

PRESENTATION ON RELATIONS BETWEEN LEXICAL UNITS AND THEIR MEANINGS

Leláková Eva
University of Žilina

1. Lexical meaning

Lexical meaning – as one type of language meaning – is a specific reflection of objective extra-language reality in human mind influenced by subjective attitudes and feelings of language users and processed by a lexical unit – lexeme. Miko [1994:66] develops its definition by assumption that “it is a cartesian intersection of all encounters with an object which take place in the mind of a person....a cartesian intersection of all social and individual situations in which the object occurred....an interiorized object in its general shape – a pragmatic concept.”

Lexical meaning is formed by a hierarchical structure of elementary, further unanalysable semantic components or semes by which all the vocabulary can be described. They are of various level of abstraction and determine the semantic-syntactic environment of the word.

2. Componential analysis

Semantic structure of words is studied by the methods of componential and structural analysis which are interrelated. Componential analysis (CA) or lexical decomposition – as one of the main methodologies of structuralist semantics – is a logical development from the lexical field theory as it describes the sense relations among lexemes of a specific field in a formalized, precise and detailed way. By application of this form of semantic analysis individual meanings of polysemantic words with different componential structure are decomposed into semes.

2.1 Historical background

CA – in other words – is a method for describing mutual oppositions between the lexical units of the field. It has been used since the second half of 1950s by American (e.g. Floyd G. Lounsbury, Eugene Nida, Ward Goodenough, Brent Berlin, Paul Kay, and Wilhelm von Humboldt) as well as European linguists (e.g. Louis Hjelmslev, Bernard Pottier, Eugenio Coseriu, Uriel Weinrich, Jerrold J. Katz, and Jerry A. Fodor) who found the common inspiration in structural phonology. American anthropologists used CA for kinship terms, personal pronouns, gradable antonyms, and colour terms, Louis Hjelmslev applied it on certain sets of animals, and Katz and Fodor on dictionary definitions. In their theory, Katz and Fodor used the terminology of semantic markers (present in the lexical meaning of the studied word as well as in the meanings of other words) and semantic distinguishers which made the studied word specific and unique.

3. Matrix of LSF

In the present componential approach we have replaced the binary features (\pm notation) – a traditional and oversimplified organizing principle of semantic analysis – by a two-dimensional structure (matrix) into which we could fit all the studied meanings of selected lexemes and through which we could study interconnections between the

related meanings of different lexical units as well as between different meanings of a specific lexical unit.

3.1 Matrix in linear algebra

In mathematics, matrix is defined as a certain set of mathematical objects (elements of a matrix) arranged into regular rows and columns which form a two-dimensional rectangular array.

$\begin{pmatrix} 3 & 0 & -6 & 4 & 11 \\ 6 & -1 & 4 & 1 & 13 \end{pmatrix}$ Numbers 3, 0, -1 ...13 are elements of the present matrix arranged in 2 rows and 5 columns. The size of matrix is 2-by- 5 (2x5).

$\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 2 & 0 \\ 0 & 0 & 0 & 3 \\ 0 & 0 & 0 & 0 \end{bmatrix}$
4x4 matrix

$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$
3x3 matrix

In linear algebra matrices serve for an effective and tabular notation of linear equations and represent linear transformations.

3.2 Matrix in linguistic research

If we understand a lexical meaning of the word as a reflective category and if the reflection of reality in the human mind is characterized by the form of a lexeme; if the work with semantic components of the lexical meaning is done within a language system, depiction of relation among individual units of language can be very effective and precise when a matrix adapted for this specific aim is used.

3.3 Matrix of lexico-semantic field (LSF)

In the present research one fragment of English vocabulary (LSF of the nouns denoting *happiness*) and one fragment of Slovak vocabulary (LSF of the nouns denoting *šťastie*) are observed. In these specific cases two-dimensional matrices present the semantics of the nouns denoting *happiness/šťastie*. The matrices consist of two axes – a vertical one indicates a lexical stock and the horizontal one indicates a seme stock of the collected language material (Figure 1, Figure 2). The composition of matrices requires an application of a mathematical method called weighting, by which each element of the seme stock is given different weight. The weight of a specific investigated word/lexeme is given by the sum of weights of its meanings. The more the meaning is to the left of the horizontal axis, the lower its weight is. That means that if the number or importance of the meanings of a word changes, or even if the word ceases to be important for the research, the matrix can be instantaneously readjusted and the work with the updated data is carried out.

