LEXICAL CONCEPT ADJUSTMENT IN MECHANICAL ENGINEERING DISCOURSE

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Abstract. The lexical concept adjustment represents a significant aspect of the pragmatic meaning and has been approached from several perspectives in literature. As the semantics-pragmatics interface is a matter that attracts numerous debates among pragmaticians, the boundary between cases of polysemy and the semantic meaning adjustment in the context is also blurred. There has been no agreement whether a lexical concept adjustment can be regarded as a primary (necessary) or a secondary (optional) pragmatic process. The present article discusses cases of meaning disambiguation and lexical narrowing. The aim of the article is to demonstrate how a lexical concept adjustment contributes to the pragmatic meaning construction in the discourse under analysis. The present paper deals with the data obtained from the chapters on woodworking and metal processing borrowed from the Encyclopaedia of Occupational Health and Safety. The findings indicate that there is no clear-cut boundary between the processes of the lexical meaning disambiguation and a lexical concept adjustment as they both elaborate on the linguistic (semantic) meaning of a word or an expression taking into consideration all aspects of the contextual information available. Further research can be conducted to approach the issue from the quantitative perspective.

Key words: pragmatic meaning, a lexical concept, polysemy, lexical broadening, lexical narrowing, mechanical engineering discourse

INTRODUCTION

The construction of a word meaning has received a considerable amount of attention from different fields of study including linguistics, philosophy of language and the multidisciplinary perspective of cognitive science. The standard accepted account can be referred to as ‘literalism’ (e.g. Recanati, 2004: 3; Evans, 2009: 5), the belief that words have a linguistic (‘what is said’) and a non-linguistic (‘what is meant’) parts of meaning. The main linguistic unit of the semantic analysis is a sentence, which expresses a full proposition of a statement. A sentence differs from an utterance in the respect that the former does not include contextual factors in its meaning analysis. Saeed (2003: 12–13) proposes to set a distinction between a sentence and an utterance: utterances ‘are created by speaking or writing a piece of language’, whereas sentences are ‘abstract grammatical elements obtained from utterances’.

One of the theoretical issues concerns the boundary between the semantic and the pragmatic parts of meaning, or the semantics-pragmatics interface.
Thus, there have been numerous debates regarding the nature of the relationship between language and context. There has been no agreement in the literature regarding the extent to which the linguistically encoded (semantic) part of meaning interacts with contextual factors (the pragmatic part) in the process of meaning construction.

The present research supports the complementary view on the semantics-pragmatics interface as argued by Leech (1983: 6, quoted in Mey, 2001: 7): ‘the view that semantics and pragmatics are distinct, though complementary and interrelated fields of study, is easy to appreciate subjectively, but is more difficult to justify in an objective way. It is best supported negatively, by pointing out the failures or weaknesses of alternative views’. In other words, meaning is constructed as a result of interconnectedness between its linguistic and non-linguistic (or contextual) parts.

The paper utilises the notion of a ‘lexical concept’, which can be used interchangeably with ‘a word’. It should be noted that in cognitive linguistics words are often viewed not as ‘fully-fledged atomic concepts, but rather schemas for the construction of such concepts’ (Carston, 2002: 322). Evans (2009: 74) defines lexical concepts as ‘linguistically encoded concepts, i.e. highly schematic knowledge encoded in a form that can be externalized via language’. Therefore, a lexical concept or a word is only a schematic representation, which cannot form meaning in isolation from the context where it is used.

On balance, pragmatic theories identify ad hoc concepts which can be described as adjustment of a lexical concept in the context. These are concepts that are ‘constructed pragmatically by a hearer in the process of utterance comprehension’ (Carston, 2002: 322). Generally speaking, a schematic representation encoded by a lexical concept undergoes a number of pragmatic processes for the meaning to be constructed in each occasion-specific use of a word.

The aim of the present paper is to investigate the processes that result in the ad hoc concept construction such as meaning disambiguation, lexical broadening and lexical narrowing. It has been hypothesised that the greater the impact the linguistic part has on the ad hoc concept construction, the more explicit the utterance is. The hypothesis is rooted in the relevance-theoretic approach, which argues that ‘an assumption communicated by utterance U is explicit if and only if it is a development of a logical form encoded by U’ (Sperber and Wilson, 1995: 182).

