relevance of higher order, we refer to this subjective set which, besides actuality, includes, among others, situational [7], cognitive and emotional [8] relevance.

The operating principles of different search engines are different; therefore it is possible to obtain the same answers for some documents by compression [9], but often different answers. It is important that search engines are multilingual, to see the differences between the proposed results according to the language of the query used (English)

CONCLUSION

In conclusion, we have just shown that the query reformulation process we propose is efficient, in the sense that it generates non-trivial reformulations. They are generally of quality and interpretable. One quickly realizes that the performances of Bing and Yahoo are modest: they both generate a large number of results for a very small number of relevant answers. Then comes Yandex which generates a lot of results but manages to offer a number of filtered responses relevant very satisfactory. Finally, Google once again confirms its monopoly on search engines with a lower number of results than the previous three engines. While having with Yandex, the highest rate of relevant responses, we can also note that the last query executed (proximity operator (+)) on Google significantly reduces the number of results, thus providing us with effective filtering, but at the expense of the relevance of the answers.

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CONCEPTUAL COHERENCE AND THE CHALLENGE OF POLYSEMY

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ABSTRACT

In their study of polysemy, the authors build on the principle of cross-disciplinarity and resort to the methods of conceptual analysis and conceptual modelling in linguistic research. The authors focus on the notion of conceptual structure and analyse the role of different conceptual attributes in word sense formation. The article shows that conceptual attributes have a different status and play different roles in the structure of the concept associated with a sense of a polysemous word. Conceptual attributes vary according to the degree of their centrality, proneness to change and their inferential potential. Building on recent research in cognitive psychology, the authors hold that central and immutable attributes play a crucial role in maintaining the conceptual structure of a word whereas those having a high inferential potential stimulate the process of word sense formation. The authors explore the nature of the conceptual processes of inheritance and inference in polysemy. On the basis of the QUALIA structure, the authors simulate the conceptual process of new meaning development using polysemous nouns as a case study.

Keywords: polysemy, concept, threat, inference, qualia

ITRODUCTION

Everyday language makes up the data that cognitive linguists use to build their theories, describe language as such, and on the basis of its properties, formulate hypotheses about how language is represented in the mind. The main aim is to uncover the systems behind language, describe these systems and model them [1].

The study of concepts and conceptual models – complex mental representations reflecting reality in the multiplicity of its forms - has been a central line of cognitive research. The notion of *concept* is a key notion of several research paradigms, primarily, of cognitive psychology and cognitive linguistics.

Intermediaries between words and extralinguistic reality [1], concepts have a complex yet coherent structure. They comprise a number of attributes (features), which differ in how stable their position is within the conceptual structure. Conceptual attributes have a different status and play different roles in the structure of the concept. They can be central and peripheral, stable and mutable. They can vary in their inferential potential.

Cognitive psychology research has shown that attributes can be reliably ordered according to their mutability and that mutability (conceptual centrality) can be distinguished from category centrality and salience. The present research explores the status of different attributes in a conceptual structure focusing on centrality and

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immutability of a feature, since they reflect how much the internal structure of a concept depends on them, i.e. how much the feature contributes to the concept's coherence [7, 8].

According to the latest research, the semantic system is organised into intricate patterns that seem to be consistent across individuals. Most areas within the semantic system represent information about specific semantic domains, or groups of related concepts. Researchers used a new generative model to create a detailed semantic atlas, the Brain Dictionary, showing which domains are represented in each area of the brain [3]. This study convincingly demonstrates that data-driven methods provide a powerful and efficient means for mapping functional representations in the brain.

Cognitive linguistics and cognitive semantics rely on *both experimental and empirical methods* of research, which are of equal value. The skilled intuition of cognitive linguists is useful in studying specific influences of thought and embodied experience. Cognitive linguists need not become experimental psychologists or computer scientists for their work and ideas to be seen as legitimate, with considerable theoretical implications. However, this research shows the benefits of empirical methods for the study of meaning [2]

In this article, we first show the importance of difference types of conceptual attributes for the integrity of the concept and then demonstrate their potential for polysemy.

