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## **Morphosemantic fields in the analysis of Croatian vocabulary**

This paper presents the morphosemantic field model, claiming that it is relevant in the description of lexical structures in grammatically-motivated languages such as Croatian. Arguments are presented for the applicability of the model in synchronic and diachronic lexical analysis. The fact that many characteristics of morphosemantic fields are compatible with the theoretical framework of cognitive linguistics is given special attention. It is argued that morphosemantic fields are highly relevant to diachronic research of lexical structures, because they enable the detection and definition of semantic and conceptual shifts and links through time.

**Key words:** morphosemantic fields; morphosemantic relations; conceptual metaphors; grammatical processes; WordNet; diachronic semantics; cognitive linguistics; Croatian.

### **1. Introduction**

Traditionally, lexical structures and interlexical relations in language were described using the semantic field model, whose different variants have been around since Trier.<sup>1</sup> The traditional approach to semantic fields assumed that all lexemes were of equal importance in structuring a field; i.e. it was assumed that a lexical field covered and formed a unique conceptual field. Contemporary approaches to semantic fields (whose theoretical underpinnings include philosophy, psychology and linguistics<sup>2</sup>) assume that there is a central, most prominent

<sup>1</sup> C.f. e.g. Coseriu (1971) and Lehrer (1974).

<sup>2</sup> This primarily refers to Wittgenstein's ideas about the structure of categories, E. Rosch's empirical psychological research and the influence of Berlin and Kay's research of colors on understanding category structure and lexical fields.

lexeme in a field, and that other lexemes exhibit varying degrees of similarity or closeness to it.

In both the traditional and the contemporary approach, the semantic field is composed of paradigmatically related lexemes, frequently parasyonyms, with a shared unique conceptual base. Therefore, analyses are limited to particular conceptual fields and lexical categories. For instance, verbs of movement or adjectives expressing sadness or joy are analyzed as coherent segments in the lexico-semantic structure of a language, because they are related by the basic concept of 'movement,' 'sadness' or 'joy'. Fields consist of members belonging to the same lexical category, or, in more traditional terms, the same parts of speech, such as verbs, adjectives or nouns.<sup>3</sup>

In Saussurean terms, such an approach to the description of lexico-semantic structures of a language highlights its *lexicological* nature, and downplays its *grammatical* nature. In the *Course*, Saussure classifies languages into **lexicological** and **grammatical** on the basis of their arbitrariness and motivation.

There exists no language in which nothing at all is motivated. Even to conceive of such a language is an impossibility by definition. Between the two extremes – minimum of organisation and minimum of arbitrariness – all possible varieties are found. Languages always exhibit features of both kinds – intrinsically arbitrary and relatively motivated – but in very varying proportions. This is an important characteristic, which may have to be taken into account in classifying languages. (de Saussure 1986: 131)

This section of the *Course* is crucial for the understanding of this classification. In lexicological languages motivation is at a minimum, and in grammatical languages it has reached the maximum. As pointed out by Saussure, this does not imply that the lexis and arbitrariness are on the one side and grammar and relative motivation are on the other. These are two poles or two opposite points, classifying languages into those with a tendency of creating unmotivated linguistic signs and those with a tendency of applying grammatical processes to create the linguistic sign, thus making it relatively motivated.<sup>4</sup>

Saussure's classification of languages into lexicological and grammatical has influenced subsequent lexicological studies and analyses. For example, Ullman (1969) bases many of his explanations of lexico-semantic issues on the relationship between absolute and relative arbitrariness or motivation in lexical structures of particular languages. Thus, he points out that contemporary French vocabulary is characterized by "a great increase in arbitrariness" in relation to the

<sup>3</sup> Cf. e.g. Žic Fuchs (1991), Raffaelli (2001).

<sup>4</sup> Saussure (1986: 131).

Latin vocabulary from which it developed. While Latin *inimicus* (in+amicus) is a motivated lexeme, the French *ennemi* is arbitrary.<sup>5</sup> This is caused by historical factors: phonetic changes, a decrease in derivation and an influx of learned words.

English, like French, is certainly closer to lexicological, arbitrary languages. Therefore, a *semantic field* model analysis of lexico-semantic structures can handle a great deal of lexical relations in these two languages. Although the semantic field model has been applied to various languages, including Croatian, we are faced with the issue of its suitability in describing and specifying lexical structures of a language such as Croatian, which is much more motivated (i.e. morphologically richer) than English and French.

Semantic fields consist of lexemes belonging to the same grammatical categories, which means that morphological connections between lexical units are disregarded. In grammatically-motivated languages such as Croatian derivational connections are of great importance. Therefore, we do not believe that in the case of a morphologically-rich language such as Croatian, the *semantic field* model is the only relevant model or that it is indeed sufficient for an exhaustive and systematic description of lexical structures. The description of lexical structures should also be based on a model which incorporates the description of grammatical (i.e. morphological) features of the language with its lexico-semantic features. Such a model would emphasize the connection between lexical and grammatical structures, it could explain those lexico-semantic relations which remain unexplained in the *semantic field* model, and it could be applied in the synchronic and diachronic description of lexical structures.

## 2. Guiraud's morphosemantic fields and Mounin's derivational fields

In the introductory chapter of his book *Structures étymologiques du lexique français* (1967), P. Guiraud says that the aim of his book is, if not to reconcile, then at least to bring closer together two (at that time) different and disparate areas of lexicological research.<sup>6</sup> On the one hand, he mentions *historical* lexicology which corresponds to etymology and is interested in the origin and development of words and on the other there is *structural* lexicology whose aim is to look into the internal structure of the vocabulary, primarily by studying the so-called semantic or lexical fields. Guiraud's main idea was that historical and structural lexicology should not be viewed as separate, but rather as complemen-

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<sup>5</sup> Ullman (1969: 126).

<sup>6</sup> Guiraud (1967: 8).

tary, so that historical lexicology may profit from structuralist methods, and structural lexicology may recognize the need of incorporating historical insights. Describing various types of structures (morphological or onomatopoeic) from an etymological and historical perspective, Guiraud points out that lexical forms are historically connected and motivated by derivational, metaphorical, metonymic and other linguistic processes. The coupling of grammatical (derivation and word formation) with semantic processes (metaphor and metonymy in Giraud's traditional perspective) results in forming various structures in the language system. Guiraud devoted special attention to **morphosemantic fields** (*les champs morpho-sémantiques*).

According to Guiraud, **morphosemantic fields** are different from paradigmatically structured semantic fields, because they include lexemes which have not been formed according to the same lexicological pattern. Semantic fields modeled on Trier's lexical fields include lexemes which, in traditional terms, belong to the same parts of speech. However, as Guiraud points out, semantic links connect lexemes belonging to the same parts of speech, as well as lexemes and their derived forms. In the latter case, the link is semantic as well as morphological. These lexemes are connected by virtue of their *meaning* and their *form*, hence Guiraud dubs such a structure a **morphosemantic field**.

The key feature of a morphosemantic field is that each derived form is related to the *etymon* (the etymologically basic lexeme) in a different way. The *etymon* is the lexical basis (which can be the base word, the root and the stem)<sup>7</sup> for various types of relations that are created between it and its derived forms.

Guiraud regards the *morphosemantic field* as an etymological structure, which can reveal the semantic and derivational paths of development of related lexical and morphological structures.

The modernity of Guiraud's views is apparent from the fact that he recognizes the existence of semantic motivation between the lexical base and its derivatives; in other words the existence of various semantic and grammatical processes connecting the lexemes belonging to a **morphosemantic field**.

