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# Jealousy vs Envy: European Cultural Background and Croatian Linguistic Examples

Mirko Sardelić<sup>1,2</sup>, Benedikt Perak<sup>3</sup>

<sup>1</sup>Croatian Academy of Sciences and Arts, Department of Historical Research, Zagreb, Croatia

<sup>2</sup>University of Western Australia, ARC Centre of Excellence for the History of Emotions, Perth, Australia

<sup>3</sup>Faculty of Humanities and Social Sciences, Cultural Complexity Lab, University of Rijeka, Rijeka, Croatia

## ABSTRACT

*Speakers of many languages tend to use pairs of words such as emotion/feeling or jealousy/envy interchangeably. This paper explores the differences in the way in which the emotional states of jealousy and envy are understood (in the Croatian language ljubomora and zavist) and the influence of culture on the expression of these states. First, we establish the cultural framework that significantly shapes the experience and expression of emotional states, and summarize cognitive aspects of the two emotions. Second, we demonstrate that Croatian 19th- and 20th- century belles lettres differentiate between the two in the way it is described in sciences. Third, a psycholinguistic questionnaire was used to investigate features of the conceptual content from 209 high school students. Finally, the results were compared with the empirical corpus analysis of the linguistic constructions of emotional categories. Complementary methods used in this research show indications of an ongoing semasiological change of ljubomora and zavist in a significant part of Croatian speakers.*

**Key words:** *jealousy, envy, cultural regulation of emotions, language corpora, semantic networks*

## Introduction

This paper explores the differences in comprehension of JEALOUSY and ENVY in the Croatian language, and the influence of culture on the expression of these emotional states. According to the theory of embodied cognition, knowledge of subjective emotional categories is acquired through the processes of social interaction and learning<sup>1</sup>. The expression of one's own and interpretation of other people's affective states is a culturally conditioned pattern that requires the cognitive processing of a number of categories of emotions, their causes, behavioural and psychological effects, and knowledge of the appropriate language code.

The starting premise is that many present-day Croatian speakers do not sufficiently discriminate between the words *ljubomora* (*jealousy*) and *zavist* (*envy*), especially when associated with other emotions or emotion schemas. This is true for Croatian but also occurs in other languages, including English<sup>2</sup>. Some authors have maintained that the preference in the last two centuries for using the words for JEALOUSY to refer to ENVY is motivated by discomfort with ENVY's moral connotations<sup>3</sup>. The other premise of this paper is that differences in the comprehension of these categories are evident in linguistic conceptualization and constructions. The research seeks to establish a cultural

and a communicative contextualization of these lexemes, and to formalise their conceptual differences.

Prototypical JEALOUSY occurs when a person either fears losing or has already lost an important relationship with another person to a rival. On the other hand, ENVY occurs when a person lacks what another possesses and either desires it or wishes that the other did not have it<sup>4</sup>. While scholarly literature that deals with various aspects of JEALOUSY, such as cross-cultural variants, entanglements with self-esteem or equality between partners, is much more elaborate, ENVY has been neglected for decades and consequently there are more contested issues<sup>2</sup>.

This study aims to give a deeper understanding of the interrelation of these concepts. For instance, it shows that a significant number of speakers use the lexical concept JEALOUSY to refer to the experience of desiring an acquaintance's luxurious car or fancy clothes. However, according to the conventional definition, it is ENVY that they feel. One plausible explanation why this transfer is taking place is related to over a thousand years of European cultural heritage built upon both the Greco-Roman and Christian cultural imaginaries. Accordingly, the cultural influence from those two imaginaries will affect the experience and perception of many emotional states, including the two emotional concepts we discuss.

The purpose of the research is to describe and compare the lexical network of concepts and domains that enable the comprehension of the affective experience of the categories of ENVY and JEALOUSY by examining how Croatian secondary school students define *ljubomora* and *zavist*, and how are these concepts lexicalized in large Croatian corpus.

We start with a short review of the evolutionary and cognitive perspectives of these two emotional categories. Then we discuss the cultural and semasiological developments of these lexicalized concepts. Afterwards, we describe our methods and analyse the results of a questionnaire that provide the empirical insights into the conceptualization of the *ljubomora* and *zavist* within the sample of high school students. The fifth section complements the research with the results of a corpus analysis, based on the syntactic-semantic patterns that identify the most conventional construal of *ljubomora* and *zavist* in large Croatian corpora and compare it with *jealousy* and *envy* in large English corpora.

## Cognitive Perspective

To provide an initial conceptual distinction between JEALOUSY and ENVY, in this section we outline the cognitive perspective on the categorization of these emotions.

According to the cognitive appraisal theory, emotions arise when an individual attends to and evaluates (appraises) a situation as relevant to a particular type of currently active goal<sup>5</sup>. The goals may be enduring (such as staying alive) or transient (wanting a particular object). This appraisal is a component of a complex system of dynamic multidimensional processes consisting of several other components such as bodily changes, expressive behaviour, action tendencies, and feeling states that occur as a response to the specific events in the environment with the aim of quickly preparing the organism for optimal reaction<sup>6</sup>.

From this perspective, emotions are crucial for coping with different circumstances in life. They can direct attention to key features of the environment, optimise sensory intake, tune decision making, ready behavioural responses, facilitate social interactions, and enhance episodic memory. In short, they help us respond to all sorts of challenges. However, emotions can be perceived as harmful if they are misaligned, or overly intense in their mode of expression or duration; in particular, the excessive expression of hedonic negative emotions like hate, rage, and anger can lead to improper conduct and violent behaviour. Therefore, the proper patterns of emotional expression are established through sets of emotion regulation strategies incorporated into social interactions, cultural codes, and institutions<sup>7</sup>.

Jealousy and envy are not considered fundamental emotions in the literature of psychology and affective neuroscience<sup>8</sup>. Instead, both are often seen as complex or derived emotions shaped by social interaction and cultural models<sup>9</sup>. *Envy* and *jealousy* are two affective categories

similar in evolutionary function, biological predispositions, motivational framework of stimuli, physiological and behavioural reactions, and the extent of social, cultural, and cognitive processes involved in structuring these experiences. During the development of a child, socialization and acculturation foster repression of envy and jealousy. The individual learns that direct expression of these emotions endangers the self and others<sup>10</sup>.

