raises crucial methodological issues since many words belong to more than one semantic domain within their range of meaning, e.g.: lexeme "young" refers to the domain of "age" (living-being/non-living-being; human-being /non-human-being; inexperienced; fresh food or drink; new political group or trend in art, etc).

6. *Learning by rote has been long out of fashion, but I loved reciting poetry, and can remember long poems learned when I was too young to understand the words, but just loved the sound of them.* (B1Y50).

7. *Similarly, Sauguet's cat probably thought that his owner needed help, and rushed over to lick the hands from which the sounds seemed to be coming, as a way of comforting him — just as a mother cat would rush across to lick the fur of one of its kittens if the young animal appeared to be in distress.* (BMG60).

8. *But if you always treat them as too young or too feckless to have your trust or good opinion, they are likely to stay immature and irresponsible.* (B101792).

9. *A similar result has been reported in young wheat plants exposed to CO₂ p.* (CRM 6439).

10. *He retired as Young Cricketers administrator in 1990.* (FT91399).

11. *At this time of the year, if Napoleon had not returned, Sharpe should have been thinning the apple crop, stripping away basketloads of young fruit to give the remaining crop a better chance of ripening in the autumn, but instead he was riding a dusty road in Belgium and searching for an enemy.* (CMP1410).

12. *It's a young wine, not really up to drinking yet.* (HH8146).

Therefore, a process of semantic domain disambiguation must be undertaken before the analysis is performed – at least if one is using annotated texts; otherwise the disambiguation procedure could be performed manually as each word is located in the lexicon. Many domains are obvious from context, but some do involve a certain amount of interpretation in the disambiguation process [on semantic domain disambiguation see: 21, 86–88].

Jeffery Reed has done pioneering work in this area by developing a semantic domain theory in terms of M. K. K. Halliday and R. Hasan's theory of organic and componential ties (1985). In contrast to LN, he also restricted his research to a single letter which resulted in an investigation of semantic chains throughout the discourse rather than semantic domains across a corpus [23, 296–338].

DISCUSSION. When we look up linguistic theories of sentence- or even of text-semantics to see what they can offer in respect to word-meaning, we will be confronted with basically two types. C. J. Fillmore [13: 55–81] referred to as *checklist-semantics* and *prototype-semantics*. According to this distinction, checklist-semantics provides listings of meaning components, semantic markers, or semantic descriptors which must be satisfied for a term to be (grammatically, truth-functionally, or else) interpretable within a linguistic expression; whereas prototype-semantics allows for the (paradigmatic, syntagmatic, or else) identification of a term as part of a linguistic expression within a network structure of labeled nodes and relations [25, 76–84].

If we agree that linguistics is, or at least ought to be, an empirical discipline, then the paradigm of empirical sciences should be followed, although it needs modification in view of the scope of natural language semantics. To adopt the paradigm of empirical sciences for linguistic research is tantamount to at least two postulates: a) not to rely on ready-made theories or models taken from another domain, because these may be inadequate in respect to the phenomena under investigation; and b) not to rely on the introspective exploration of one's own knowledge and competence as the allegedly inexhaustible datasource although valuable initial ideas might be produced that way. Instead, the investigation of linguistic problems in general, and that of wordsemantics in particular, should start with hypotheses formulated for continuous estimation and/or testing against observable data, then proceed to incorporate the findings tentatively in some preliminary theoretical set-up which finally may perhaps get formalized to become part of an encompassing theory [25, 76–84].

Linguistic fuzzy logic theory deals with sets or categories whose boundaries are blurry or, in other words, “fuzzy” [16] and which are expressed in a formalism that uses “words” to compute, not numbers, termed in engineering as “soft computing.” There is an accessible introduction to this linguistic fuzzy logic methodology, focusing on its applicability to social sciences. Specifically, this is the first book to propose an approach based on linguistic fuzzy-logic and the method of computing

with words to the analysis of decision making processes, strategic interactions, causality, and data analysis in social sciences [9]. The project consists of systematic, theoretical and practical discussions and developments of these new methods as well as their applications to various substantive issues of interest to international relations scholars, political scientists, and social scientists in general [24, 193–209].

What makes the analysis of natural language meaning so intricate a problem depends on the particular nature of what has to be represented as its results, namely, a representational structure in its own. It is this representational aspect of language which theories of semantics and cognition have been, and still are focused on in particular. According to the more traditional theories, natural language meaning can be characterized by its denotative and connotative aspects. Denotation is understood to constitute referential meaning as a system of relations between words or sentences of a language and the objects or processes they refer to [25, 76–84].

Connotation is defined to constitute structural meanings as a system by which words or sentences of a language are conceptually related to one another. Structural semantics has considered vagueness somewhat fundamental of language but, being based mainly upon intuitive introspection, it has not achieved the theoretical or methodological consistency of formal theories [23: 555–571]. The central notion of frame semantics is that of memory which serves as a paradigm for the operational aspects of both, world system structures and language system structures. The basic distinction of what may propositionally be formulated as opposed to what may only prototypically be realized in some system structure of stored experiences, is reflected in the great variety of notional pairings which different disciplines have produced facing a similar, if not identical research problem.