In his discussion of the lexical and semantic structures of a language in *Clefs pour la sémantique* (1972), G. Mounin refers to Guiraud's *morphosemantic*

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<sup>7</sup> Guiraud (1967:125) points out that in order to accurately define a morphosemantic field it is necessary to define a semantic and/or formal element common to all lexical forms. Various common elements are possible, and what is taken as the common element (or the basic lexeme) depends on the needs of the analysis. What will always result from this type of description (regardless of the type of the basic lexeme) is some type of structure.

*fields*, pointing out that there is both a *semantic* and a *formal* (word-formation) connection between lexemes. However, given that Guiraud's morphosemantic fields are etymologically motivated, Mounin considers the notion of a **derivational field** to be more appropriate for his synchronic study, saying that there is a semantic and morphological connection between the units forming the field, and that the field is structured by various word-formation and derivational processes (prefixation, suffixation, juxtaposition).<sup>8</sup> He is critical of Guiraud, because he believes that the term **morphosemantic field** is not sufficiently precise in describing the linguistic reality it denotes; one could, according to Mounin, call it a *morpholexical* or a *morphoetymological* field, because it also refers to those phenomena. He believes that the term **derivational field** is much more theoretically sound, because it describes lexical structures motivated like Saussure's *associative relations* as illustrated by *enseigner, enseignant, enseignement*.

Mounin's **derivational fields** are synchronic, as opposed to Guiraud's morphosemantic fields which underline the link between historical and structural lexicology. Regardless of the theoretical similarity between morphosemantic and derivational fields, which primarily relates to the existence of a structure and a link between forms and their meanings, there are several reasons why we have decided to use the term **morphosemantic field**.

### 3. Characteristics of morphosemantic fields and their application to Croatian vocabulary

When describing the coupling between *form* and *meaning* or *grammar* (*morphology*) and *semantics*, the term **morphosemantic field** is more suitable in describing the relations at stake. We believe that the term **derivational field** relates only to the grammatical aspect of the connections between lexemes. A **derivational field** defines the grammatical process which connects lexemes, ignoring the other important component connecting them – semantics. Although derivation does presuppose semantic links between the derived forms, semantic analysis does not feature as strongly as grammatical analysis in this term. In contrast, the expression **morphosemantic field** stresses: (i) equal importance of morphological and semantic processes in structuring the vocabulary of a language and (ii) a strong link between grammatical and semantic processes, which implies a continuum and an interplay between grammatical and semantic motivation of lexical structures, thus canceling any possible arbitrary cutting-of-point between grammar and lexicon. This means that grammatical and semantic processes jointly influence the creation of new lexemes, which are, therefore, both

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<sup>8</sup> See Mounin (1972: 133).

morphologically and semantically motivated. Each new lexeme is *morphosemantically* connected to the basic or central lexeme in the **morphosemantic field**.

One of Mounin's chief objections to Guiraud's model was that his morphosemantic fields were diachronically structured. They assume the existence of the *etymon* – an etymologically basic lexeme which is the core of the morphosemantic field, by virtue of which the field is diachronically/etymologically based. According to Mounin, this means disregarding the synchronic relations within the lexical structures of a language.

We do not share this opinion. Morphosemantic fields do not necessarily describe the diachronic structure of lexical units, because the *basic* or *core lexeme* does not necessarily have to be the etymological basis for the formation of other lexical forms, although it frequently is.<sup>9</sup> The definition of the basic lexeme depends on how far into linguistic history one wants to go. In other words, morphosemantic fields describe diachronic as well as synchronic relations between lexical units, and can be applied in both types of analyses, which will be demonstrated in this paper.

Another important reason why we chose **morphosemantic fields** as a model of structuring the Croatian vocabulary is the possibility of relating this model to contemporary theoretical tenets of cognitive linguistics.

### 3.1. *Morphosemantic fields in cognitive linguistics*

**Morphosemantic fields** fit into the theoretical framework of cognitive linguistics by virtue of many of their features.

- (i) The structure of morphosemantic fields broadly corresponds to the principles of prototype organization of categories and lexical structures. We have already pointed out that contemporary linguistics conceives of semantic fields as consisting of a central or prototypical lexeme and other lexemes positioned around it with varying degrees of proximity. In other words, lexemes do not have an identical role in structuring the field: one of them is the center or the core of the field, and others, depending on their characteristics, are positioned closer to it or further away from it. Therefore, **morphosemantic fields** are *heterogeneous*, as

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<sup>9</sup> This primarily depends on our choice of the basic lexeme and how far into history and etymology of lexical structures we wish to go.

opposed to semantic fields in Trier's tradition, which are *homogeneous*. The heterogeneity of morphosemantic fields is evident in their asymmetric structure – the existence of a central lexeme and other lexemes which are associated with it on the basis of various derivational and semantic processes.

- (ii) The term **morphosemantic field** entails equal importance of grammatical and semantic processes in structuring the vocabulary, thus indicating a dynamic interplay and interdependence of grammatical and semantic structures, which is one of the basic theoretical tenets of cognitive linguistics.<sup>10</sup> Guiraud himself stressed the importance of semantic processes such as metaphor and metonymy in structuring a morphosemantic field. In cognitive linguistic terms, grammar and cognitive processes perform an equivalent function in determining conceptual/semantic structures. In cognitive linguistics, metaphor and metonymy are seen as cognitive processes which determine the structure of concepts.<sup>11</sup> Thus, in cognitive linguistics a morphosemantic field would be a linguistic structure reflecting all conceptual changes and links and pointing to the processes that a particular concept or conceptual category has undergone.
- (iii) In addition to the key role of the cognitive processes of *metaphor* and *metonymy* in structuring conceptual categories, *generalization* and *specialization* may also effect changes in conceptual structures, which are reflected in the semantic structure of lexical categories.<sup>12</sup> As a rule, cognitive linguistics uses these concepts to show how conceptual changes are reflected in the semantic structure of a single lexical category.<sup>13</sup> However, such a position means disregarding the fact that, in addition to inducing the creation of polysemous lexical structures, the two processes may also influence the grammatical formation of new lexemes. In other words, the formation of new lexemes in the vocabulary of a grammatically motivated language such as Croatian is deter-

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<sup>10</sup> See Langacker (1987 and 2000).

<sup>11</sup> Cf. e.g. Lakoff (1987), Lakoff and Johnson (1980), Lakoff and Turner (1989). Cognitive linguists point out that human conceptualization is largely determined by metaphorical and metonymic processes connecting two similar (metaphor) or adjacent (metonymy) concepts, which is later reflected in the semantic structure of the lexeme.

<sup>12</sup> See Geeraerts (1997), Blank and Koch (1999), Eckardt et al (2003)

<sup>13</sup> Geeraerts (1997) emphasizes the role of these four cognitive processes in changing conceptual categories, which is later reflected in the change of particular lexical categories, which become polysemous lexical structures.

mined by grammatical processes as well as different cognitive processes.

For instance, the analysis of the morphosemantic field of the verb *tres-ti* which, in its basic meaning refers to a type of ‘fast repeated motion’ shows that one of its derivatives *tres-ka-ti* ‘repeated motion’ has served as the basis for the formation of the verb *za-tres-ka-ti (se)* ‘fall in love head over heels’. The latter verb is connected with the domain ‘love,’ and not with the domain of ‘motion’ which is the basis for understanding the meaning of the former two verbs.<sup>14</sup> In cognitive linguistics, the metaphorical connection between the domains of ‘motion’ and ‘love’ indicates a metaphorical shift in the meaning of the verb *za-tres-ka-ti* in relation to *tres-ka-ti* and *tres-ti*. The concept of ‘motion’ serves as the source domain for understanding ‘love’ as the target domain.<sup>15</sup> This example shows that the concept of ‘love’ may be understood using the concept of ‘motion’. In addition to the importance of metaphor in the semantic structure of the verb *zatreskati*, specialization also plays an important role in the semantic development of this verb, because it has a very specific meaning in colloquial language.