Jealousy is an affective state caused by the actual or possible disruption of a valued relationship between two people resulting from the appearance of a third person<sup>11</sup>. It can be regarded as an evolutionary acquired reaction that protects the relationship that one cares about<sup>2</sup>. It can appear in different types of relationships: between siblings, friends, or colleagues, although most frequently it is reported as being related to romantic love. The trigger for jealousy is a real or imaginary 'third person' who is perceived as a threat to the relationship. Jealousy can be viewed from the perspective of the historical development of the concept<sup>12</sup> or by comparing the cross-cultural features of expressing jealousy in love-partnerships<sup>13</sup> and kinship relationships<sup>14</sup>.

Jealousy is not experienced as a single discrete psychological event but rather as a state contextually conjured up with emotions such as sadness (loss), anger (betrayal), fear/anxiety (loneliness), etc. Due to its complexity, this psychological state is hard to map neuroscientifically in a specific brain region<sup>15</sup>. Some cross-cultural research points out that jealousy is more prevalent among members of certain cultures that value private property, make marriage a condition of sexual relations, and consider marriage a prerequisite for a socially conditioned transition to adulthood<sup>16</sup>. Others believe that jealousy is innate regardless of the characteristics of a particular culture, as it is based on the biologically conditioned power of affective and sexual attraction<sup>17</sup>.

Envy, on the other hand, is an emotion that occurs when a person lacks another's superior quality, achievement, or possession and either desires it or wishes that the other lacked it<sup>18</sup>. The significance of envy for determining behaviour in individuals, relationships, groups, and even whole societies has been emphasized both by scholars in various fields and by thinkers and writers from the past. There is less agreement regarding the conceptualization of envy, with three main types of theories: 1) those that define it as purely hostile. Envy can be destructive to psychological processes and disruptive in social relations; 2) those that suggest it appears in two types: benign and malicious. They recognize a spectrum of desire and set of incentives to achieve the goal to acquire the coveted. Malicious envy would apply to a person who wants to bring down the better-off even at their own cost, while benign envy involves recognition of other's being better-off, but causes the person to aspire to be as good as the envied other<sup>19</sup>. In this sense, if recognized and intelligently managed, envy transforms and may spur admiration, emulation, aspiration, empathy, and developmental advantages<sup>20</sup>. 3) The third group of authors claim that envy is uniform and driven by pain<sup>21</sup>.

Envy and jealousy can be considered as psychosocial response patterns essential in two types of human conditions: possession of evolutionarily advantageous features required for survival or wellbeing of self (in jealousy) and a lack of it (in envy)<sup>22</sup>. In terms of agents of social interaction, envy requires two agents: experiencer of envy (1) and a possessor of coveted features (2), while jealousy needs at least three: experiencer of jealousy (1), the significant other (2), a person threatening the valuable relationship (3).<sup>23</sup>

## Cultural and Historical Development

As the previous section suggests, jealousy has a protective function, whether at the level of the individual, within couples, or even society. Nonetheless, the range of behavioural response can vary significantly in different historical periods even within the same culture, as well as between different cultures. In short, it is society that shapes the variations in experience and expression of jealousy mostly based on its definition of what a romantic relationship is, especially what marriage is, and accordingly what possible threats to these relations might be and how one should protect that important bond<sup>2</sup>. Naturally, one must always consider individual varieties related to upbringing, experience, habits, or traumas. Overall, it can be stated that jealousy is universal in all societies, but the range of its appearances is certainly wide.

According to such variations, different cultures in history have had different ways of sanctioning adultery. Gender inequality was omnipresent, as there were many examples of double standards throughout history in which women suffered a much serious penalty for the same crime. At the US courts of law in the 19<sup>th</sup> century men could, in some instances, be acquitted of murder with the defence that they were “enslaved” or “obsessed” by jealousy. One defence reads that it was the “deep, ineffaceable consuming fire of jealousy” that should have been blamed, not the perpetrator himself. Intriguingly, an effort to acquit a woman who had killed her husband’s lover failed before a court which insisted that women could not possibly be stirred by such a deep and righteous form of jealousy<sup>12</sup>. On the other hand, through examples of 17<sup>th</sup> century French court records Natalie Davis has shown that men rarely used jealousy as the reason for the disruptive act, claiming that “righteous anger” was their motivation. Women regularly reported they were spurred by jealousy when attacking or insulting other women or their own husbands. These examples show that the historical period, cultural norms, gender, and social class, among other factors, need to be considered when studying the expression, and perception of such emotions, including their legal context (another cultural construct).

After being suppressed for centuries in Western societies, at the beginning of the twentieth century, however, envy about material possessions gained new legitimacy, as historian Susan Matt has shown. Long criticized as revealing a distorted sense of values, and as contradicting Christian priorities and virtues, consumer envy began to

be praised by the 1920s as a legitimate spur to acquisitions and material improvements. Her book focuses on the years between 1890 and 1930 because it was during that period, Matt argues, “the modern understanding of envy emerged”<sup>24</sup>. In the beginning of the 21<sup>st</sup> century, the rise of online social networks gave rise to new and inflated dimensions to social comparisons and the experience and expression of envy.

## Language(s) and etymology

The intersubjective linguistic communication of emotions involves activation of the comparable embodied affective states via cognitive processes of conceptualization that can be coded in symbolic constructions – language<sup>25</sup>. Prominent emotional states are categorized with a specific lexeme that stores the conceptual content. Definitions of jealousy and envy can be found in various textbooks, glossaries, and dictionaries. These dictionaries store a prototypical understanding of the concepts. For example, the Croatian language portal (<http://hjp.znanje.hr/>) defines *ljubomora* (jealousy) as “a feeling of mental pain of one who doubts the person from whom he seeks fidelity, but also as a sense of rivalry in relation to others, at work, in search of success, benefit, etc. (jealousy at work)”.

On the other hand, *zavist* (envy) as a noun is just referenced as “a feeling and a state of the one who is envious”. Meanwhile the adjective *zavidan* (envious) is defined negatively as applying to “one who finds it difficult to bear another’s success, who finds it difficult to come to terms with another’s good or better position in society and other achievement of goals”. However, the second meaning in the entry has an admirable characterization, as an attribute of something “which stands out, quantitatively substantial”.