CONCEPTUAL COHERENCE AND POLYSEMY

To explore the role of different types of conceptual attributes for conceptual integrity, we have studied the structure of the prototype of the conceptual category THREAT. The prototype of this conceptual category is examined both from the point of view of determining its attributes central to the category as a whole and also from the point of view of the attributes central to the prototype proper, i.e. features that determine the coherence and integrity of this concept as such.

The polysemous noun *threat* is a verbalized prototype of the conceptual category THREAT belonging to the basic level of categorization.

This polysemous noun has a very high frequency and is among 4,000 words most frequently used in English [https://www.collinsdictionary.com/dictionary/english].

Initial identification of the attribute central to the prototype THREAT requires a definition analysis of *threat* and related lexicographical entries. When selecting lexicographical sources, priority was given to those having more detailed definitions of the meanings of polysemous words - Oxford Dictionary [https://www.oxforddictionaries.com/], Collins Co-build[https://www.collinsdictionary.com/dictionary/english], and WordNet 3.1[https://wordnet.princeton.edu/]. Additional data were obtained from the analysis of different types of discourse that contained this concept in its lexicalized form – the British National Corpus, NOW and iWEB [http://www.natcorp.ox.ac.uk/].

The definition analysis of the lexicalized prototype THREAT shows that it has the following meanings:

1. A *statement* of *an intention* to *inflict pain, injury, damage*, or other *hostile action* on someone *in retribution* for something done or not done.

2. A menace of *bodily harm*, such as may restrain a person's freedom of action.

3. A person or thing *is likely* to cause damage or danger.

4. The possibility of *trouble, danger, or ruin* [https://www.oxforddictionaries.com]

The analysis of this definition allows us to identify potentially salient attributes to be explored and arrange them in a regressive sequence starting from the most stable attribute:

1. the agent and the patient (the doer of a threatening statement and the prospective target);

2. an intent (clearly negative);

3. the aim (to inflict ... .. to cause damage);

4. a reason (in retribution for something);

6. hypothetical negative impact (is likely to ...);

7. possible negative consequences (pain, injury, damage);

8. scale/degree of harm or possible negative consequences;

9. a counteragent (s).

Our analysis has shown that the most stable attribute is *the agent – the patient*, since the withdrawal of this attribute from the structure of the concept would result in a complete decomposition of the concept structure. It is impossible to imagine any act of threat without its source and target. To compare, the attribute of counteragent is mutable and its presence, absence or possible type would still leave the conceptual structure intact and coherent.

In the structure of the THREAT frame slots of the agent and the patient may contain different types of conceptual information, a variety of conceptual options - Human vs Human, Human vs Non-Human, Non-Human vs Human, Non-Human vs Non-human, etc. Yet, the centrality and stability of this feature in the structure of the concept is undeniable.

Our research has shown that *intent and aim* are stable attributes and in the vast majority of cases are negative, for instance:

"Circumstances outside our control include a war or a threat of war, a riot, a civil strife, an industrial dispute, or a terrorist activity ..." [http://www.natcorp.ox.ac.uk].

The lexicalized prototype of the category THREAT is often used in combination with other lexical units that verbalize conceptual information of a negative nature, for example:

"threat and bribery, threat and ultimatum, threat and intimidation, etc." [http://www.natcorp.ox.ac.uk].

However, there are cases of ambivalent or ambiguous interpretation, where the utterance sounds as a threat, but the agent pursues (from the agent's point of view), a relatively positive goal:

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"If you do not learn to pay your loan interest on time, I will have to report you to the bank authorities" [the authors' own example]. In this case, the sentence clearly expresses a threat, however the aim and the intent seem to be positive – "I want you to be law-abiding and have a better credit history".