These examples clearly illustrate why the **morphosemantic model** should be applied in the cognitive linguistic analysis of grammatical languages such as Croatian. Analyzing only the semantic structure of the verb *tresti* would not lead to the conclusion that the shaking motion it denotes served as the source domain for understanding ‘love’ as an abstract concept. There are no meanings of the verb *tresti* referring to ‘love,’ although some current usages such as *tresao se od želje za njom* ‘he was shaking with desire of her’ could in some contexts be connected with the concept of ‘lust’ or ‘love’. However, the lexeme *zatreskati se* in colloquial language clearly refers to the conceptual connection between the motion of shaking and ‘love’ as an abstract concept. Lexemes *tresti* and *treskati* are synonymous with *drmati*, *drmusati* ‘shake,’ which are also understood on the basis of the domain of ‘motion’; while *zatreskati se* is synonymous with *zaljubiti se* ‘fall in love’ and *zatelebati se* (coll.) ‘fall madly in love,’ which are understood on the basis of the domain of ‘love’.

Many of the theoretical and methodological tenets of the **morphosemantic field** model correspond to the basic theoretical principles of cognitive linguistics

<sup>14</sup> This example has been explained in more detail in the paper *Grammatical Formation of Vocabulary: The Influence of Conceptual Changes*, presented at AFLiCo (Lille, May 2007)

<sup>15</sup> In order to understand conceptual metaphors, the existence of the target and the source domain is crucial. The source domain (the domain of ‘motion’ in the example) serves as the basis for understanding the target domain (‘love’). See e.g. Lakoff and Johnson (1980), Lakoff and Turner (1989).



tics. We have mentioned three crucial points of convergence, which will be further elaborated in our analysis.

Our basic assumption in this paper is that the application of the **morphosemantic field** model in the cognitive linguistic framework can greatly contribute to the description of lexico-semantic structures of morphologically rich languages such as Croatian. Lexical structures are formed on the basis of clearly identifiable grammatical processes, setting up a firmly motivated system, which is much tighter than in languages without rich morphology. The morphological connection between lexical structures clearly reflects semantic/conceptual links, and indicates the course of extension of a concept and its connections with other concepts, all of which could remain unnoticed by other types of semantic analyses.

Therefore, we believe that **morphosemantic fields** viewed in this way may be applied in synchronic and diachronic analysis of lexical structures of Croatian, which will be illustrated by selected examples.

#### 4. Morphosemantic fields in synchronic analysis

Despite the fact that morphosemantic fields were “originally” designed to connect etymology with structural lexicology, we believe that they may be applied in the synchronic description of lexical structures, although, as we will show, they are especially relevant in diachronic research.

The application of morphosemantic fields in synchronic analysis primarily means describing grammatical and semantic relations between *the basic lexeme* and its derived forms. We define the basic lexeme in a morphosemantic field as the lexeme which has not been derived from any other lexeme, i.e. a lexeme which is the derivational and semantic basis for all other lexemes within the morphosemantic field.<sup>16</sup> We consider such a definition of the morphosemantic center of the field simple and completely acceptable from the point of view of synchronic analysis. Thus, in our previous example, the verb *tresti* is the basic lexeme of the morphosemantic field, because all other lexemes making up the field are derived from it – *otresti* ‘shake off,’ *potresti* ‘shake up,’ *istresti* ‘shake out,’ including lexemes such as *otresit* ‘abrupt,’ *potresen* ‘shaken’ based on the derived verbs.

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<sup>16</sup> We have based our definition of the basic lexeme on the division between basic and derived words according to Babić (2002: 25-33).

It should be pointed out that one variant of morphosemantic fields has been applied in building the WordNet,<sup>17</sup> especially WordNets of Slavic languages. Thus, Pala and Hlaváčková (2007) point out that, within inflectional languages, derivational relations form a system of semantic relations reflecting the conceptual structures of the human cognitive system. In other words, as we have already said, morphosemantic structures or fields reflect the relations and links that exist between concepts, and point to cognitive mechanisms which influence the organization of the human conceptual system. Pala and Hlaváčková's general statement supports our argument concerning the importance of **morphosemantic fields** in the description of lexical structures of morphologically rich languages in the cognitive linguistic framework, and suggests that morphosemantic fields may be applied in computer-assisted linguistic resources such as the WordNet. To reiterate our point, this means that morphosemantic fields may describe some types of lexico-semantic/conceptual relations which are not visible from, for example, synonymy.

Given that all WordNets were based on the Princeton WordNet for English, the descriptions of lexical structure include, in addition to the hierarchical (taxonomical) structure, synonymy, defined by the so-called *synsets* or groups of synonyms. Of course, placing the description on such a theoretical footing cannot meet the needs of WordNets describing the lexical structure of Slavic languages. Therefore, in their paper, Pala and Hlaváčková (2007) stress the importance of describing derivational relations as relevant for the description of semantic structures, not only in the case of the Czech WordNet, but also for all other WordNets of Slavic languages. Pala and Hlaváčková (2007) as well as Koeva, Krstev and Vitas (2008) mainly focus on those derivational relations and processes which can be machine tagged and automatically processed, containing a stable semantic component. In Croatian the suffix *-telj* would be an example, because it is used to derive nouns which refer to 'a person performing the action referred to by the verb that the noun is derived from: *braniti* 'defend' – *branitelj* 'defender,' *graditi* 'build' – *graditelj* 'builder' etc. This type of a morphosemantic relation is stable, and is therefore highly suitable for computer processing and unambiguous tagging. Pala and Smrž (2004: 82-84) used this derivational relation to point to the possibility of tagging semantic roles within certain *synsets* (groups of synonyms); for instance in Croatian, similarly to Czech, all nouns derived from the verb using the *-telj* suffix could be tagged as *agents*.

The morphosemantic field of the verb *tresti* shows that morphosemantic relations are much more complex, and that in addition to the relations which are

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<sup>17</sup> WordNet is a computer-assisted linguistic resource which is a type of a lexico-semantic database based on the description of semantic relations between the lexicon of a language. The original WordNet was the Princeton WordNet which describes the structures of English.

suitable for automatic tagging and processing, the Croatian WordNet should also define synonymy relations between a lexeme belonging to a particular morphosemantic field and other lexemes outside its field.<sup>18</sup> The lexemes *otresit* ‘abrupt,’ *potresan* ‘shocking’ and *potresen* ‘shaken’ clearly illustrate this. The adjective *otresit* is derived from the verb *otresti* ‘shake off,’ and was created based on the processes of metaphorization and specialization. The literal meaning of *otresti* is “to shake in order to remove something from a thing,” and it has developed the metaphorical meaning of “get rid of,” referring to the activity of a person getting rid of unwanted thoughts, human actions etc. In its reflexive form, it has developed the meaning of “snap at someone,” “yell at someone.” The adjective *otresit* reflects the conceptual and semantic specialization of the peripheral metaphorical meaning of the verb *otresti se*, because it means “rude,” “unkind” and “abrupt.” Therefore, in the Croatian WordNet the entry for *otresit* should, on the one hand, show the synonymy relation with the adjectives *neljubazan* ‘unkind,’ and *odrešit* ‘curt,’ and on the other it should mark the morphosemantic connection with the verb *tresti*. Similarly, the adjectives *potresan* ‘shocking’ and *potresen* ‘shaken’ are both derived from the verb *potresti* ‘shake for a while.’ *Potresen* is originally a past participle, but the CED<sup>19</sup> also notes that it may be a (descriptive) adjective with a metaphorical and specialized meaning in relation to the verb from which it was formed. The verb *potresti* has a peripheral metaphorical meaning of “excite, shake up,” which becomes the central (and only) meaning of the adjective *potresen*. The adjective *potresen* can only mean “shaken,” “deeply moved.” The adjective *potresan* ‘shocking,’ which has been formed by a different derivational pattern using the suffix *-an*, is also understood with relation to the domain of ‘feelings’; it means “evoking a powerful emotional reaction,” and may be linked to synonymous adjectives *šokantan* ‘shocking,’ *dirljiv* ‘touching,’ *ganutljiv* ‘deeply moving’.<sup>20</sup>

These examples illustrate the relevance of the morphosemantic field in forming the Croatian WordNet and show which types of grammatical and lexico-semantic relations should be taken into consideration in its organization. If we rely only on the “traditional” *synsets*, an important aspect of the organization of the Croatian lexicon will remain unrecorded in computer form. *Morphosemantic fields*, envisaged more broadly than by Pala and Hlaváčková, may be used to describe the lexico-semantic relations in Croatian in a more complete and systematic way.