Although the pragmatic meaning construction has been in the focus of the applied linguistic study in recent decades, mechanical engineering discourse has not been sufficiently analysed from this perspective yet. The author’s previous publications deal with several aspects of the pragmatic meaning construction in the discourse under analysis – linguistic politeness (Čerņevska, 2014) and linguistic scalarity (Čerņevska, 2016). The analysis of a lexical concept adjustment continues the author’s previous research on the pragmatic meaning construction in mechanical engineering discourse.
The research question has been set: does the degree of utterance explicitness differ in cases of polysemy and a lexical concept broadening and narrowing? The paper offers the discussion of the theoretical contributions on meaning construction of lexical concepts in the context. The focus of the empirical part is on the selected instances of a lexical concept adjustment obtained from the mechanical engineering discourse.

LITERATURE REVIEW

Since a lexical concept serves as part of meaning, the analysis of the meaning construction process occurs at the semantic and pragmatic levels and their interaction. At the semantic level a word is part of a sentence, which is formed according to the grammatical rules of a language (Huang, 2012: 282) or a proposition, i.e. the content a sentence expresses when it is uttered. A proposition is analysed in terms of truth values, i.e. whether some state of affairs is true or false (ibid.: 250). The same sentence can be true in one context and false in another, depending on the relation between its propositional content and the world at each particular moment.

In the classical semiotic approach, communication is achieved based on a code model, which deals with encoding and decoding messages (Sperber and Wilson, 1995: 2–5). A proposition encoded by a speaker/writer is an input, which is decoded by the recipient. In the cognitive communication theories such as the Relevance Theory by Sperber and Wilson (1986, 1995) language (‘what is said’) constitutes only part of the communicated message (‘what is meant’).

It was traditionally assumed that the semantic level is a starting point for meaning construction. For instance, Sperber and Wilson (1995: 183) claim that ‘the hearer’s first task in recovering the explicatures of an utterance is to identify its propositional form’. However, this view has been challenged by Recanati, who argues for the availability-based approach, where not only saturation or ‘the contextual assignment of values to indexicals and free variables in the logical form of the utterance’ (Recanati, 2004: 21), but also other primary pragmatic processes participate in the determination of ‘what is said’ or a logical form of an utterance (ibid.). Therefore, it remains a matter of theoretical discussion whether the semantic and pragmatic components of meaning are processed sequentially or simultaneously.

In his LCCM (Lexical Concepts and Cognitive Models) Theory (2009), Evans distinguishes between lexical representation and semantic composition. ‘Lexical representation’ is knowledge of a language and consists of a symbolic unit (a linguistic form and a linguistically encoded concept, i.e. a lexical concept) and a cognitive model that is accessed through a lexical concept. A lexical concept is a ‘semantic pole’ of a symbolic unit, or schematic knowledge, which provides access to the non-linguistic information associated with the word (a cognitive
model) (Evans, 2009: 75). Similarly, Carston (2002: 321) argues that ‘an atomic concept consists of an address or node in memory which may make available three kinds of information: logical content, encyclopaedic or general knowledge, and lexical properties’. Thus, a lexical concept itself provides access to both the semantic and the pragmatic (non-linguistic) parts of meaning.

Consequently, the information, which can be accessed by a lexical concept, has to be specified in a particular context of use and interpreted taking into account a number of factors. Evans (2009: 4) enlists some of them: other words in an utterance, the speaker’s and the hearer’s shared background knowledge, the physical and temporal context and the speaker’s communicative intention recognised by the addressee. Eventually, a lexical concept is processed by an addressee and an ad hoc concept is constructed.

The present paper deals with three of the pragmatic processes that are associated with a word meaning construction in the context. The first process is meaning disambiguation. In pragmatic literature ambiguity is defined as ‘the property that a word or a sentence has two or more different meanings assigned by the language system’ (Huang, 2012: 27). Ambiguity can be lexical, syntactic, semantic scope (arising from the use of certain logical operators, e.g. quantifiers and negation) and pragmatic (arises from the built-in duality of language in use) (ibid.: 27, 230, 280).