The word for jealousy, *ljubomor(a)*, in Croatian was formed by merging the root for love (*ljubav*) with the word that means killing or torturing (*moriti*). The two combined signify an emotional state in which someone is being troubled (tortured) by something related to love.

In Slovenian, however, the same word is expressed as *ljubosumje*, an amalgam of the root for love, and the word for suspicion (*sumja*). This variant is fully in accord with a concise and clever explanation of the ‘nutritive’ role that suspicion has in feeding jealousy, as given by Rochefoucauld in the 17<sup>th</sup> century: “La jalousie se nourrit dans les doutes, et elle devient fureur, ou elle finit, sitôt qu’on passe du doute à la certitude”<sup>26</sup>. The connection of jealousy with some sort of ‘special suspicion’ can be found in Shakespeare’s *Merry Wives of Windsor* (III,3): “I think my husband hath some special suspicion of Falstaff’s being here; for I never saw him so gross in his jealousy till now.” The inextricable presence of suspicion, at least as far as English language is concerned, is confirmed by Johnson’s Dictionary (1755) which provides three entries for the word jealousy: 1. suspicion in love; 2. suspicious fear; 3. Suspicious caution, vigilance, or rivalry.

The Croatian word *žar* signifies both hot pieces of coal in an advanced phase of combustion, and (metaphorically)



passion, ardour, even vehemence<sup>27</sup>. More familiar (tangible) concepts of HOT and COLD often, through a process called the cross-domain mapping, found their way to the domain of emotions in Slavic languages. This root, *žar*, can be found in both Czech and Slovak words for jealousy, *žárli-vost* and *žiarlivost* respectively. All Slavic languages have the same root for the word for envy, while there are variants for naming jealousy across this group of languages.

Some testimonies to the definitions given by psychological and sociological science are found in syntagms in Croatian. An adverb (prilog) keeps the reference to the protecting nature of jealousy, that is, it is only possible to guard (or protect) something or someone jealously, never enviously (*ljubomorno čuvati*; this is a usual syntagm in other languages as well, e.g., in English *jealously guarded* or French *jalousement gardée*). Examples of this adverbial construction are found in works by prominent Croatian writers such as Janko Leskovar (*Sjene ljubavi*), Miroslav Krleža (*Povratak Filipa Latinovicza* and *Eppur si muove*), Slavko Kolar (*Ili jesmo – ili nismo*), Milan Begović (*Giga Barićeva*), Antun Bonifačić (*Mladice*) and others. On the other hand, according to Croatian literary works, one can *zavidno* (enviously): *gledati* (watch), *pogledavati* (peep), *govoriti* (speak), *pomišljati* (think), and *primjećivati* (notice).

There is a particular form of envy in Croatian language and culture: *jal* – interpreted by HJP as “*zavist, zloba, himbenost*” (envy, malice, duplicity). Its etymology is arguably derived from Proto-Slavic: \* (j)alъ (Old Ch. Sl. alъ: ‘misery’). It has almost disappeared from everyday use in Croatian except for one particularly trendy syntagm: *hrvatski jal* (‘Croatian grudge’). The syntagm is listed in HJP as: “*hrvatski jal* (razg.) – oblik zlobe i zavisti (na tuđi uspjeh i sl.) koji Hrvati ubrajaju u svoje slabosti” (‘a form of malevolence and envy (towards other people’s success and similar) that Croatians see as their weakness’). It was more widely used in the beginning of the 20<sup>th</sup> century, and again in the beginning of the 21<sup>st</sup> century. The term comes with a moral: Croatians rarely succeed in achieving major things as a nation due to their ‘national’ defect; they resent the prosperity of their own people more than anything. In words of the renowned national historian Vjekoslav Klaić (1917)\*:

“Dvije su teške rane, s kojih hrvatski narod stoljećima krvari. Jedna je rana hrvatska zavist ili ‘hrvatski jal’, a druga je rana slavenska nesloga. Hrvatska je zavist daleko na zlu glasu, te nam se svijet zbog nje već i podrugiva. (...)” (‘There are two grave wounds that have made the Croatian people bleed for centuries. One is Croatian envy or ‘Croatian grudge’, while the other wound is Slavic discord. The Croatian grudge is widely known, and the whole world mocks us for it.’)

### Literary interpretations in European culture

Although European literary culture inherits much from ancient Greek traditions, it is not always straightfor-

ward to understand elements of the expression of some emotions in the Greek world<sup>28</sup>. Aristotle distinguishes between two related, but in one important respect contrasting, emotions: *phthonos* and *zēlos* (the latter being the ancestor of the word *jealousy*). They are both defined as pains at the sight of other people’s good fortunes, and both are felt toward people of similar status. But in *phthonos*, one feels this pain “not with the idea of getting something for ourselves, but because other people have it,” whereas in *zēlos* the pain “is felt not because others have these goods, but because we have not got them ourselves” (*Rhetoric*, 1387b24-25, 1388a34). *Phthonos* was considered morally blameworthy and tabooed, whereas *zēlos* was considered morally praiseworthy<sup>29</sup>.

Drawing much from the philosophers of previous eras, a refined comment on avoiding envy was given by a Greek Platonist, the Roman citizen Plutarch. In Book VII of *Moralia*, in the chapter *De invidia et odio* he gave a remark on envy as a phenomenon no one dares to talk about: “But men deny that they envy as well; and if you show that they do, they allege any number of excuses and say they are angry with the fellow or hate him, cloaking and concealing their envy with whatever other name occurs to them for their passion, implying that among the disorders of the soul it is alone unmentionable.”

In the Bible, as early as the Book of Wisdom (2,24) one reads that it is the “Devil’s envy that brought death”. The New Testament (James 3,16) is even more elaborate: “For where you have envy and selfish ambition, there you find disorder and every evil practice”. Church Fathers and two of the Great Doctors of the Church, St Augustine and St Gregory the Great stigmatized envy. “From envy there spring hatred, whispering, detraction, exultation at the misfortunes of a neighbour, and affliction at his prosperity. (88) Envy also generates anger; because the more the mind is pierced by the inward wound of envy, the more also is the gentleness of tranquillity lost (89)”<sup>30</sup>.