<sup>18</sup> See Raffaelli, Tadić, Bekavac, Agić (2008).

<sup>19</sup> We will use the abbreviation CED for the Croatian Encyclopedic Dictionary.

<sup>20</sup> For a more detailed treatment see Raffaelli (the paper *Grammatical Formation of Vocabulary. The Influence of Conceptual Changes* presented at AFLiCo) (Lille, May 2007).

## 5. Morphosemantic fields in diachronic analysis

Morphosemantic fields are particularly useful in the diachronic description of lexical structures. Looking at the structure of a morphosemantic field through time allows us to discern and reconstruct cognitive mechanisms and conceptual shifts which have taken place in a conceptual category. The shifts and extensions within a conceptual category are recorded and reflected in morphosemantic fields.

This means that processes of word-formation/derivation which are involved in forming the lexicon reflect conceptual mappings between two domains, and by this token, clearly indicate the strong link between conceptual and grammatical structures and their dynamic relationship.

### 5.1. *Conceptual metaphors KNOWING IS SEEING and IDEAS ARE LIGHT*

As has already been pointed out, cognitive linguistics considers metaphors to be one of the key cognitive mechanisms in understanding the world. Certain conceptual metaphors are considered universal in a particular language family because they connect concepts which are experientially close to humans – usually those related to the body – with those that are abstract and experientially remote. One such universal conceptual link for IE languages is illustrated by conceptual metaphors KNOWING IS SEEING and IDEAS ARE LIGHT, taken to be part of the more general conceptual metaphor MIND AS BODY.<sup>21</sup> In cognitive linguistics, human understanding of the world is considered to be largely determined by the human body; in other words the human body, because of its physical and physiological limitations, determines the way in which we understand and interpret the world we live in.<sup>22</sup> Thus, cognitive linguistics and cognitive science consider the mind to be embodied, reinterpreting some ancient philosophical questions relating to the connection between the body and the mind.<sup>23</sup> For cognitive scientists, there is an undeniable connection between the mind and the body. Consequently, the mind is part and parcel of the human body and cannot be considered separately from it. The body and all its processes influence the mind and the way we understand the world.<sup>24</sup> Therefore, many abstract concepts are metaphorically

<sup>21</sup> See Sweetser (1990).

<sup>22</sup> See Lakoff and Johnson (1980), Lakoff and Turner (1989), Gibbs (1994).

<sup>23</sup> Rationalist philosophers (such as Descartes and Leibniz) believed that the human mind is separate from the human body and that the mechanisms by which it functions are completely separate from any influence of the body.

<sup>24</sup> See Lakoff and Johnson (2002).

structured, i.e. they are understood through literal concepts – those that are part of the immediate human bodily experience. Thus the concepts of ‘light’ and ‘sight,’ which belong to the immediate human bodily experience, are the source domain for understanding and conceptualizing abstract concepts such as ‘mind,’ ‘knowledge’ and ‘understanding.’ This means that a person understands her mental activities through ‘light’ or ‘sight’.<sup>25</sup> According to Sweetser (1990), the verb *to see* can also mean “to know” in all IE languages, which substantiates the claim that concepts and vocabulary relating to phenomena experientially closer to humans (light/sight) are adopted in understanding more remote abstract phenomena, such as feelings, mental activities, moral categories etc.

This is the basic reason why the semantic structures of many lexemes which are in some way connected with the concept of ‘light’ contain metaphorical meanings connected with ‘the mind,’ ‘knowledge’ or ‘understanding,’ ‘comprehension’ and ‘cognition.’ For example, the Croatian expression *bistro dijete* lit. ‘a clear child’ refers to ‘an intelligent child,’ *rasvijetliti problem* lit. ‘to light up an issue’ means to ‘clarify an issue,’ *jasno mi je* lit. ‘it is clear to me’ means that we understand something etc. All these examples are realizations of the conceptual metaphors KNOWING IS SEEING/IDEAS ARE LIGHT and point to metaphorical shifts within semantic structures – they show the metaphorical meanings of the selected lexemes *bistar*, *rasvijetliti* and *jasan*. Their prototypical meaning is connected with the domain of light and refers to one aspect of visibility and transparency which is determined by light.<sup>26</sup> Metaphorical meanings realized in particular contexts profile a part of the mental domain, and relate to some type of mental activity or a mental characteristic of humans.

Although the cognitive linguistic<sup>27</sup> analysis of these conceptual metaphors is based on studying contexts in which particular lexemes realize their metaphorical meanings, we believe that it is important to point out that these conceptual metaphors also have a considerable influence on the grammatical construction of lexical structures.

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<sup>25</sup> ‘Light’ and ‘sight’ are two closely connected and interrelated concepts since sight as one of human senses is determined by light. This is why these two elements are closely connected within human experience.

<sup>26</sup> We shall see that in the corpus of contemporary Croatian, the adjective *jasan* appears mostly with the meaning profiled in relation to the mental domain. Still, we cannot claim that this is its prototypical meaning, regardless of its corpus frequency. On the other hand, we consider this a relevant piece of information for diachronic research. The relevance of the criterion of frequency in determining prototypical meaning is discussed by Geeraerts (1988).

<sup>27</sup> See Lakoff and Johnson (1980), Sweetser (1990), Gibbs (1994).

We will take the morphosemantic field of the lexeme *jasan* ‘clear’ to show that there is a very strong dynamic connection between the conceptual metaphors KNOWING IS SEEING and IDEAS ARE LIGHT and grammatical formation of the Croatian vocabulary.

This morphosemantic field is diachronically very interesting because it illustrates the constant interplay and the links between the concept of ‘light’ and the concepts of ‘mind’/‘understanding.’ We will show that that the lexeme *jasan* is currently more frequently used in its meaning relating to ‘understanding’ or ‘comprehension.’ Moreover, we will demonstrate that there is a range of older as well as relatively recent lexemes derived from the lexeme *jasan* (or, to be more precise from the stem *jasn-*) which refer only to a particular type of mental activity. The meaning of such lexemes has nothing to do with anything ‘that is transparent, that one can see through easily.’ These lexemes, in addition to being metaphorically related to the basic lexeme *jasan* ‘clear,’ also exhibit the process of *specialization*, because their meaning relates entirely to a type of mental activity. Examples of such lexeme include *izjasniti* ‘express one’s opinion’ and *objasniti* ‘explain.’

We will take the example of the morphosemantic field of the lexeme *jasan* to show that there is a clear tendency of forming new lexemes with a very specialized meaning referring only to ‘mental activities,’ despite the fact that basic lexeme (*jasan*) is etymologically connected with the domain of ‘light’ and the fact that its prototypical meaning relates to this domain. This shows that there is a firm conceptual link between ‘light’ and ‘mind’ which has, in Croatian, motivated the formation of new words, metaphorically related to the prototypical meaning of the basic lexeme *jasan*.