Ariel (2010: 154) argues that ‘choosing the appropriate meaning of an ambiguous word is clearly a pragmatic matter, where, based on considerations of relevance, addressees try to select that semantic meaning which was intended by the speaker’. Thus, the combination of the linguistic form and the pragmatic inference is necessary in order to construct an ad hoc concept.

In the relevance-theoretic framework (Sperber and Wilson, 1986, 1995), disambiguation contributes to the explicit part of an utterance meaning since it can be considered to be the development of a logical form of a sentence. If we support the idea that the utterance cannot be transferred from a language of thought into a linguistic form without losing part of its meaning, it can be hypothesised that most if not all utterances contain a degree of ambiguity. However, most of ambiguity can be resolved in the context.

The next two pragmatic processes that impact a lexical concept adjustment in context are lexical narrowing and lexical broadening. These are types of enrichment that ‘target a particular lexical item and strengthen the concept it encodes’ (Carston, 2002: 324). The process of free enrichment describes how the linguistically decoded form is conceptually enriched by the addressee (Huang, 2012: 122). It is ‘free’ because it is context-driven; therefore, each individual can construct a unique ad hoc concept in his or her mind. Recanati also claims that free enrichment is an unconscious process in the sense that an ordinary language user does not notice it (2004: 23).

Recanati (2004) distinguishes between two subtypes of free enrichment: strengthening and expansion or loosening (Huang, 2007: 220–223). Similarly,
Carston (2002: 322–364) identifies such pragmatic processes of ad hoc concept construction as lexical narrowing and lexical broadening.

In strengthening (or lexical narrowing), a lexical concept entails the original input proposition, i.e. the linguistic form and the contextual constituents which have been added because of saturation. On balance, in expansion (or lexical broadening or loosening), the output does not need to entail the input proposition. Carston (2002: 329) argues that ‘a logical or a defining feature of the lexically encoded concept is dropped in the process of arriving at the intended interpretation’. In other words, the application of a lexical concept is constrained by the context in lexical narrowing and is widened by the context in lexical broadening. In both cases, a lexical concept is enriched pragmatically in order to construct its meaning.

It remains a matter of a theoretical discussion whether lexical narrowing and lexical broadening are symmetric processes.

On the one hand, both processes are used to build ad hoc concepts. The addressee builds a mental representation which is based on the lexically encoded information, while this representation maintains the properties relevant solely in the specific context. Certainly, ad hoc concepts constructed by different individuals can resemble one another to a great extent and be practically identical. However, if ad hoc concepts are constructed by the human cognitive system, we can assume that there cannot exist two absolutely identical ad hoc concepts as this would require the existence of two identical minds.

On the other hand, in the relevance-theoretic framework, explicature is a development of the logical form of an utterance (Sperber and Wilson, 1995: 181–182). Although the term ‘development’ is not specified, it is assumed that explicit meaning is tied to the linguistic form of a sentence.

Thus, strictly speaking, lexical broadening is not a development of the logical form as it is not entailed by the linguistic part of an utterance (‘what is said’). It can be argued that if a lexical concept is not included in ‘what is said’ (as opposed to ‘what is meant’), it is not entailed and we cannot therefore refer to the logical form of an utterance in its classical sense. But if ‘development’ denotes ‘concept adjustment’ as Carston proposes (2002: 342), narrowing and broadening can be considered to be symmetric processes.

METHODS

At the empirical level the research is approached from the qualitative perspective. First, the discourse for analysis was selected. It comprises a chapter borrowed from the Encyclopaedia of Occupational Health and Safety that deals with wood processing. The corpus selection was based on the author’s background knowledge of the areas obtained while teaching English for Specific Purposes within a Wood Processing study programme. The corpus comprises 32 pages and approximately 8,500 words. The subchapters include the general
profile of wood industry, the description of woodworking processes, routing machines, wood planing machines and health effects and disease patterns associated with the industry.

Second, discourse analysis is applied as a research method. The analysed instances of a lexical concept adjustment are offered to illustrate such aspects of the pragmatic meaning construction as meaning disambiguation, lexical narrowing and lexical broadening. The relevance-theoretic framework serves as a tool for conducting the empirical part of the research.

RESULTS AND DISCUSSION

Numerous instances of a lexical concept adjustment can be observed in the discourse under analysis. The present section deals with the discussion of the selected instances drawn from Chapter 86 of Encyclopaedia of Occupational Health and Safety (2011: Online).