In the late Middle Ages, this “disorder of the soul” was additionally stigmatized: Thomas Aquinas (13<sup>th</sup> ct.), *Doctor Angelicus* of the Catholic Church, discussed envy as a mortal sin. The literary reflection of such qualifications of envy can be read a century later: in *Cantica II* of the *Divine Comedy* Dante dedicated a special place in Purgatory for the envious. In short, Christianity made envy a taboo, protecting its members from the array of disruptive aspects it can bring. Envy became a stigmatized, suppressed, and hypocognized emotion long time ago.

On the other hand, jealousy, never stigmatized in the first place, even gained some popularity via romantic poetry in the 12<sup>th</sup> and the 13<sup>th</sup> centuries. A contemporary French courtly love writer argued that “He who is not jealous cannot love (...) Real jealousy always increases the feelings of love (...) Jealousy, and therefore love, are increased when one suspects his beloved”<sup>12</sup>. Jealousy in medieval European literature was not exclusively related to male agents; arguably the most famous trobairitz, Com-

\* V. Klaić: “Deset zapovijedi majke Hrvatske” (‘The Ten Commandments of Mother Croatia’) published in the Croatian journal *Hrvatska njiva* in 1917.

tessa de Dia, addresses it with same ardour<sup>31</sup>. By present-day standards, jealousy, especially if moderate, will be considered more as a sign of excessive affection rather than annoying possessivity.

## Methods

Methodologically we combine two types of analyses: 1) how Croatian secondary school students define *ljubomora* and *zavist*, and 2) how are these concepts lexicalized in large Croatian corpus.

A psycholinguistic questionnaire was used to yield a working definition of the conceptual content of these two respective terms as used by the members of the population whom we considered to be the youngest language-users who were sufficiently proficient to articulate answers to our questions. Corpus-based methods have been used to identify and analyse the linguistic constructions of *ljubomora* and *zavist*. Word frequency measures and syntactic-dependency graph analyses were used to yield empirical insights into the structure of the conceptualization and constituents of the semantic matrix. By combining the questionnaire and corpus analysis, we attempt to create a synthetic framework for further discussions about the semasiological changes of the *ljubomora* and *zavist* in the Croatian linguistic community, as well as to initiate empirical intra-/cross-cultural comparison of the conceptualization.

### The questionnaire

For more than five years we have occasionally given a simple questionnaire at scholarly conferences, and lectures given to students: “What are emotions?” The instruction was to keep the answer simple and concise, as if explained to someone who has never heard of emotions before. We collected hundreds of answers, and no two answers have ever been the same! This makes sense if we consider the fact that there are more than a hundred working definitions of emotion, grouped within three broader sets<sup>32</sup>. Nonetheless, over the last several months we have become interested in exploring the cultural and linguistic differences between jealousy and envy. As the two are commonly used interchangeably, we wanted to know how high school students define (verbalize) either emotion.

### Subjects and procedure

The subjects were 209 high school students from three different schools (two grammar schools and one vocational school). The sample included 157 females and 52 males, all aged 15–18. As far as procedure is concerned, the questionnaire consisted of just two questions: 1) “How would you describe jealousy to someone who has never heard of it – e.g., your eight-year-old nephew?”; and 2) “How would you, in the same way, describe envy?” To avoid suggestions, we did not ask “What is the difference between jealousy and envy?” Also, only when the students had answered the first question, did they receive the second one.

The mean answering time for one question was 3–5 minutes, close to 10 minutes in total for both.

One of the authors was always present in the classroom while the students were writing their answers. After they had completed the first answer and received the second question, many were somewhat disappointed grumbling that they had already given (much of) the answer in the first question. After they had completed the questionnaire, they were all very eager to hear how science defines those emotions. Again, more than a few always asked if they could comment on what they had just heard, and said: “Fine, the definition sounds reasonable, however, I feel that (envy/jealousy) is more like...” This can be summed up by one of the students’ answers: “*Mislim da taj osjećaj nije moguće točno definirati jer ga svatko doživljava na različit način.*” (“I believe that this feeling is not possible to define precisely because everyone experiences it in a different way”). Until they fully comprehend and adopt the meaning of a word – and sometimes even then – speakers are prone to attribute meanings to it that are more in accord with their experience or system of values.

## Results

To the first question, “What is jealousy?”, 151 out of 209 students (72%) stated that it has to do with an emotion/feeling when one is driven by desire for something that does not belong to them, or feels something negative towards other people’s comparative advantages. By doing so, 44 (21%) explicitly used the wording “envy” or “being envious” (Ex. 1)

Ex. 1) “*Ljubomora je kada zavidimo nekome na nekom dobrom događaju, stvari, ocjeni... Najčešće smo ljuti na tu osobu zbog toga i najradije ne bih htjeli da im se to dobro dogodilo, već nama.*” (“Jealousy is when we are envious of someone for something that has happened to them, thing, grade... Most often we are angry at that person for that and we wish that this good thing had happened to us, not to them”).

There were only 33 students (16%) who verbalized the notion *jealousy* very closely to the way the emotion is defined in the scholarship, i.e., as a perceived threat to an existing relationship (Ex. 2). Appropriately for their age, they mostly considered a romantic type of relationship, with the great majority using wording such as: relationship (girlfriend / boyfriend), a partner (16); but also: someone we love (10), care for (4), someone close / important to us (2). One specifically mentioned that a sibling can be someone stealing attention otherwise focused on us, while two referred to a fear of losing either a partner or a friend to someone. One mentioned that, apart from a partner, one might feel a threat of losing time and attention – i.e., something otherwise given to them by a significant other.

Ex. 2) “*Ljubomora je osjećaj koji možemo osjećati kada smo zaljubljeni u nekoga i želimo tu osobu samo za sebe i smeta nam kad ta osoba posvećuje previše pažnje drugima, kao što nam smeta i da netko posvećuje toj osobi previše pažnje u ljubavnom smislu.*” (“Jealousy is a feeling

that we may experience when we are in love with someone and we want them only for ourselves, and we dislike it when that person pays too much attention to others, and also we are bothered if someone else dedicates too much attention to that person in a romantic sense”).