## 5.2. The example of the morphosemantic field of the lexeme *jasan*

The adjective *jasan* is the center of the morphosemantic field, i.e. the *basic lexeme* (the only lexeme in the field that can be seen as the *basic* or *unmotivated word*, which was the basis for the formation of all other words),<sup>28</sup> on the basis of which other lexemes in the field were created: *jasniti* ‘make clear,’ *jasnovit* ‘clear,’ *jasnina* ‘clarity,’ *jasnost* ‘light,’ *jasnoća* ‘clarity,’ *projasniti* ‘make, become clear,’ *objasniti* ‘explain,’ *objasnidben* ‘explanatory,’ *razjasniti* ‘explain,’ *razjasnitba* ‘explaining,’ *pojasniti* ‘clarify’.<sup>29</sup>

<sup>28</sup> See Babić (2000: 25-33).

<sup>29</sup> The lexemes *prejasan/prejasnost* ‘illustrious’ were left out. Their metaphorical meanings are synonymous with the lexeme *presvijetli* ‘illustrious,’ and they appear most commonly in

In addition to the lexeme *jasan*, the earliest confirmed lexeme is the verb *jasniti* (*se*) ‘make clear, make visible’:

- (1) Dokol sunca svitlost svit bude ophoditi ne šćedeć svu milost i zvezde jasniti... (Zoranić, Planine, 1569)<sup>30</sup>  
‘As long as the sun’s light keeps pacing the world freely bestowing its grace and making the stars visible...’
- (2) Zlatno kamenitih na pećine stinah jasni se i sviti od bisera cina (Kanižlić, Sveta Rožalija, 1780)  
‘The stony walls of the cave are glowing gold and shining like precious pearls’

*Jasniti* is also confirmed in Mikalja’s and Habelić’s dictionary with the meanings “to make the skies clear,” “to illuminate,” “to glow.” In *Gazophylacium*,<sup>31</sup> in Parčić’s dictionary and in the CED the word is noted as meaning “to make the skies clear,” “to make the water clear,” “to dawn,” relating only to the domain of ‘light,’ with no metaphorical shifts towards ‘comprehension’ or ‘understanding.’ In Vrančić’s dictionary *jasniti* (*se*) does not appear, and the equivalent of the Latin verbs *splendere*, *fulgere*, *nitere*, *lucere* is Croatian *szvitliti se* ‘to glow, to shine.’

In the *Dictionary of Croatian or Serbian Language of the Yugoslav Academy of Arts and Sciences* (henceforth ARj), the lexeme *jasnovit* ‘clear’ is illustrated by a citation from a single writer in the 16<sup>th</sup> century, and *jasnina* ‘clarity’ by citations from two writers in the 17<sup>th</sup> and 18<sup>th</sup> century, with meanings connected only with the domain of ‘light’. Both lexemes appear in Parčić’s dictionary: *jasnina* is listed as a synonym of *jasnoća*, and *jasnovit* is defined as *chiaro*, *evidente* in the figurative sense of “understandable”.

The lexeme *jasnost* ‘light’ is confirmed in Mikalja’s and Della Bella’s dictionary, referring to the domain of ‘light,’ meaning *lux* or *splendore del sole* (sunlight), and is explained as *limpidità*, *chiarezza*, *serenità* (transparency, serenity) by Parčić.

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constructions such as *prejasna grofice/gospo/majko* ‘illustrious duchess/madam/mother’. Examples taken from the Classics subcorpus of the Croatian National Corpus.

<sup>30</sup> Examples were taken from the Croatian National Corpus and the Croatian Language Repository, unless stated otherwise.

<sup>31</sup> In *Gazophilacium* the entry *jasnim sze* refers to the verb *szvitim sze*.

*Jasnost* is found in Zoranić's and Kanižlić's texts. Zoranić uses it as synonymous with *light*:

- (3) *Poginu ma radost, poginu moj pokoj, pomrknu ma jasnost i prisvital zrak moj* (Zoranić, Planine, 1569)  
'My joy gone, my serenity gone, my light and my glorious air went dark.'

We can see that Kanižlić connects it to the concepts of 'honor' and 'glory':

- (4) *Ti obastrta suncem i jasnostju slave rajске* (Kanižlić, according to Arj)  
'You [are] enveloped by the sun and the brightness of the heavenly glory'

In all examples from Kanižlić the noun *jasnost* may be related to the concepts of 'glow' and 'light,' and there is no way to be certain whether it is 'glow' or 'glory' – so it may be the 'glory' of the crown in the following example – but the concepts of 'glow' and 'glory' are clearly connected:

- (5) *Dosadi mu krune jasnost* (Kanižlić, Rožalija, 1780)  
'He was bored by the glory/brightness of the crown'

It is important to mention that we have not found any examples of the shift of *jasnost* towards the mental domain, i.e. towards the meaning "understandability, precision" in the period from the 16<sup>th</sup> to the 18<sup>th</sup> century. In literary texts from the 19<sup>th</sup> and 20<sup>th</sup> century appearing in the Croatian Language Repository, the lexeme *jasnost* appears only 16 times, with the meaning 'light' (*Priroda se uvijek prima / Našeg srca / U njem zrača / Jasnost svoju i svoj mrak* 'Nature always affects our heart, and its light and darkness are reflected in it,' Preradović), while Šegedin uses it with the meaning that may be connected to "understandability, precision":

- (6) *Tu trenutačnu jasnost razbijalo je daljnje starčevo pričanje.* (Šegedin, Djeca Božja)  
'This momentary clarity was being shattered by the old man's continued talking'
- (7) (...) *želio bih da ovim moji eseji doprinesu jasnosti istine.* (Šegedin, Svi smo odgovorni)  
'(...) I would like these essays of mine to contribute to [establishing the] exact truth'



The earliest confirmed lexemes derived from the adjective *jasan*, i.e. *jasniti*, *jasnina*, *jasnovit* and *jasnost*, are all primarily understood with relation to the domain of 'light,' and only in some usages do we see the confirmation of the metaphorical shift to the domain of 'glory,' 'honor.' The oldest dictionaries and some of the oldest Croatian literary texts warrant the conclusion that in the period from the 16<sup>th</sup> to the 18<sup>th</sup> century the conceptual connection of mental activities with light has not yet started to influence the semantic structure of the derived lexemes in the morphosemantic field of the lexeme *jasan*. Metaphorical meanings are only confirmed for *jasnovit* in Parčić's dictionary and for *jasnost* in citations from Šegedin (as appearing in the Croatian Language Repository), which suggests that the process of metaphorization of these two lexemes started in the early and mid 20<sup>th</sup> century. These are the only two examples which suggest a metaphorical shift of these lexemes to the mental domain, and they have been confirmed only in the more recent period of language development. Therefore, the analysis of the four lexemes points to the conclusion that, diachronically speaking, the morphosemantic field of the word *jasan* was understood completely in relation to the domain of 'light,' because the meanings of all derived lexemes were literal and related to 'transparency,' 'light,' 'clarity of skies' and a general see-through quality because of the presence of light.

The semantic structure of the basic lexeme *jasan* confirms that diachronically its meanings were profiled on the basis of the domain of light. Thus *jasan* was, diachronically speaking, synonymous with adjectives such as *bistar* 'clear [water],' *vedar* 'clear [skies],' *svijetao* 'bright,' *sjajan* 'glowing,' and its earliest confirmed meanings were connected only with the domain of 'light,' notwithstanding the meaning "sonorous" (*sonorus/sonoro*) listed by Vrančić, Kašić, *Gazophylacium* and Parčić.

