Visual Semantics

Slovo a jeho okolí

Lexeme

- is the minimal unit of language
- has a semantic interpretation
- embodies a distinct cultural concept.
- It is made up of one or more form-meaning composites called lexical units.
- A lexeme is an abstract unit of morphological analysis in linguistics, that roughly corresponds to a set of forms taken by a single word. For example, in the English language, run, runs, ran and running are forms of the same lexeme, conventionally written as RUN.

Semantic or lexical field

- Semantic or lexical field - A set of words (or lexemes) related in meaning.
- Linguist Adrienne Lehrer has defined semantic field more specifically as "a set of lexemes which cover a certain conceptual domain and which bear certain specifiable relations to one another" (1985).
- A semantic field is a technical term in the discipline of linguistics to describe a set of words grouped by meaning in a certain way .
- Think, for example, of all the lexemes we know to do with fruit? To what field should orange belong? To colours or to fruit?

Syntagmatic field

- On the horizontal dimension, syntagmatic substitution, we sense the relationships between lexemes in a sequence. There is a certain mutual expectancy between the main lexemes in the sentence.
- *It writhed on the ground in excruciating. Svíjelo se to na zemi mučivě, nesnesitelně.*
- Our linguistics intuition tells us that the word excruciating is connected with pain, agony and not with joy. Likewise, writhe and agony commonly coocur, as do write and ground. Horizontal expectancies of this kind are known as collocations. We can say that excruciating collocates with pain.

Paradigmatic field

- On the vertical dimension, paradigmatic substitution, we sense the way in which one lexeme can substitute for another and relate to it in meaning.
- *My auntie has bought a red automobile.*
- We can focus on any one of the lexemes and replace it. We may replace bought for purchased. We can replace lexeme automobile for car. We can substitute automobile by a lexeme which has nothing to do with its meaning at all, such a dress or pencil.
- The predictable links between lexemes are called sense relations, and they are at the core of any account of lexical structure.

Word and its environment

- A word is typically the smallest element of a sentence which has position mobility – that is, the smallest that can be moved around without destroying the grammatically of the sentence.
- *John saw Bill.*
- *Bill saw John.*
- *Bill, John saw.*
- By no means all words are equally mobile in that sense, but with very few exceptions, the smallest mobile units are words.
- The second major characteristics of words is that they are typically the largest units which resist interruption by the insertion of new material between their constituent parts.
- *His..... coolness ....was ..... unbelievable.*
- *great in the face of danger*

Semantics

- meanings of words
- As meaning is mostly defined not by reference to the external world, but to other words, the relationships between words, when visualised graphically, gives insights into their semantics.

Semantic Neighbourhoods

- a "topic" word (S1)
- its senses (G1) (there are usually several) or meaning of that word
- We can gain an understanding of the meaning of a topic word by studying the relationships between the topic word and its senses, and between the topic word and related words.
- We can represent the relation between the topic word and its senses as S1 X G1; or just s1g1. As a topology, or network, this is just a “star“.

Semantic Neighbourhoods

- *neighbours* are *t*he set of words (S2) which share senses with S1
- Neighbours, along with the senses shared, make up its *neighbourhood*.
- As S1 is a member of the set S2 we can represent the neighbourhood of S1 as s2g1. Depending on the number of senses or synonyms of S1, this can have a very complex topology.
- The neighbouring words of S1, in turn, have senses (G2) of their own. These overlap with the senses of S1 (G1 is a subset of G2). So a semantic neighbourhood can then be expanded to s2g2. Usually this neighbourhood is too complex to be easily represented visually.

Methods of visualizing the semantics of word using graphs

The graphics are of two types:

- networks
- lattices

Networks & Lattice

- Networks are composed of nodes (vertices, or circles), which represent the senses and/or words, and of lines which represent the connections or relations between the senses and/or words.
- Lattices are (simply put) graphs based on an ordered set (see FCA: Formal Concept Analysis). Instead of all words being given equal billing, they are ordered --for example by the senses they share. Likewise (dually and symmetrically), the senses are ordered.