In general, ambiguity and ambiguous interpretation of events [9] and reference to the concept THREAT is a frequent occurrence, for instance: 1) The crisis is both a threat and an opportunity. 2) People of all shapes and sizes became my biggest threat and a potential source of assistance [http://www.natcorp.ox.ac.uk].

The next stage of our research was the study of the location and conceptual connections both within the analyzed category THREAT and beyond it. The data of the 3D Model of the Semantic Atlas of the Brain developed by [3] show that the semantic layer associated with THREAT and the corresponding conceptual category is located between the BODYPARTS and PERSON areas of the brain and the area of containing information about society - SOCIAL (the names of the brain areas are assigned by the developers of the BRAIN VIEWER 2016 Project). This conceptual connection is reflected both in the links between related concepts and, at the level of semantics, they are used in the lexicographic definitions of the meanings of the polysemous noun *threat*.

Using the 3D model based on the data of numerous instrumental experiments, it is possible to determine with a certain degree of accuracy what information is located in the same conceptual layer associated with the concept THREAT - *serious, claim, terrorism, suffer, damage, fear, danger, fatal, murder, pain, evidence, violence, danger* and others. There are stable associative links between the conceptual information about the members of the THREAT category and members of the related neighbouring categories, which can be traced by the spatially close location of the semantic information, for instance *claim - terror - serious - suffer,* etc.

Our research demonstrates that many of the spatially and otherwise related concepts in their lexicalized form tend to be used in dictionary definitions, for instance 'threat - intent to inflict pain, injury, damage, etc.', which is an illustration of possible conceptual foundations of the definition analysis. It is evident that the relationship between the conceptual and the semantic information proper in the Semantic Atlas needs further research.

Going back to the structure of a polysemous word, we proceed from the assumption that polysemous words are understood as conceptual categories, organised with respect to a certain prototype. The meanings of polysemous words are stored as a category of distinct polysemous senses. Polysemy reflects conceptual organisation and exists at the level of *mental representation* [1, 10].

We hold that mutable attributes of the concept offer more room for inference and thus are potential sources of polysemy whereas immutable attributes are central to the integrity of the concept structure but impose constraints to the development of new senses.

In our earlier research, we introduced a method of conceptual modelling of the formation of new sense of polysemous words. This method is based on the qualia structure, proposed by J. Pustejovsky [4, 5] and allows us to trace conceptual links between different senses of a polysemous word, which develop as a result on conceptual inference and inheritance [6, 10]. However, the proposed methodology differs from the

classical set of qualia roles. Qualia is understood as a macroframe structuring different types of conceptual information about individual senses of a polysemous word (subframes of individual senses) and the conceptual structure of the word as such (macroframe). We also introduced an inferential subframe containing conceptual information having a rich inferential potential.

To further explore the role of mutable and stable attributes in the development of new senses, we are using the example of the polysemous noun *troll* in its new meaning - 'an individual who posts inflammatory, rude, and obnoxious comments to an online community'. The choice of this polysemous (one could argue it is also homonymous) is determined by the fact that trolling as a form of manipulation of public opinion has become one of the threats of modern politics.

The new meaning developed from the primary one – 'a supernatural creature, either a dwarf or a giant, that is supposed to live in caves or in the mountains and steals children'. Some dictionaries describe this and the new meanings as homonyms. However, the difference and the degree of relatedness is rather subtle. The constitutive subframe of the primary sense contains the information about immutable attributes of the analysed concept – supernatural, creature, size, and habitat.

Conceptual information related to *doing harm* and *causing damage* is stored in the inferential subframe of the conceptual structure of the polysemous word. The attribute *doing harm* is a mutable attribute of this concept since the integrity of the concept is based to a larger extent on the appearance and habitat of a troll rather than doing harm. Nevertheless, it is the mutable attribute of *doing harm* that stimulated the formation of the new meaning – 'an internet troll'. This attribute is inherited from the inferential subframe of the primary sense and becomes an immutable attribute of a new one – someone who deliberately does harm by ruining communication, manipulating public opinion or covering events in a negative way:

"There can be many reasons for someone to write something unkind. They could be having a bad day, they could have a wrong perspective, or they could just be a plain troll and troublemaker. We call this last kind of person a troll. Trolls feed on causing problems. They find a sick pleasure in breaking the rules and annoying others. They act childish, disrespectful, and contentious" [https://theaudacitytopodcast.com/how-to-deal-with-negative-feedback-toward-your-podcast-tap190/].