Almost one third, or 67 students (32%) stated the two emotions are similar or related in some way, with a short elaboration either of what is the difference between them, or of something distinct to either of the two (Ex. 3). Ten students (5%) simply stated the two are similar, explaining envy as being closely related to jealousy. Fifteen students (7%) stated envy is “the same thing” or “the synonym” for jealousy. Ten students (5%) stated that they did not know what envy is, while three (1.5 %) said the same for jealousy.

Ex. 3) “Zavist je ‘poremećaj’ srodan ljubomori. Zavisni (sic!) ljudi uvijek pate za nečim nedostižnim. Zavisni ljudi često se bore s mislima u svojoj glavi koje ih izjedaju.” (“Envy is a ‘disorder’ similar to jealousy. Envious people always suffer for something that is unattainable. Envious people often struggle with the thoughts in their heads that consume them.”)

In line with the componential theory of emotion, we expected to find some relationship between the target culturally complex emotions and those emotions that are evolutionarily more basic. Affective states related to jealousy were the following: anger (18), fear (4), sadness (3), hate (3), rage (1). Affective states related to envy were hate (12), anger (3), rage (1). In fact, all 15 mentions of hatred could be attributed to the association with envy, because even those three students who associated it with jealousy, showed in their description that they had confused it with envy. There were three students who connected jealousy with evil, and another four connected envy with evil. Five

students qualified envy as bad, and two the same for jealousy. The notion of negativity (18) was connected both to jealousy and envy (17).

Although the students were not in any way encouraged to give either evaluative remarks or comparisons, 51 (24%) of them considered envy as more negative or worse than jealousy. Of that number, 28 explicitly put it in wording: “it is worse than” or “more negative than”, while other 23 gave a hint (through the association with something negative – ‘bad’, ‘hatred’, or ‘sin’) that they considered it as such. Four of them thought envy is “a milder” or a “more positive” variant of jealousy.

There were 11 students who thought of envy as a sin (5 of whom explicitly stated: a mortal sin); while three people wrote that jealousy is a sin, one of whom added: “if excessive”. Three students associated envy with respect (1) or admiration (2) for the person we envy. According to 9 students, when someone is displeased or unhappy with their own life, they consequently experience envy (3) or jealousy (6), or both (1); also, it is a result of low self-esteem to feel envy (1) or jealousy (1).

More than a few students (18 or 9%) mentioned the intensity of the emotion and ability to control it as the key to assessing the value or influence of that emotion to social relations. Their wording varied: “in excessive form”, “not normal when too strong”, “good when properly measured”, “bad if not controlled”.

Ex. 4) “Ljubomora je negativan osjećaj. Ljudi ponekad je ne mogu kontrolirati i onda preraste u skandalozne situacije.” (“Jealousy is a negative feeling. Sometimes people cannot control it, which leads to scandalous situations.”)

Table 1 shows the frequency of nouns in students’ definition of the two lexemes. The results can be summarized

**TABLE 1**  
FREQUENCY OF THE NOUNS OCCURRING IN STUDENTS’ DEFINITION OF LJUBOMORA (JEALOUSY) AND ZAVIST (ENVY)

Lexeme hr	Lexeme en	Frequency	Lexeme hr	Lexeme en	Frequency
<i>Ljubomora</i>	jealousy	249	<i>Zavist</i>	envy	221
<i>Osoba</i>	person	191	<i>Ljubomora</i>	jealousy	147
<i>Osjećaj</i>	feeling	92	<i>Osoba</i>	person	85
<i>Čovjek</i>	man	45	<i>Osjećaj</i>	feeling	54
<i>Stvar</i>	thing	32	<i>Stvar</i>	thing	32
<i>Uspjeh</i>	success	19	<i>Čovjek</i>	man	22
<i>Zavist</i>	envy	16	<i>Grieh</i>	sin	11
<i>Emocija</i>	emotion	15	<i>Želja</i>	desire	10
<i>Način</i>	way	14	<i>Mržnja</i>	hatred	9
<i>Život</i>	life	14	<i>Osobina</i>	feature	9
<i>Momak</i>	boyfriend	12	<i>Život</i>	life	8
<i>Ljutnja</i>	anger	10	<i>Mišljenje</i>	opinion	7
<i>Partner</i>	partner	9	<i>Emocija</i>	emotion	7
<i>Odnos</i>	relationship	8	<i>Patike</i>	sneakers	6
<i>Želja</i>	desire	8	<i>Uspjeh</i>	success	5

as follows: 1) When asked to define the lexeme *ljubomora* (*jealousy*), 72% of 209 students tend to describe the concept by using the features usually assigned to the concept ENVY; 2) 32% of students stated that lexemes *ljubomora* and *jealousy* are conceptually similar, while 7% stated that two lexemes are synonymous; 3) Some students suggest that *ljubomora* is related to the concepts ANGER, FEAR, SADNESS, while *zavist* is related to HATE, ANGER, RAGE; 4) Some students (5%) define *zavist* in relation with the concepts of (MORTAL) SIN, but sometimes even with and RESPECT and ADMIRATION (1.5%); 5) The objects of ENVY vary from material to non-material. Among the most frequent specifically named are success (7%), clothes (7%), physical appearance (5%), money (3%), mobile phone (2%); 6) Although the students were not in any way encouraged to give either evaluative remarks or comparisons, 51 (24%) of them considered envy as more negative or worse than jealousy.

In the following section we present the results of the large corpus analysis.

### Syntactic-Semantic Tagged Corpus Based Graph Analysis

Interdisciplinary analysis of the linguistic communication of affective states covers a wide area of research that has gained momentum with the development of empirical methods of text collection, creation of morphosyntactically marked and electronically searchable corpora<sup>33</sup>. The digital corpus enables computer data processing, data enrichment and aggregation, thus transforming linguistic data into knowledge bases and a resource for recognizing social dynamics and representations of cultural values<sup>34</sup>. The standard corpus research can reveal lexical, syntactic and communication patterns that represent conventionalized cognitive patterns in a language community.