Restricted Neighbourhood

- a neighbourhood restricted to only those words that occur in more than one sense of the topic word (s2g1R) -- similarly for senses.
- Any word that has more than one sense is *polysemous*.
- Any word that has only one sense is *monosemous*, and known as a *Singleton*.
- Because a neighbourhood is restricted to the senses of the topic word, a polysemous neighbour may, in this context, have only one sense; in this situation it is known as *neighbourhood-monosemous* .
- A *self-referencing relation* is a relation on one set; Word X Word, or Sense X Sense. A Restricted Neighbourhood Self-Referencing Relation on words, is between the words-only of a Restricted

Genus-Differentiae

- A Genus-Differentiae (GenDiff) Relation takes Singletons (monosemous words (polysemy =1)) as Word_1 and polysemous words as Word_N.
- Singletons differentiate a sense -- they occur only in that sense and are *differentiae*.
- Polysemous words occur in more than sense -- they are *classifying* or *genus* words.
- Word_1 X Word_N is a relation between all singletons and polysemous words which share senses.

Idioms

- An idiom is an expression whose meaning cannot be inferred from the meanings of its parts.
- We have to distinguish idiomatic from non – idiomatic expression.
- The expression is fixed, both grammatically and lexically.
- *Put a sock in it* means ***stop talking***
- It is not possible to replace any of the lexemes and retain the idiomatic meaning. It must be interpreted literally or not at all. The meaning of the idiom cannot be defined from the words which the idiom includes.
- *This will cook Arthur´s goose.*
- regular semantic constituents – this, will, Arthur
- minimal semantic constituents – cook ----------´s goose
- All idioms are elementary lexical units.

Lexical phrases

- There are specially assembled sequences of items which have been called sentence stems, composite forms or lexical phrases. They are chunks of language in which all the items have been preassembled.
- Hundred such phrases exist:
- *It seems to me, on the other hand, ….lived happily ever after, I would say, …..*
- Such phrases are used in both spoken and written language, they are very important in conversation, where they perform a number of roles – for instance expression of agreement, summing up an argument, introducing an example or changing a topic.

Types of lexical phrase

- **Polywords - s**hort phrases, they are like individual lexemes. They cannot be varied, their parts cannot be separated.
- *In a nutshell, so far so good, by the way*
- **Institutionalized expressions - u**nits of sentence length, functioning as separate utterances. They are invariable, their parts cannot be separated. They include proverbs, aphorism and other quotable utterances.
- *Have a nice day. Give me a break. How do you do?*
- **Phrasal constraints -** there are phrases which allow some degree of variation, they are usually quite short.
- *Good – morning, as I was – saying, mentioned, as far as – can see, know*
- **Sentence builders -** Phrases which provide the framework for whole sentences, they allow considerable variation.
- *Not only … but also, I am a grast believer in ….. Let me begin with*

Collocations

- The notion of collocation focuses on the extent to which lexemes come together predictably. Often, a sequence of lexeme is governed by chance – that is, by factors which are controlled by individual speaker and not by the tendencies in a language as a whole.
- *I like films, animals.* - the sentence „I like“ gives us no clue what comes next. There are “ free combinations” of lexeme. They are no collocations, there are no mutual expectancy between the items.
- The lexical items involved in a collocation are always to some degree mutually predictable. Collocations cannot be predicted from a knowledge of the word.
- *Green with envy, monumental ignorance*
- The predictability can be:
- weak : the word *heavy* collocate s with many words: *traffic, burden, defeat, …*
- strong: auspicious collocates only with *occasion*
- When sequences so highly predictable that they allow little or no chance in their lexical elements, it is not very illuminating to analyse them as collocations. Such minimally varying sequences are usually referred to as fixed expressions or idioms.

Sources

- http://www.roget.org/Neighbourhoods.htm
- Biber, D. et al.: Longman grammar of spoken and written English, Longman, 1999.