1. With the increased cost of labour in industrialized countries, more furniture production, which is labour intensive, has shifted to Far Eastern countries. It is likely that this movement will continue unless more automated equipment can be developed.

The preceding utterance in the discourse suggests that ‘this movement’ refers to furniture production having shifted to Far Eastern countries. In the same context, ‘equipment’ should mean ‘the equipment for furniture production’. It can be observed that, since ‘movement’ can be defined as ‘an act of moving from one place to another or of moving something from one place to another’ (Oxford Learner’s Dictionaries, n.d.: Online), its semantic meaning can be distinguished from other meanings offered by the dictionary such as ‘progress’ or ‘music’. This could be considered a case of meaning disambiguation in the context as the word ‘movement’ gives access to a number of semantic (i.e. documented in a dictionary) meanings and the relevant meaning has to be selected in the context. It is linguistically encoded, but the meaning disambiguation relies on the reader’s background knowledge of how business enterprises can be relocated due to various reasons, including the economic ones.

Therefore, the lexical concept ‘movement’ provides access to both linguistic and non-linguistic information associated with the word itself. Although the semantic meaning is linguistically encoded, meaning disambiguation of a polysemic word involves the use of the contextual information. This demonstrates that both the semantic and pragmatic parts of meaning participate in the meaning construction process.

A lexical concept ‘equipment’ serves as a category word. Oxford Learner’s Dictionary (n.d.: Online) states that ‘equipment’ can be described as ‘the things that are needed for a particular purpose or activity’. Thus, its semantic part of meaning entails the presence of a specific purpose, but it can be identified only
in the context. The word meaning should be narrowed in the context to infer 'furniture equipment'. This narrow part of the meaning is not linguistically encoded as the lexical narrowing occurs as a result of the broader discourse context. The proposition can be enriched as a result of lexical narrowing. For instance, a relative clause could be added: '... more automated equipment, which is required for furniture production, can be developed'.

Although 'movement' has to undergo a process of the semantic meaning disambiguation, while 'equipment' is lexically narrowed, both meaning disambiguation and lexical narrowing occur only in the context of a lexical concept use. There might be more encyclopaedic information associated with a polysemantic word as a lexical concept has a greater 'semantic potential' and provides access to a number of cognitive models or various areas of background knowledge. For instance, 'an act of moving from one place to another' might have different associations triggered in a human mind rather than 'music' or 'progress', which are also the definitions of the word 'movement'. However, ad hoc concepts are constructed in both cases, which suggests that the processes of meaning disambiguation and lexical narrowing are pragmatic in nature.

2. Because production lines for assembling furniture are costly, most manufacturers do not supply an exceptionally large range of items.

'Costly' requires a context to be fully inferred by the reader. Whereas its semantic meaning can be defined as 'not cheap', the definition of 'cheap' is context-dependent. Therefore, the reader is expected to adjust the lexical meaning to his or her mental representation of 'costly' based on the background knowledge of the production line costs. The pragmatic inference occurs through the process of free enrichment and lexical narrowing, in particular. The semantic part of the word meaning does not offer any explanation as regards the ad hoc concept construction besides the fact that the production lines are not cheap. The reader should be aware of the particular professional context in order to infer the pragmatic meaning of the word.

On balance, 'items' can be narrowed to 'furniture items', which is an instance of a lexical concept narrowing or strengthening to infer a contextually more specific word meaning. 'Item' is a category word; however, its meaning is vague without a context as any 'single object' can be meant by 'an item'. Therefore, its meaning is too general and can be inferred solely in the context.

The lexical concept 'equipment' in the previous example undergoes a similar meaning construction process as both these lexical concepts are category words and are, therefore, broadly used in various contexts.