In literary texts from the 15<sup>th</sup> to the 18<sup>th</sup> century *jasan* most frequently appears in constructions with the nouns *zora* 'dawn,' *zvijezda* 'star,' *mjesec* 'moon,' *mjesečina* 'moonlight,' *zrak* 'air'. When referring to people, it appeared with the nouns *oči* 'eyes,' *čelo* 'forehead,' *lice* 'face' (...*obraza rumena, čela jasno bila*, 'with rosy cheeks and a clear white forehead,' Kanižlić) or was used to mean "glorious," "honorable:" *vrijedan vijenca jasna kralja franačkoga* 'worthy of the glorious garland of the Frankish king' (Kavanin), *jasan dikom i vedrinom (dužd)* '(duke) honorable in his glory and serenity,' *jasan gospar* 'illustrious sir' (all according to ARj).

Literary texts from the 19<sup>th</sup> century point to evident shifts in the meaning of the adjective *jasan* towards a metaphorical meaning that may be explained by the conceptual metaphor IDEAS ARE LIGHT: *osjećam, jasno osjećam* 'I feel, I clearly feel' (Matoš), *a Marjanoviću bude odjedared jasno kao dan* 'suddenly

things became completely clear to Marjanović' (Matoš), *govorio je hitro, ali jasno i krepko* 'he spoke quickly, but clearly and vigorously' (Kovačić). In the 19<sup>th</sup> and at the beginning of the 20<sup>th</sup> century the lexeme *jasan/jasno* frequently appears with verbs of perception: *gledati* 'watch,' *vidjeti* 'see,' *čuti* 'hear,' *opaziti* 'notice,' *razabrati* 'discern,' *raspoznovati* 'recognize,' which are connected with the basic meaning of the lexeme *jasan*, 'to be visible'. However it also frequently appears with verbs of speaking/expressing: *kazati* 'say,' *govoriti* 'speak,' *reći* 'tell,' *izraziti* 'express,' *zboriti* 'speak,' *izustiti* 'utter,' *istaknuti* 'point out,' *očitovati* 'declare,' *razlagati* 'expound,' *dokazati* 'prove,' in which case the meaning of the lexeme *jasan* is extended to 'being understandable, comprehensible'. This metaphorical shift of the lexeme *jasan* towards the mental domain is evident at the end of the 19<sup>th</sup> and the beginning of the 20<sup>th</sup> century in constructions with verbs which denote cognitive and affective activities such as: *razumjeti* 'understand,' *osjećati* 'feel,' *zamišljati* 'imagine,' *shvatiti* 'grasp,' *sjećati se* 'remember,' *zaključiti* 'conclude,' *dosjetiti se* 'come up with,' *pojmiti* 'comprehend,' *predočiti* 'conceive' etc.

- (8) (...) *početka se još jasno sjećam* (...), (Mažuranić, Lišće, 1887)  
'(...) I still clearly remember the beginning (...)'
- (9) (...) *još se sad posve točno i jasno sjeća* (...), (Gjalski, Janko Borislavić, 1887)  
'(...) he still distinctly and clearly remembers (...)'
- (10) (...) *da je prvi put jasno pojmio* (...), (Donadini, Kroz šibe, 1921)  
'(...) so that he comprehended for the first time (...)'

In addition to verbs which denote cognitive and affective activities, in the 19<sup>th</sup> and the beginning of the 20<sup>th</sup> century *jasan* appears with the following nouns: *pitanje* 'question,' *odgovor* 'answer,' *izjava* 'statement,' *istina* 'truth,' *misao* 'thought,' *mišljenje* 'opinion,' *odluka* 'decision,' *rasuđivanje* 'judgment,' which are connected with various types of mental activities, and in these constructions *jasan* means 'precise'. *Jasan odgovor* or *jasna izjava* is a "precise / correct statement," a statement that can be easily understood / comprehended:

- (11) (...) *sve se više rađala jasna misao* (...), (Gjalski, Janko Borislavić, 1887)  
'(...) a clear thought was beginning to appear (...)'
- (12) (...) *nije si mogao posve jasna odgovora dati* (...), (Kozarac, Medju svjetlom i tminom, 1891)  
'(...) he could not find a completely clear answer (...)'

In the later periods the semantic structure of the lexeme *jasan* shows a significant shift towards the mental domain, pointing to the systematic nature of mappings between the domain of light and the mental domain, and, by the same token, to the significance of conceptual metaphors KNOWING IS SEEING and IDEAS ARE LIGHT in the extension of the semantic structure of the lexeme *jasan*. Thus, the data from the Croatian National Corpus (from 1990 to 2005)<sup>32</sup> show that *jasan* almost exclusively appears with the meaning connected to mental activities – “understandable, comprehensible,” with verbs such as *govoriti* ‘speak,’ *istaknuti* ‘point out,’ *napomenuti* ‘mention,’ *dokazati* ‘prove,’ *izložiti* ‘present,’ and in constructions such as *svima je jasno* ‘it is clear to everyone,’ *potpuno/posve/u cijelosti je jasno* ‘it is completely clear,’ *sve je jasno* ‘everything is clear,’ *iz ovog je jasno* ‘this makes it clear’ etc. *Jasan* appears with the meaning “precise” with the nouns *odgovor* ‘response,’ *stav* ‘attitude,’ *interes* ‘interest,’ *cilj* ‘aim,’ *sustav* ‘system,’ *program* ‘program,’ *dokaz* ‘proof,’ *odnos* ‘relationship’ etc. and in a synonymous association with the adjectives *određen* ‘definite,’ *kratak* ‘short,’ *sažet* ‘concise,’ *konkretan* ‘definite,’ *precizan* ‘precise,’ *čvrst* ‘firm,’ *nedvosmislen* ‘unambiguous,’ *jednoznačan* ‘unequivocal,’ *nedvojben* ‘unquestionable,’ *razumljiv* ‘understandable,’ *odlučan* ‘decisive,’ *oštar* ‘distinct’ etc. The meaning “precise” is very frequent and well-established in the newspaper subcorpus, demonstrating further extension of the semantic structure of the lexeme *jasan*, which has already been noted above in examples from the 19<sup>th</sup> and the beginning of the 20<sup>th</sup> century.

The lexeme *jasan* has an almost identical relative frequency in the two subcorpora of the Croatian National Corpus – the Classics subcorpus (271 tokens per million) and the recent subcorpora (1990-2005; 251 tokens per million). However, it appears almost exclusively with the meaning “understandable,” “comprehensible,” “precise,” “unambiguous” in the recent subcorpora. A random sample of 1000 examples from the recent subcorpora of the Croatian National Corpus yielded no examples of the lexeme *jasan* relating to the domain of ‘light’ – the word does not appear with the meaning “visible, transparent.” This shows that in some 99% of examples in the recent subcorpora of the Croatian National Corpus<sup>33</sup> *jasan* has been used in its metaphorical meaning.

The diachronic analysis of the lexeme *jasan* shows that its semantic structure has extended towards meanings which are profiled on the basis of the mental

<sup>32</sup> In order to make our diachronic analysis more valid we have excluded the Classics subcorpus from the Croatian National Corpus, and we ended up with (mostly journalist) texts in the limited period from 1990 to 2005, which is a relatively homogeneous period in the development of Croatian.

<sup>33</sup> We might assume that we might have missed some examples in which *jasan* was used with its diachronically basic meaning, but this is not statistically significant.

domain. This general analysis clearly shows the development of polysemy of the lexeme *jasan*. We want to point out that the lexeme *jasan* illustrates that the conceptual metaphors KNOWING IS SEEING and IDEAS ARE LIGHT are diachronically well-established. The conceptual connection of the mental domain with the domain of light is diachronically relevant for the semantic structure of the lexeme *jasan*, which has, in the recent period of its development, shifted towards the mental domain, and, as our analysis shows, is used primarily in these meanings.