This means that a particular lexicalized category or a concept can be analysed in the context of a social interaction. Each corpus displays specific results about a word behaviour, including frequency and / or relationships with other words. Therefore, corpus-based research is conducive for cross-cultural and intracultural conceptual, linguistic, and social analysis of emotion expression in different types of communication phenomena.

The basic components of the linguistic expression of the affective states JEALOUSY and ENVY are the words and linguistic constructions involved.

“The entity designated by a symbolic unit (word) can... be thought of as a point of access to a network. The semantic value of a symbolic unit is given by the open-ended set of relations (...) in which this access node participates. Each of these relations is a cognitive routine, and because they share at least one component the activation of one routine facilitates (but does not always necessitate) the activation of another”<sup>35</sup>.

As a part of the EmoCNet project, the ConGraCNet application (available at [emocnet.uniri.hr/congracnet](http://emocnet.uniri.hr/congracnet)) was developed to represent the digital tagged corpora, data

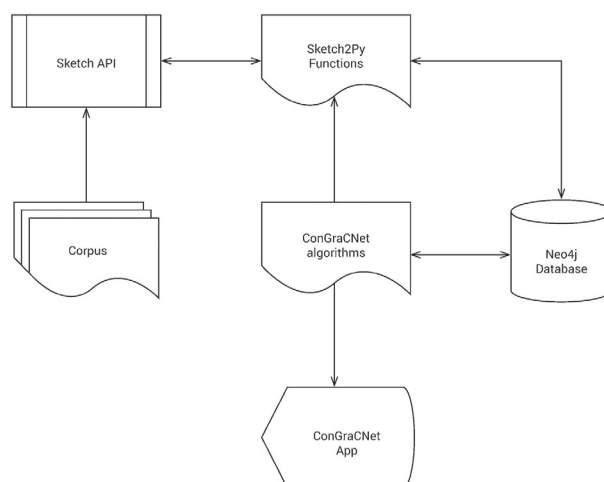


Fig. 1. Procedures for word processing and knowledge creation of the ConGraCNet application.

modelling, graph database storage, algorithmic processing, graph analysis, and visualization of semantic-syntactic structures. The ConGraCNet application pipeline collects data from Sketch Engine API and analyses the lexical networks as shown in Figure 1.

In this section we will explain how we used the large corpora for the analysis of the concepts JEALOUSY and ENVY in Croatian as well as in English.

#### Word count

Word frequency is a basic feature of the corpus analysis. The frequency measures how frequently speakers use a specific lexeme. It could be generalized that the more frequent lexemes are more socio-linguistically conventionalized, and even more cognitively salient.

Table 2 represents the frequency counts for JEALOUSY and ENVY in Croatian and English corpora. The English

**TABLE 2**  
FREQUENCY COUNTS FOR JEALOUSY AND ENVY IN CROATIAN AND ENGLISH CORPORA

Lexeme	ljubomora / jealousy	zavist / envy
hrWac frequency	14037	8026
hrWac relative frequency (perMillion)	10.042514	5.742054
EnTenTen2013 Frequency	82322	90338
EnTenTen2013 relative frequency (perMillion)	3.6219	3.9746
English JSI web corpus 2014–2019 Frequency	102762	133336
English JSI web corpus 2014–2019 relative frequency (perMillion)	1.8924	2.45546



corpora are included as a point of reference that could indicate some aspects of the cross-cultural differences. The translation equivalences have been set by the WordNet dictionary<sup>36</sup>.

The corpus results show that *ljubomora* (*jealousy*) is being used 1.7 times more frequently than *zavist* (*envy*) in Croatian hrWac. On the contrary, English EnTenTen2013 indicates slightly more frequent usage of *envy* over *jealousy*. Cross-culturally, this could mean that Croatian speakers conceptualize more frequently JEALOUSY than ENVY. On the other hand, this could indicate that the lexeme *ljubomora* in Croatian expresses somewhat more semantic features, or senses than *jealousy* in English. The salient usage could reflect transfer of conceptual content BEING ENVOIOUS to the lexical unit *ljubomora*. This semasiological shift could explain somewhat larger word frequency difference between *ljubomora* and *zavist* in Croatian in comparison to the *jealousy* and *envy* in English.

### Syntactic-Semantic Word Dependencies

Additionally, the corpus data can be used to identify conceptual relations between lexemes. Using specific syntactic dependencies, we can retrieve sets of lexical collocations along with their measure of correlation. Using the coordinated syntactic relations as an indication of semantic relatedness we can identify related words and concepts<sup>37–39</sup>.

Ex. 5) Razlog njihova pomahnitalog ponašanja je ljubomora i bijes zbog rastave koju nisu mogli izbjeći... (The reason for their crazy behaviour is jealousy and anger over the divorce they could not avoid...)

Using this logical connector feature in the natural language, we can identify the conceptually similar collocates. This syntactic-semantic procedure aims to identify the most prominent cooccurrences in the coordinated construction [lexeme<sub>1</sub> and|or|neither|nor lexeme<sub>2</sub>] to create

**TABLE 3**

LIST OF COLLOCATIONS IN COORDINATION WITH LJUBOMORA (JEALOUSY). RANKED ACCORDING TO THE LOGDICE MEASURE IN CROATIAN AND ENGLISH CORPORA

hrWac			enTenTen13			JSI web corpus 2014-2020		
Word	Frequency	logDice	Word	Frequency	logDice	Word	Frequency	logDice
zavist	448	11.4	envy	3057	10.6	envy	2992	11
posesivnost	186	10.8	possessiveness	514	8.76	resentment	1337	9.18
jal	83	9.46	hatred	1454	8.73	possessiveness	506	9.04
zloba	46	8.42	resentment	868	8.57	rivalry	889	8.7
bijes	56	7.81	anger	2420	8.35	greed	1021	8.3
osveta	34	7.69	rivalry	506	8.19	rage	792	8.3
ljutnja	40	7.61	insecurity	677	8.09	revenge	575	8.29
mržnja	94	7.58	greed	841	7.97	bitterness	504	8.27
nepovjerenje	24	7.37	suspicion	417	7.69	hatred	1573	8.17
pohlepa	26	7.27	rage	465	7.47	betrayal	587	8.05
nesigurnost	35	7.22	bitterness	341	7.43	insecurity	1152	7.95
sumnjičavost	14	7.17	hate	402	7.42	anger	2572	7.88