3. For the purposes of this article, the processes of the woodworking industry will be considered to start with the reception of converted timber for the sawmill and continue until the shipping of a finished wood article or product.
The utterance contains a polysematic word ‘article’ in two different meanings. This represents an instance of meaning disambiguation; however, the context is required to assign the particular meaning to the word. ‘This article’ refers to the text the writer is constructing, whereas ‘wood article’ refers to an item made of wood. The reader is unlikely to misunderstand the use of the word in this context as the background knowledge required to identify the meaning is embedded in the linguistic structure as well. For instance, a text is not modified by the adjective ‘wood’, whereas the construction ‘for the purposes of’ does not usually imply furniture. As it can be observed, meaning disambiguation of polysemy in the context relies more on other co-textual (i.e. linguistically encoded) features rather than on the lexical concept adjustment in the utterance.

It can be argued that since the polysematic word meaning disambiguation in the present example depends on the lexical and grammatical form of the utterance, i.e. other words and their combination, the meaning of the word ‘article’ becomes more explicit than the meaning of ‘equipment’ or ‘an item’ in the previous examples. Thus, it might be suggested that it is rather the combination of words governed by the rules of grammar than the polysematic nature of a particular word that determines the degree of explicitness of an utterance.

4. In many instances, the design of furniture pieces requires bending of certain wooden parts. This occurs after the planing process, and usually involves the application of pressure in conjunction with a softening agent, such as water, and increased atmospheric pressure. After bending into the desired shape, the piece is dried to remove excess moisture.

‘The desired shape’ is a subjective concept that heavily depends on the context. The lexical concept adjustment should be applied in order to build a mental representation of this image in the reader’s mind. This fragment could undergo a process of the proposition enrichment, for instance, ‘into the desired shape that has been intended for a specific furniture piece construction’, in which case the lexical concept of a ‘desired shape’ could be used across different contexts without the necessity to adjust it to a specific occasion of use.

‘The piece’ as a category word requires narrowing to ‘a piece of furniture’ that is not linguistically encoded in the present utterance. However, ‘furniture pieces’ are mentioned earlier in the paragraph, thereby allowing the reader to construct the pragmatic meaning based on the preceding linguistic information.

5. Once the lumber is dried, it is sawed and otherwise machined into the shape of the final furniture part, such as a table leg. In a normal plant, the wood stock moves from rough planer, to cut-off saw, to rip saw, to finish planer, to moulder, to lathe, to table saw, to band saw, to router, to shaper, to drill and mortiser, to carver and then to a variety of sanders.
‘Plant’ is a polysemantic word, which is used in the meaning of ‘machinery’ in this utterance. The reader is unlikely to assign the meaning ‘a living thing that grows’ to the word ‘plant’ in this context. However, the meaning ‘factory’ can be presupposed, and meaning disambiguation depends on the reader’s background knowledge. This example demonstrates that the polysemantic nature of a lexical concept can interfere with the ad hoc concept construction in case the reader’s encyclopaedic knowledge is not sufficient for the professional discourse comprehension.

6. After initial sanding, an even smoother surface is attained by spraying, sponging or dipping the furniture part with water to cause the wood fibres to swell and “raise”. After the surface has dried, a solution of glue or resin is applied and allowed to dry.

7. A ripsaw should have anti-kickback fingers installed to prevent the stock from reversing its direction and striking the operator. Also, the operator should wear a padded apron to lessen the impact if a kickback does occur.

8. Surface finishing may involve the use of a large variety of coatings. These coatings are applied after the product is assembled or in a flat line operation before assembly. Coatings could normally include fillers, stains, glazes, sealers, lacquers, paints, varnishes and other finishes.

In example 6, the word ‘glue’ refers to a particular type of glue – wood glue; therefore, the lexical concept should be narrowed to infer the contextual meaning. ‘Apron’ in example 7 refers to the piece of clothing used for protection in the workshop, not an apron for cooking. In example 8, the reader is not likely to assume that ‘coatings’ refer to, for instance, pizza coatings. This can be achieved by the linguistic information provided in the utterance – varnishes and alike are not edible – as well as by the context which describes the mechanical engineering professional discourse. It can therefore be argued that both the linguistic and the contextual part of the discourse interact in order to construct the meaning of an utterance. The distinguishing characteristics of these words are not part of the semantic meaning. Rather, the lexical concept is expected to be adjusted in the context of wood processing, and it is narrowed from the general term to a more specific one.

The examples only illustrate the meaning construction process and we cannot make any generalizations based on them. However, the aim of the Results and Discussion section is to show that even seemingly non-ambiguous lexical concepts have to be adjusted in the context of discourse in order to infer the writer’s message.