Thus, their notions of formal vs. experiential knowledge [11, 261–281], semantic vs. episodic memory [27, 381–403], frame vs. scene [13, 55–81], description vs. schema [10: 131–149], etc. show a striking resemblance: although their approaches differ in what they consider natural language meaning to be, they nonetheless converge on the central notion of it, being a relation between a representation (i.e. the body of discourse) and that which it represents (i.e. a referentially and/or prototypically defined system structure) [24, 193–209]. I suggested that all experience can be construed as meaning organized into networks of classes. This includes our experience of the abstract relation of classification—the relation of being a member of a class. Class-membership is itself construed as a class in the network of classes; more specifically, it is construed by the intersection of “intensive” and “ascriptive” in the system network. In conclusion, I identify one of the ways my discussion has been restricted: I have focused on language as a resource for construing experience since the point of departure was L. A. Zadeh’s remarks about human thought [30, 4–34].

“Construing experience” is one of the three generalized functions of language (see: the ideational function). The other two are the interpersonal and textual functions, and both of these are also inherently fuzzy.

B. B. Rieger underlines that following the line of W. Labov [17, 340–373] and G. N. Leech [18, 149–165], prevailing linguistic theory and linguistic semantics in particular is dominated by what has been called the “categorical view” [23, 555–571]. Accordingly, linguistic entities are at least implicitly asserted to be discrete, invariant, qualitatively distinct, conjunctively definable, and composed of atomic primes.

INVESTIGATION. Let’s consider the definition of the adjectival lexeme “young”: (1) adolescent, callow, green, growing, immature, infant, in the springtime of life, junior, juvenile, little, unfledged, youthful; (2) at an early stage, early, fledgling, new, newish, not far advanced, recent, undeveloped; (3) babies, brood, family, issue, litter, little ones, offspring, progeny; cf.: (1) immature, juvenile, youthful, little, growing, green, junior, infant, adolescent, callow, unfledged, in the springtime of life; (2) early, new, undeveloped, fledgling, newish, not far advanced; (3) the larvae, the young stages of the worm; (4) youthful, juvenile; (5) junior, adolescent, teenage, teenaged; (6) immature,

childlike, babyish, boyish, girlish; (7) in the springtime of life, in one's salad days, new, recent, fresh, immature, undeveloped, developing, in the making, in its infancy.

All these adjectives constitute a semantic domain/field "young". A classical-lexical semantic analysis (В. Матвеев, 1987; Д. Кацкова, 1987) of adjectives with the common component "young" based on the dictionary entries results in a static LSP, where in every adjective position is rigorous, for instance: О. Соловьёва [5] studies parametric adjectives on synchrony and diachrony [с.ф.:1]. А. Пинтова [4] compares two conceptual systems of young / old in English and Russian worldviews or good / bad; in English [2]. Л. Дзасежева[3] describes the LSP "woman"; Н. В. Царегородцева [7] differentiates antonymic correlation selecting employing lexicographic data. Still there is no single quantitative value which defines the term "young" when describing a fuzzy concept (or fuzzy variable) such as age [4] or other parametric concepts, for instance, nomination spaces represented by word building clusters in Russian and English [6].

For some people, age 25 is young, and for others, age 35 is young, evidently, the concept "young" has no clean boundary. Thanks to our life experience, a child at 5 is definitely young and a man at 90 is definitely not young; however, a man at 30 may be young but only when compared with an 90-year-old man, i.e. to avoid imprecision we must resort to context. The representation of this kind of information is based on the concept of fuzzy set theory [30, 4–34]. Unlike classical set theory where one deals with objects whose membership to a set can be clearly described, in fuzzy set theory, membership of an element in a set can be partial, i.e., an element belongs to a set with a certain grade (possibility) of membership.

Nevertheless all various adjectival groupings are well-known and described in the literature, a number of open questions still remain, especially from the cognitive linguistic perspective. Primarily, it is not clear how and why different adjectival classifications are to be found in one and the same language [26, 686–688]. And there is a question as to the linguistic basis of adjective shift inside of one domain and transition from one domain to another. This thesis is true in case the domain is modeled in the process of the discourse analysis.

We shall select several synonyms of "young" which can combine with nouns with the common semantic component "human-being". From our language experience we can choose "little, juvenile, youthful, immature, childlike" and verify their combinability with the referred nouns in the British National Corpus to see the state art:

13. *So you're looking after Gary Lineker's little boy are you?* (KD53498).

14. *I remember once when I was a very little girl.* (ABL560).

15. *One little girl only fifteen years old had to carry lead weights to make up ten stones, but when she arrived back on foot after the race had finished, she had lost not only the weights but the horse as well!* (BPK61).

If in sentences (13-14) we understand "little" as children, in sentence (15) "little" reveals "as old as 15".

16. *I shall miss you all and often think of the baby, growing up into a little girl.* (FRC74).

There is a clear-cut difference between a "baby" and a "little" girl in sentence (16).

17. *She was a lovely, jolly little child with the most beautiful big eyes.* (CH68175).