**TABLE 4**

LIST OF COLLOCATIONS IN COORDINATION WITH ZAVIST (ENVY). RANKED ACCORDING TO THE LOGDICE MEASURE IN CROATIAN AND ENGLISH CORPORA

hrWac			enTenTen13			JSI web corpus 2014-2020		
Word	Frequency	logDice	Word	Frequency	logDice	Word	Frequency	logDice
ljubomora	448	11.4	jealousy	3057	10.6	jealousy	2992	11
jal	140	10.4	malice	496	8.71	yee	551	9.58
zloba	133	10.2	greed	1175	8.6	resentment	1036	9.08
mržnja	218	8.85	hatred	1062	8.42	lust	622	8.96
oholost	29	8.02	resentment	553	8.15	greed	1136	8.64
pohlepa	36	7.89	lust	566	8.05	gluttony	232	8.54
zloća	21	7.72	strife	331	7.81	wrath	213	8.3
pakost	17	7.68	covetousness	200	7.76	admiration	616	8.28
divljenje	25	7.51	gluttony	201	7.72	malice	238	8.13
srdžba	13	7.12	admiration	377	7.72	hatred	1054	7.7
taština	16	7.1	spite	168	7.45	bitterness	219	7.46
netrpeljivost	15	6.89	hate	347	7.42	spite	94	7.24

a first-degree lexical weighted network. For example, the coordination construction [*ljubomora* and NOUN] or [*zavist* and NOUN] prototypically collocates ontologically related terms as shown in Tables 3 and 4.

The strongest collocation of JEALOUSY, for both languages and all three corpora, is ENVY and vice versa. This confirms that two lexemes have a similar conceptual matrix, i.e., similar meaning.

Furthermore, using the same syntactic principles, it is possible to construct a second-order network of a source lexeme, the so-called friend-of-friend (FoF) network, that shows the prominent structure of conceptually related lexemes, i.e., lexical classes. The syntactic-semantic network based on 15 collocations of the first and second degree each are represented for the lexemes *ljubomora*, *zavist* in hrWac corpus in the graph (Figures 2 and 3).

The second-degree semantic network of *ljubomora* (jealousy) (Figure 2) is clustered in 4 classes using the Leiden community detection algorithm. Associated members of a class 1 are: *ljubomora*, *zavist*, *jal*, *zloba*, *mržnja*, *pohlepa*, *pakost*, *oholost*, *zloća*, *taština*, *netrpeljivost*, *zavidnost*, *obijest*, *neprijateljstvo*, *grabež* (jealousy, envy, grudge, malice, hatred, greed, malice, pride, malice, vanity, intolerance, envy, delusion, enmity, rapine). By using a procedure that identifies the most prominent WordNet hypernyms of

this class, we can calculate the hypernyms for the class 1: *envy*, *condition*, *malice*. The sentiment valency for members of the class 1, calculated by using the WordNet Vader NLTK Python package<sup>40</sup>, is highly negative: negative: 0.733, neutral: 0.225, positive: 0.042, compound: -0.9898. Associated members of the class 2 are: *nepovjerenje*, *nesigurnost*, *sumnjičavost*, *nezadovoljstvo*, *nervoza*, *strah*, *sumnja*, *pesimizam*, *oprez*, *neizvjesnost* (mistrust, insecurity, suspicion, dissatisfaction, nervousness, fear, doubt, pessimism, caution, uncertainty). Most prominent Wordnet hypernyms for the class 2 are: *fear*, *attentiveness*, *displeasure*, while the valency is again negative: negative: 0.687, neutral: 0.233, positive: 0.08, compound: -0.9925. Associated members of the class 3 are: *bijes*, *osveta*, *ljutnja*, *srdžba*, *gorčina*, *frustracija*, *ogorčenje*, *tuga*, *gnjev* (anger, rage, bitterness, frustration, resentment, sadness, wrath), with Wordnet hypernyms: *sadness*, *retaliation*, *unhappiness*, *resentment* and negative Wordnet valency: negative: 0.814, neutral: 0.117, positive: 0.069, compound: -0.9945. Finally, associated members of the class 4 are: *posesivnost*, *sebičnost*, *egoizam* (possessiveness, selfishness, egoism), with Wordnet hypernyms: *selfishness*, *stinginess*, and a bit less negative Wordnet valency measures: negative: 0.73, neutral: 0.27, positive: 0.0, compound: -0.4019. These associative lexemes and lexical classes con-