This diachronic pattern of the conceptual connections between ‘light’ and ‘mind’ is also evident in the grammatical structure of the lexemes making up the morphosemantic field of the lexeme *jasan*. Some of the lexemes derived from the adjective *jasan* are profiled entirely on the basis of the mental domain. In comparison with the basic lexeme *jasan*, these lexemes are metaphorically structured, because their morphosemantic characteristics reflect (and support) the stability and productivity of conceptual metaphors KNOWING IS SEEING and IDEAS ARE LIGHT.

In order to illustrate this claim we have selected three semantically very close verbs derived from the verb *jasniti* ‘make clear’ – *razjasniti* ‘explain,’ *objasniti* ‘explain,’ *pojasniti* ‘clarify.’ All three are perfective forms related to the imperfective *jasniti*, but the semantic differences between them are clearly visible, especially from a diachronic perspective.

The verb *razjasniti* is the one which appears as the earliest. It is listed in Mikalja’s dictionary as meaning “make bright,” “make clear,” with no citations confirming metaphorical shifts in meaning. Parčić supplies the meanings *chiarare*, *metter in chiaro* ‘shed light on’; however it should be noted that the verb could be used with *tajna* ‘secret’ meaning *svelere un segreto*, where its metaphorical meaning is visible. In Šulek’s dictionary *razjasniti* is explained as a philosophical term with the meaning *erklären*, and Šulek mentions that it can be used in the construction *primjerom razjasniti* ‘explain using an example.’ It seems that the meaning of the verb *razjasniti* related to light was not diachronically well-established, because all dictionaries apart from Mikalja’s refer to its metaphorical meanings connected with mental activities, and the CED does not even mention the meaning ‘make bright.’ There are a number of facts which corroborate this statement. The noun *razjasnitba* found in Parčić had the meaning *espliatione* “explanation,” “interpretation,” which means that it is in no way connected with the concept of light, but exclusively with the concept of ‘mental activities,’ which is also the only meaning of *razjašnjenje* ‘explanation,’ a more recent form of this verbal noun. The verb *razjasniti* ‘explain’ appears 171 times

in the Croatian Language Repository, but only once in the 19<sup>th</sup> century with the meaning that profiles the domain of ‘light’:

- (13) (...) *sevale su takve iskre da bi se polutamne arkade, pod kojim stajasma, razjasnile bile (...)*, Nemčić, Putopisnice)  
‘(...) there were such flashes that the semi-dark arcades, under which we were standing, became clearly visible’

In the Classics subcorpus, out of a total of 74 examples from literary texts from the 19<sup>th</sup> and 20<sup>th</sup> century, none of the usages is connected with the domain of ‘light.’ *Razjasniti* is found in constructions such as *razjasniti potanko* ‘explain in detail,’ *razjasniti tajno pismo* ‘explain the secret letter,’ *razjasniti svoj dolazak* ‘explain one’s coming,’ *razjasniti čitavu stvar* ‘explain the whole thing,’ *razjasniti problem* ‘clear up the problem’ etc. In the recent part of the Croatian National Corpus (1990-2005) all 686 tokens are a realization of one of the metaphorical meanings connected with mental activities: “make understandable/comprehensible”, “interpret,” “define,” “explain,” as in the following constructions: *razjasniti uredbom* ‘make clear through an ordinance,’ *razjasniti diplomatski* ‘explain by means of diplomacy,’ *razjasniti spor* ‘resolve a conflict,’ *razjasniti pitanja* ‘clarify issues,’ *razjasniti nesporazume* ‘clear up misunderstandings’ etc. Constructions with *razjasniti* which demonstrate the semantic differences in relation to the other two verbs are: *razjasniti motive* ‘explain one’s motives,’ *razjasniti smrt* ‘explain how somebody’s death occurred,’ *razjasniti okolnosti* ‘explain circumstances,’ *razjasniti ubojstvo* ‘solve a murder,’ *razjasniti pozadinu* ‘provide the background,’ *razjasniti enigmatu* ‘solve an enigma,’ *razjasniti tragediju* ‘get to the bottom of the tragedy’. In these expressions the meaning of the verb *razjasniti* is connected with the meaning that is found already in Parčić’s dictionary – the meaning of “revealing a secret,” i.e. of ‘removing elements which hinder understanding of certain phenomena,’ which we consider to be an important semantic difference in relation to the verbs *objasniti* and *pojasniti*.

There are hardly any examples of usage of the verb *razjasniti* with the meaning “to light up.” Diachronically, the very first records show that the verb was used with a metaphorical meaning based on the conceptual connection of ‘light’ and ‘mind.’

The conceptual connection between ‘light’ and ‘mind’ in the morphosemantic field of the lexeme *jasan* is illustrated more clearly by the remaining two verbs: *objasniti* and *pojasniti*.

In the Croatian Language Repository, the verb *objasniti* first appears in texts dating back to the end of the 19<sup>th</sup> century, with the meaning “interpret,” “explain,” “make understandable, comprehensible,” which are also mentioned by Parčić. According to ARj these meanings of the verb also appear in Stulić’s dictionary dating back to the beginning of the 19<sup>th</sup> century. Only Šulek’s dictionary lists the very specialized meaning of “light up a picture” for *objasniti*, which is indeed the only meaning of this verb that we have found to be profiled on the basis of the ‘light’ domain. In contrast to *razjasniti* which appears in the recent subcorpora of the Croatian National Corpus (1990-2005) more than 600 times, *objasniti* appears over 9000 times, which indicates that it is syntagmatically more frequent and conceptually and linguistically more entrenched. For instance, *objasniti* appears in many constructions with nouns in the instrumental case functioning as an adverbial of means or an instrument: *objasniti riječima* ‘explain in words,’ *objasniti argumentom* ‘explain by using the argument,’ *objasniti činjenicama* ‘explain by the fact,’ *objasniti odlukom* ‘justified by the decision,’ *objasniti konstatacijom* ‘explain by the statement,’ *objasniti nepostojanjem dokaza* ‘justify by a lack of evidence,’ etc. which we consider to be an important semantic difference in relation to *razjasniti* and *pojasniti*.

The most recent of the three verbs, *pojasniti*, does not appear in the *Croatian Frequency Dictionary*. Accordingly, *pojasniti* appears 21 times in the Croatian Language Repository in texts later than 1970; out of which 8 times in texts later than 2000. In the recent subcorpora of the Croatian National Corpus (1990-2005) it appears as many as 3918 times. The meanings of the verb *pojasniti* are “make precise,” “elucidate” (something already known) which distinguish it in relation to *razjasniti* and *objasniti*. It is frequently used with the meaning of “to say,” “to utter” in the Croatian National Corpus (1990-2005), instead of a verb of speaking, which is also an important semantic difference in relation to the remaining two synonymous verbs:

- (14) (...) Hrvatska nije bila na dnevnom redu zasjedanja, pojasnio je Granić (Croatian National Corpus)  
‘Croatia was not on the agenda of the meeting, Granić explained’
- (15) (...) *Time bi, pojasnio je, najviše izgubili građani* (Croatian National Corpus)  
‘This would, he explained, primarily affect the citizens’

LEXEME	FREQUENCY in Croatian National Corpus (1990-2005)	SEMANTIC DISTINCTIVE FEATURES
<i>razjasniti</i>	686	removing elements which hinder understanding of certain phenomena
<i>objasniti</i>	< 9000	explain + adverbial of means or instrument
<i>pojasniti</i>	3918	make precise /elucidate (something already known)

Table 1. The frequency of *razjasniti*, *objasniti* and *pojasniti* in the Croatian National Corpus