It is necessary to note that the new meaning inherits different types of conceptual information from the previously developed senses of a polysemous word. Stored in the constitutive subframe, immutable attributes impose constraints on new meaning development. Mutable attributes, on the contrary, generate polysemy.

CONCLUSION

A combination of empirical data, the use of the semantic atlas, as well as the results of studies carried out in other areas of cognitive science, open new prospects for research in cognitive linguistics and increase the validity of the results obtained. We have attempted to show the importance of an integrated approach to the challenge of polysemy. Such a novel approach is based on integrated knowledge emerging from the interaction of three disciplines of cognitive science – cognitive linguistics, cognitive psychology. It has been demonstrated that progress in the study of polysemy does not

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come from linguistics alone, but requires drawing on tools and methods from other cognitive paradigm disciplines.

Our research supports the hypothesis that concepts, underlying different senses of a polysemous word, have a flexible structure. Immutable conceptual attributes play a crucial role of maintaining the integrity of the conceptual structure however, they play a less important role for the development of polysemy, since they have a poorer inferential potential. They impose constraints on the development of new meanings.

Concepts verbalized by different meanings of a polysemous word should be explored from the point of view of their mutable attributes. Mutable attributes tend to have a richer inferential potential thus resulting in a higher probability of developing a new sense of the polysemous word. They correlate with the inferential subframe in the qualia structure.

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CONCEPTUAL FOUNDATION OF EVENT- REFERENTIAL AMBIGUITY

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ABSTRACT

Ambiguity is inherent to everyday human communication. It implies that there are two distinct senses assigned to one acoustic form. This research aims to contribute to an integrated interdisciplinary theory of ambiguity as a cognitive phenomenon and identify conceptual mechanisms underlying it. To this end, a variety of empirical and theoretical research methods, including referential analysis (understood in a broader sense as referring to a particular cognitive context used for disambiguation) are employed for the analysis of texts central to modern political discourse. We argue that unlike polysemy, which remains unconscious for participants of communication, ambiguity, its presence and effects are consciously perceived. We posit that intended ambiguity occurs when the speaker intentionally does not follow the logic of priming. Each sense of a polysemous word is primed differently. It results in conceptual and pragmatic effects dependent on the parameters of the cognitive context. Each polysemous word is associated with a set of dynamic cognitive contexts forming a complex multi-dimensional mental representation, which could potentially capture and store a significant amount of conceptual information, referring to any number of conceptual domains that are relevant to the identification and inferencing a particular sense of the word. We prove that event-referential ambiguity can be viewed as a means of manipulation of human consciousness and behaviour.

Keywords: polysemy, ambiguity, threat, conceptual, priming

INTRODUCTION

Often described as a problem, a "disease of language" [4] ambiguity is inherent in everyday communication and has been in the focus of linguistic research during the last decades. Traditionally, researchers distinguish several types of ambiguity, which are briefly described below.

Lexical ambiguity occurs when ambiguous senses are either a result of polysemy (for instance, words having a metonymic or a metaphoric sense extension), or a result of homonymy. There are lexical units, which are intrinsically ambiguous: a classical example of this type of ambiguity is the English noun *bank,* which is polysemous (a financial institution and a building) and has a homonym – *a river bank.*

Syntactic (structural) ambiguity develops from an ambiguous structure of an utterance, for instance, in the famous statement - "Our enemies are innovative and resourceful, and so are we. They never stop thinking about new ways to harm our country and our

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