4. Lexemes and semes – elements of a matrix

Nouns denoting *happiness/šťastie* in English and Slovak language have been obtained by a detailed explanatory dictionary analysis – on the basis of Oxford English Dictionary and Krátky slovník slovenského jazyka 4. Collected nouns/lexemes have been consequently arranged in descending order according to the number of their meanings and put on the vertical axis of both matrices. Semes obtained by a componential analysis form a horizontal axis of a matrix. The matrix of the nouns denoting happiness in English has size 198x160 with 31 680 segments (Figure 1), the size of the matrix of Slovak nouns of happiness is 162x102 and it contains 16 524 segments (Figure 2).

5. Advantages of matrix analysis

Matrix represents a pre-step to a LSF construction and enables a detailed quantitative and qualitative analysis of the language material and the study of the relations not only between a specific lexeme and its meanings, but also relations between meanings of other lexemes of a specific field. It can also be used for the needs of comparative analysis and divided into sectors within which language data can be analysed and compared.

Segments of a matrix can be either filled or empty. Filled segments represent multiaspectual relations among individual lexemes, and empty ones logically mean a zero semantic intersection. A high or low tendency of the observed words to be connected with other words of the field can be deduced from the density of filled segments of a chosen fragment.

Furthermore, it is evident from the matrix that different meanings of polysemantic words have different componential structure and there exists a relation between lexemes and semes which can be notified as $I: x \text{ for } x > 1$ (x represents the number of semes). The only exception in our research is the case of monosemantic words, where $x=1$.

Another indisputable advantage of a matrix is that it can be updated whenever it is necessary; its content can be readjusted without the risk of breaking an already created and existing system. As the English and Slovak vocabulary is in permanent motion, the position of lexemes and semes in it is continuously changed, too. Some of the meanings of the words are becoming obsolete or even archaic; others are more popular and colloquial than any time before. A well-constructed matrix helps to react on these changes.

Also the functionality of semes – their more or less numerous occurrences in lexical meanings of words – can be deduced and assessed on the basis of a matrix. After a detailed analysis of matrices we have reached a conclusion that is identical with the opinion of Fabian [1998:116]. She claims that the more often the seme is met in the lexical meanings of a big quantity of words, the more general it is and the more it is deprived of emotional colouring.

Count	Seme Stock																		
	67	54	29	54	29	19	8	14	12	3	5	2	12	6	9	2	21	89	
	Lexical stock	In phrases	In plural	Figurative meaning	That which.....	Science	Art	Place, stay	Freedom from	Quietness, tranquility, peace, calmness	Sport	Part of	Support for	Absence of	Repose, relief, release from	Vigour, strength, power, energy	Rest, cessation, stopping, arrest	Biblical, religious use	Quality, attribute, trait
16	Rest	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
16	Love	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
13	Fortune	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
13	Relief	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
13	Repose	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
12	Heart	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
12	Pride	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
12	Triumph	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
12	Joy	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
12	Safety	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
12	Content	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
12	Goodness	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
12	Liking	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
11	Charity	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
11	Salvation	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
10	Heaven	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
10	Freedom	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
10	Charm	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
10	Felicity	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
10	Comfort	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
10	Pleasure	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
10	Peace	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
10	Satisfaction	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
10	Jollity	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
10	Weal	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
10	Pleasance	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
9	Sunshine	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
9	Mirth	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
9	Cheer	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
9	Rapture	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
9	Kindness	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
9	Welfare	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
9	Lightness	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
9	Delight	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
9	Jest	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
9	Ease	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
9	Vivacity	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
9	Gratification	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
9	Affection	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
9	Relish	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
8	Friend	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
8	Luxury	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆

Fig.1. Matrix of LSF of English nouns of happiness – upper left part

Počet	Seme Stock																			
	Lexical stock	18	17	11	4	8	2	1	1	1	2	1	7	5	6	7	13	21	6	5
		Frazeologizmy	Veda	To, čo...	Expresívny výraz	Ľudová slovesnosť	Oslovenie	Stred	Časť	Jedlo	Život	Kartársky výraz	Kladný vzťah, postoj	Náklonnosť, naklonenosť	Osoba, človek	Predmet, vec	Náboženstvo, Biblia	Stav	Súlad, zhoda, harmónia	Vyrovnanosť, rozvaha, pokoj
11	Srdce	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆								
6	Láska	◆				◆							◆	◆	◆	◆				
6	Pokoj	◆															◆	◆	◆	◆
6	Milosť	◆															◆			
5	Radosť	◆		◆		◆												◆		
5	Šťastie	◆			◆	◆												◆		
5	Nebo	◆			◆												◆			
5	Extáza		◆														◆	◆		
5	Dobrota																	◆		
4	Dobro	◆	◆																	
4	Potešenie	◆		◆														◆		
4	Raj	◆			◆	◆											◆			
4	Pohoda	◆																		◆
4	Idyla		◆								◆							◆		
4	Harmónia		◆																◆	
4	Zábavka															◆				
4	Požehnanie																◆			
4	Mier																◆	◆	◆	◆
4	Obľuba																	◆	◆	◆
3	Selanka	◆	◆																	
3	Miazga	◆	◆																	
3	Nirvána	◆																◆	◆	
3	Orfizmus		◆														◆			
3	Eufória		◆															◆		
3	Optimizmus		◆															◆		
3	Idealizmus		◆																	
3	Zápal		◆																	
3	Humanizmus		◆																	
3	Vitalita		◆																	
3	Potecha			◆														◆		
3	Zdar			◆																◆
3	Priateľ					◆	◆													
3	Eden					◆											◆			
3	Gusto					◆														
3	Náklonnosť												◆							
3	Dobromyseľnosť													◆						
3	Blaženosť																◆	◆		
3	Nebesá, nebesia																◆			
3	Vytrženie																	◆		
3	Plezír																			
3	Zábava																			
3	Rozptýlenie																			
3	Radovánky																			

Fig.2. Matrix of LSF of Slovak nouns of happiness – upper left part

Literature

1. Blanár V.: Lexikálno-sémantická rekonštrukcia. -Bratislava: Veda, 1984. - 216 p.
2. Burchfield, R.W., Quirk R. Oxford English Dictionary. 2nd Edition on CD-ROM. Version 3.1. - OUP, 2004.
3. Fabian, M.: Етикетна лексика в українській, англійській та угорській мовах. - Ужгород: Інформаційно-видавниче агентство "ІВА", 1998. -255 p.
4. Kačala, J. a kol. Krátky slovník slovenského jazyka 4. - Bratislava: VEDA, 2003. - 985 p.
5. Kráľová, Z. Matematicko-štatistická analýza vybraných faktorov anglickej fónickej kompetencie. // Acta humanica: Philology. - N.1- 2009. - P. 60-79.
6. Leech, G. N. Towards a semantic description of English. - London: Longmans, Green and Co Ltd, 1969. -277 p.
7. Lehrer, A. Semantic fields and lexical structure. - Amsterdam: North-Holland Publishing Company, 1974. -225 p.
8. Lyons, J. Linguistic Semantics. An Introduction. - Cambridge: CUP, 1995. 376 p.
9. Miko, F. 1994. Význam. Jazyk. Semióza. Metodologické reflexie.- Nitra: Vysoká škola pedagogická, 1994. -140 p.

This paper has been written with the support of Cultural and Educational Grant Agency of Slovak Ministry of Education, project: K-09-004-00.

Summary

The paper deals with a new componential approach to categorization and organization of lexicon – a matrix analysis. Matrix presents semantics of the nouns denoting happiness in English and Slovak language in a formalized way and enables a researcher to observe relations among individual lexemes of a specific lexico-semantic field and their lexical meanings.