Although the analysis of the semantic structure of the adjective *jasan* clearly indicates the role of the conceptual metaphors KNOWING IS SEEING and IDEAS ARE LIGHT in the metaphorical shift of the lexeme, a diachronic study of the structure of the morphosemantic field of the lexeme *jasan* is a more striking illustration of how the extension of conceptual structure influenced the morphosemantic organization of the vocabulary derived from the lexeme *jasan*. The diachronic analysis of the morphosemantic field of the lexeme *jasan* illustrates the importance of the concept of 'light' in the organization and formation of the vocabulary of Croatian. What is more, there is a very significant diachronic influence of conceptual metaphors KNOWING IS SEEING and IDEAS ARE LIGHT on the construction of particular lexemes. *Objasniti* and *pojasniti* reflect the metaphoric motivation appearing between the basic lexeme and its derived forms. These verbs are grammatically connected with the adjective *jasan* through the verb *jasniti* (which was comprehended through the domain of 'light'). Semantically/conceptually the link with *jasan/jasniti* is based on the metaphorical comprehension of mental activities through the concepts of 'light.' The field contains several other lexemes which are not connected with 'light,' but exclusively with the 'mental' domain. These include, for example, the verb *izjasniti* (*se*) which does not appear in older dictionaries, but which is linked to Old Slavic

*izjasniti* meaning “to interpret”, “to utter or express one’s thoughts”.<sup>34</sup> Its meaning is diachronically connected only with the ‘mental’ domain. Similarly, the noun *nejasnoća* can only refer to being ‘mentally imprecise’ or ‘ambiguous’. This is in contrast to the noun *jasnoća*, which can be related to the domain of ‘light’ as well as to the ‘mental’ domain.

In addition to being influenced by metaphor, the semantic structure of these lexemes also underwent specialization, as evident from the fact that none of the lexemes have a literal meaning connected with ‘light.’ *Razjasniti* is the only one which has been diachronically confirmed as having the primary sense of “making visible” (although there are only few examples), and has later extended towards the mental domain. Expressions in which the verb *razjasniti* refers to mental activities are diachronically better established and more stable.

A comparison of the lexemes *jasniti*, *jasnost*, *jasnovit*, *jasnina* with *objasniti*, *razjasniti*, *pojasniti*, *nejasnoća*<sup>35</sup> reveals that the former group appears earlier in dictionaries and literary texts, that it is connected only with ‘light,’ and that metaphorical shifts are visible only in individual examples in a single dictionary or a literary text. The latter group of lexemes is more recent, and only has a metaphorical meaning realized on the basis of the conceptual metaphors KNOWING IS SEEING and IDEAS ARE LIGHT.

The concept of ‘light’ plays an important role in the conceptualization of the extralinguistic reality in Croatian. From a diachronic point of view, conceptualizing human mental activities as light is evidently growing in importance. This is corroborated by, on the one hand, the increase in the frequency of metaphorical uses of the lexeme *jasan*, and, on the other, by the formation of more recent lexemes whose meaning is metaphorical in relation to the basic meaning of the lexeme *jasan*. From a diachronic point of view, conceptual metaphors KNOWING IS SEEING and IDEAS ARE LIGHT are becoming better established and more important, as evident from the lexeme *jasan* and its morphosemantic field, where the more recent usages of the adjective and more recent lexemes in the field are semantically structured only on the basis of metaphor.

This means that there is a stable and well-established conceptual link between the domains of ‘light’ and ‘mind’ in the cognitive system of the speakers of

<sup>34</sup> ARj states that the word is old, and that the very first recorded examples were used with a figurative meaning, which is confirmed in Russian. The figurative meaning of the verb is also recorded in Parčić’s dictionary.

<sup>35</sup> There are two exceptions: *izjasniti* which does not appear very often, but it does have an Old Slavic root, and *jasnoća* which is more recent, but has both a literal and a metaphorical meaning.



Croatian. Diachronically, it is also very productive, because it causes a continual grammatical and semantic construction of a part of the Croatian vocabulary.

## 6. Conclusion

We believe that the **morphosemantic field** model is suitable for the description of lexical structures of Croatian from the synchronic and the diachronic perspective. It can account for lexical and conceptual relations which remain unidentified in some other models. Although the model does have a small degree of theoretical and methodological ambiguity, primarily with relation to the definition of the basic lexeme (as an unmotivated word, a root or a stem; this may, if the need arises, be adapted to the analysis at hand), we believe that it points to some important characteristics of the lexical structure of grammatically-motivated languages such as Croatian:

- (i) morphosemantic fields foreground the connection between grammatical and cognitive processes in the formation of a vocabulary of a language: derivational patterns are coupled with cognitive processes to motivate the construction of a lexeme in a field;
- (ii) specifying a *basic lexeme* implies that there is a grammatical and conceptual center of the morphosemantic field, which means that some lexemes are grammatically and conceptually closer to the center, as in the relationship between *jasan* and *jasniti*, while some are grammatically and conceptually more remote from the center: *jasan – jasniti – objasniti* (*objasniti* has a metaphorical meaning as opposed to *jasniti* which is literal);
- (iii) the morphosemantic field model largely corresponds to the basic theoretical principles of cognitive linguistics: it emphasizes a firm connection between grammar and conceptual structures, it specifies a central lexeme which is the grammatical and conceptual core of the field, it reflects cognitive mechanisms which take part in the conceptual organization and reflects conceptual shifts and mappings realized through these cognitive processes;
- (iv) it can be applied in synchronic analysis to describe lexical structures of grammatically rich languages – Croatian and other Slavic languages; in addition to synonymy, this type of analysis emphasizes other types of lexical relations based on the connection and the interface between morphology and semantics;

- (v) **morphosemantic fields** play a special role in diachronic analysis because they reflect diachronically stable, well-established and productive conceptual links, which would not be evident from the application of some other types of lexico-semantic analyses. The diachronic analysis of the morphosemantic field of the lexeme *jasan* showed the extent to which conceptual metaphors KNOWING IS SEEING and IDEAS ARE LIGHT influence the grammatical and semantic construction of the vocabulary of Croatian.

The **morphosemantic field** model has many other grammatical and semantic aspects which we were unable to consider in this paper, and which require additional development. This primarily relates to applying the model in comparative (synchronic and diachronic) analyses of lexical structures of Slavic and other morphologically-rich languages, as well as giving detailed descriptions of different types of grammatical, semantic and conceptual relations (prepositions, suffixes, prefixes).

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## MORFOSEMANTIČKA POLJA U LEKSIKU HRVATSKOGA LEKSIKA

U članku se prikazuje model morfosemantičkih polja kao relevantan za opis leksičkih struktura hrvatskoga jezika i iz sinkronijske i iz dijakronijske perspektive. Posebno se ističe mogućnost integracije ovoga modela u teorijski okvir kognitivne lingvistike budući da se njime ističe sprega i međuovisnost gramatičkih i semantičkih struktura. U radu se upozorava na relevantnost morfosemantičkih polja s obzirom na izradu hrvatskoga WordNeta, ali i WordNeta ostalih slavenskih jezika. Ovim je modelom moguće računalno obilježiti leksičke odnose koji se ne temelje samo na sinonimiji, već ističu i derivacijske odnose kao bitne za

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opis leksika hrvatskoga i ostalih slavenskih jezika. Posebnu se pozornost modelu morfo-semantičkih polja pridaje u dijakronijskom opisu leksičkih struktura. Na primjeru morfo-semantičkoga polja leksema *jasan* upućuje se na konceptualne metafore ZNATI JE VIDJETI, IDEJE SU SVJETLOST koje su u hrvatskome veoma produktivne jer je mnogo novih leksema derivacijski povezanih s leksemom *jasan* značenjski isključivo vezano uz domenu znanja ili razumijevanja. To pokazuje utjecaj te dijakronijske utemeljenost i stabilnost tih dviju konceptualnih metafora u konstruiranju jednog dijela hrvatskoga leksika.

**Ključne riječi:** morfosemantička polja; morfosemantičke sveze; konceptualne metafore; gramatički procesi; WordNet; dijakronijska semantika; kognitivna lingvistika; hrvatski jezik.