Here (17) is a semantic grading: "baby, child, girl", where objective difference in age is underlined by the adjective "little", but c.f.:

18. *It left him so that even though he is now 24, he is still like a little child.* (CKM83).

In sentence (18) "little child" reveals the speaker's subjective attitude to "the man of 24", i.e. the speaker considers him "infantile".

The adjective "juvenile" is mainly registered in professionally marked texts on criminology (19) and rarely on medicine (20):

19. *By July 1991, 31 juvenile offenders were on death row in 12 US states.* (CJS 308).

20. *A BREAKTHROUGH may be at hand in combating one of the most perplexing diseases of adolescence, juvenile diabetes.* (B74232).

In the following sentence "youthful" means "appearance" or "behavior" (21), it does not mean "young age", the same is concerned "childlike" (21):

However, Г. В. Колшанский (1990) considers it necessary to speak of a lingual-mental worldview but language and thinking should not be total, and the language model must be based on cognitive foundation.

Likewise in sentence (23) "immature" actualizes the component "physically, mentally or socially undeveloped":

23. *Children (and teenagers) are, by definition, immature; they need and welcome the security of a "sure touch" on the part of their mothers and fathers — a sense of authority fairly and kindly expressed.* (B10409).

The contrastive semantic analysis of the referred adjectives proves the fact that the speaker may model a fragment of "young (age of a human-being)" in the worldview rather subjective, while in the professional text/discourse the speaker can model a scientific worldview. There is another outcome of the analysis: a rigorous lexical-semantic field/domain in the language system principles based on differential principles reflects mainly the structure of the lexicon and its semantic relationships. Evidentially, a semantic field/domain "young (age of a human-being)" is the author's and the speaker's appraisal of the "young age". The semantic component "group of" is realized in the collocations "young women/ men" in (24-25) or "a couple of" in the collocation "young parents" (26), e.g.:

24. *A few determinedly modern young women eat snacks in the street, but no girl or woman in Spain dares wear trousers or skimpy bathing-suits.* (AC6224).

25. *Young men generally find drink-driving unacceptable, according to the research.* (BM42980).

26. *And giving young parents a source of friendly, practical advice.* (A7G379).

The **main goal** of the present paper is to consider fuzziness of dominant lexeme "young" representing the conceptual system "young" [see: 29]. In the frame work of lexical semantic theory the scholars managed to model a rigid matrix structure of a domain. There are 32327 cases of the lexeme "young" usage in the British National Corpus of the English language. We shall select collocations of "young + noun (LSP "human") structure, e.g. :

27. *'Withdrawal of goodwill' caused many people (myself included) to question whether teaching could ever be viewed as a "profession" when the ethics which are central to teaching (responsible and thoughtful care for the young) could be so readily ignored by so many teachers.* (CLY1038).

28. *Ian Watson, the student in question was a clever young man who had worked very hard to achieve his place at the higher seat of learning; he found it very difficult to manage on the pittance that his father allowed him.* (CE91764).

29. *Going to the cinema in the 1940s and 1950s, for example, was an important part of courtship among young people: it had more in common with other courtship rituals than with other forms of media use, such as reading the papers.* (CRY218).

30. *Ah, so that must be the widow, young Mrs Heathcliff at Wuthering Heights!* (GWH 248).

The adjective young can be modified by "very", for instance, *very young; very young babies; very young children*:

31. *In very young babies, a lack of interest in brightly coloured toys and any highly patterned objects held about eight inches from their face.* (H071157).

32. *The behaviour of even very young children is often highly complex, as for example, in the case of language.* (CG6197).

33. *But if you're Black, you stand out already, so you try, from a very young age, to seem as acceptable as possible.* (ADG772).

34. *Extremely pretty young women, still in their teens, advanced from table to table, offering baskets of roses and carnations to couple.* (AC6149).

We consider there may be two modes of “very”: (1) objective – when somebody looks younger of his/her age; (2) subjective – when it is the speaker’s attitude. Again we can see some developments in the very semantics under the influence of the context and the speaker’s intention.

We take an attempt to prove that semantic fuzziness of lexemes makes the meaning expansion possible including possible components of the speaker to express the concept and those of the addressee to comprehend them.

RESEARCH PERSPECTIVES. People think in a language of thought. Knowing a language, then, is knowing how to translate mentalism into strings of words and vice versa. In the real world there exists much fuzzy knowledge, i.e., knowledge that is vague, imprecise, uncertain, ambiguous, inexact, or probabilistic in nature. Human thinking and reasoning frequently involve fuzzy information, possibly originating from inherently inexact human concepts and matching of similar rather than identical experiences. The data analysis has shown that experience can be construed as meaning organized into networks of classes. We have focused on language as a resource for construing experience of speaker’s and addressee’s perception. “Construing experience” is one of the three generalized functions of language (see: the ideational function). The other two are the interpersonal and textual functions, and both of these are also inherently fuzzy. We also try to prove that semantic fuzziness of lexemes makes the meaning expansion possible including various components of the speaker to express the concept and those of the addressee to comprehend it. The results of our study may change the matrix of the lexical meaning as rigorous system.

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