Whereas meaning disambiguation is considered to be closely related to the domain of semantics and deals with the notion of semantic ambiguity, lexical adjustment is a pragmatic matter. If ad hoc construction could be calculated by semantics, then it should be agreed that each lexical concept can have an indefinite number of semantic meanings. However, if any lexical concept could
be decoded based solely on its linguistic form, this would suggest that any human mind would infer the same meaning providing that a person knows the language.

The question remains whether lexical adjustment requires more mental effort than meaning disambiguation. In other words, it is unclear whether these pragmatic processes are similar and both belong to the explicit content of the utterance.

For instance, it can be hypothesised that the mental representation of an apron in example 7 is constructed similarly to the mental representation of a plant in example 5 because both lexical concepts interact with the local context of the utterance and the global context of the discourse.

If a reader is familiar with the professional context of the discourse, the mental representation of a plant will undergo the same meaning disambiguation process as the mental representation of an apron. On the one hand, an apron for cooking and an apron for protection when working in industry have similarities in their appearance, whereas a plant as a factory, machinery and a herb do not share any representational similarities. Moreover, meaning disambiguation occurs within the particular language, not cross-culturally. On the other hand, the lexical concepts still interact with the context and the mental representations have to be built in both cases.

The distinction between concept adjustment and disambiguation is in the mental representation of the lexical concept. While meaning disambiguation implies that the human cognitive system has to choose between semantic homonyms: the use of a semantic entity that is more relevant in the particular discourse, a lexical concept adjustment does not deal with distinguishing between homonyms. Rather, it deals with the formation of a unique mental representation of a concept in the addressee’s mind.

Certainly, this representation is affected both by the reader’s background assumptions about the world and the immediate context available to him or her. In the context of our professional discourse, the reader is aware of the context of professional engineering discourse. Therefore, it is likely that both semantic meaning disambiguation and ad hoc concept construction rely on the context and are therefore considered to be pragmatic phenomena.

CONCLUSIONS

The analysis of the theoretical background demonstrates that it is generally accepted that the linguistic and non-linguistic parts of a word meaning participate in the meaning construction process. The mental representation of a lexical concept relies on the linguistically encoded information, but is expected to be adjusted taking the context into consideration.

The research results suggest that ad hoc concept construction is required both in cases of polysemy and other lexical meaning disambiguation. Linguistically encoded information is closely interconnected with the contextual factors and
the degree of explicitness is unlikely to depend on whether the word or expression is polysemic.

Numerous cases of lexical narrowing and meaning disambiguation can be observed in the mechanical engineering discourse. However, expansion or lexical broadening seem to be non-existent in the discourse under analysis. This may suggest that the professional discourse and the genre of encyclopaedia aim to be as specific as possible and the context fulfils the function of providing even more specific meaning to the linguistically available information. Lexical broadening implies losing some of the semantic properties of a lexical concept in order to construct a ‘broader’ meaning of a word. While it can meet the reader’s expectations in other discourse, the discourse under analysis deals with technical matters that require high precision to be inferred adequately. Lexical broadening would increase the degree of imprecision that is expected to be avoided in mechanical engineering discourse.

It should be noted that while polysemy is considered to be a semantic matter as the semantic meaning is described in dictionaries, a reader has to disambiguate the polysemantic meaning of a lexical concept similarly to the adjustment of a lexical concept in a context through the pragmatic processes of lexical broadening and narrowing. In both cases a word meaning is based on the linguistically encoded information, which has to be specified in the context of a particular utterance.

Since ‘explicitness’ is the development of a linguistic form of an utterance, there is no distinction in this respect between meaning disambiguation of polysemantic words and lexical narrowing and broadening. While a reader has the access to the encyclopaedic information associated with a particular lexical concept, he or she has to select the relevant aspects of the available information in order to construct the pragmatic meaning of a word. Therefore, it can be argued that the degree of explicitness does not depend on whether the word meaning has to be selected from the appropriate semantic meaning available in a dictionary or a lexical concept should strengthen or lose some of the properties associated with its logical form. This is also supported by the fact that polysemy is language-specific, whereas the pragmatic processes are universal.

REFERENCES


**TEXTS ANALYSED**


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