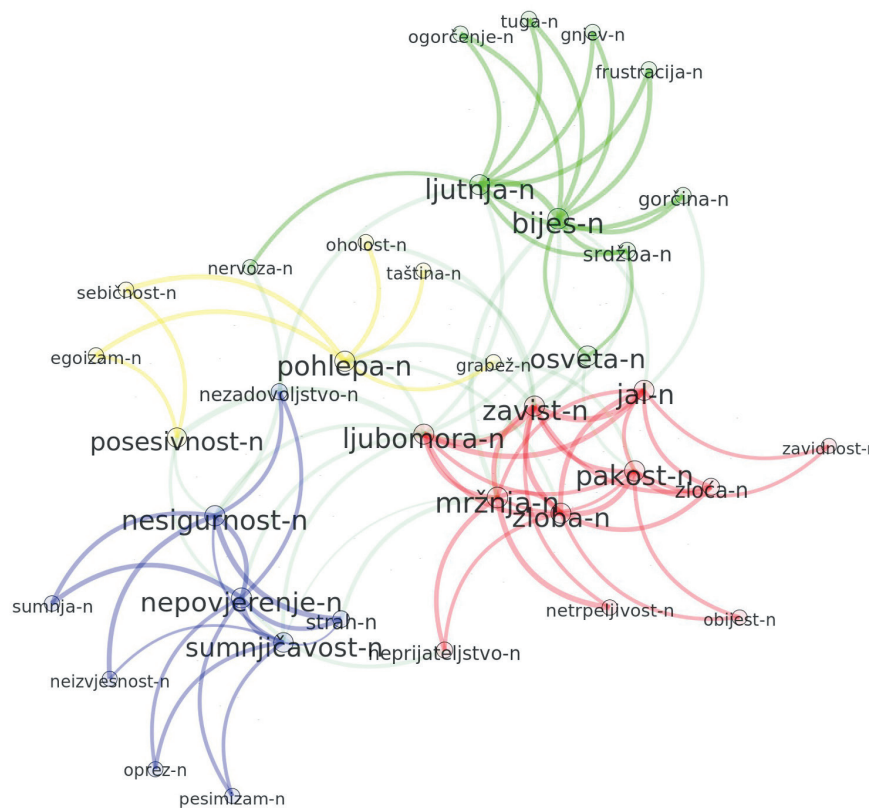


Fig. 2. Prototypical semantic network of noun lexemes for *ljubomora* (jealousy) in a network of 15 most prominent first-degree collocations (friend) in a coordinated construction plus 15 most prominent second-degree collocations (friend-of-friend). The weight measure is the LogDice score (logarithmic ratio of the frequency of co-appearing nodes and the frequency of their co-occurrence). Pruning is performed by filtering the nodes that have less than 2 relations, clustering method is Leiden, and the partition type mvp with standard resolution.

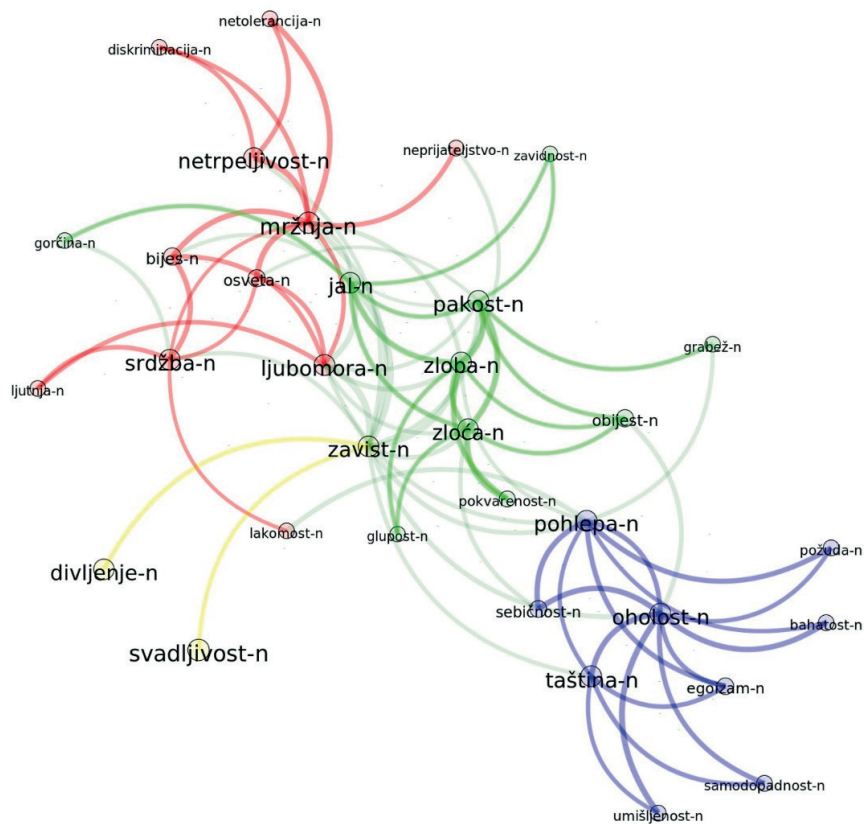


Fig. 3. Prototypical semantic network of *zavist* (envy) constructed with 15 most prominent first-degree collocations (friend) in a coordinated construction and 15 most prominent second-degree collocations (friend-of-friend). The weight measure is the LogDice score (logarithmic ratio of the frequency of co-appearing nodes and the frequency of their co-occurrence). Pruning is performed by filtering the nodes that have less than 2 relations, clustering method is Leiden, and the partition type *mup* with standard resolution.

strue the prototypical senses of the *ljubomora* (jealousy) concept in the Croatian hrWac corpus.

The second-degree semantic network of *zavist* (envy) (Figure 3) has 33 lexemes clustered in 4 lexical classes. Associated members of the class 1 are: *ljubomora*, *mržnja*, *srdžba*, *netrpeljivost*, *bijes*, *osveta*, *ljutnja*, *neprijateljstvo*, *netolerancija*, *diskriminacija*, *lakomost* (jealousy, hatred, anger, intolerance, rage, revenge, anger, hostility, intolerance, discrimination, greed). Wordnet hypernym for this class is labeled: *retaliation*, *jealousy* with valency for synsets of class 1: negative: 0.714, neutral: 0.25, positive: 0.036, compound: -0.9831. The associated class 2 is: *jal*, *zloba*, *zloća*, *pakost*, *gorčina*, *zavidnost*, *pokvarenost*, *glupost*, *obijest*, *grabež* (grudge, malevolence, malice, malice, bitterness, envy, corruption, stupidity, delusion, rapine), labelled as *envy*, *mortal sin* and mostly negative Wordnet valency negative: 0.75, neutral: 0.25, positive: 0.0, compound: -0.9849. The class 3: *oholost*, *pohlepa*, *taština*, *umišljenost*, *sebičnost*, *bahatost*, *samodopadnost*, *egoizam*, *požuda* is labelled as *ego*, *pride* with somewhat positive compound valency of the class 3: negative: 0.328, neutral: 0.269, positive: 0.403, compound: 0.1027. Finally, the class 4 contains words: *zavist*, *divljenje*, *svadljivost* with predicted hypernym: *envy*, *mortal sin* and a negative

compound valency: negative: 0.598, neutral: 0.056, positive: 0.346, compound: -0.5423.

The corpus analysis has revealed the frequency and the structure of the conceptually related lexemes for the *ljubomora* and *zavist*, and we can summarize the results as follows: 1) The word frequency indicates more frequent usage of the *ljubomora* than *zavist* in hrWac corpus; 2) Coordination dependency shows mutual relatedness and conceptual similarity of the two source lexemes *ljubomora* and *zavist*; 3) The structural difference of the lexical classes using the EmocNet graph dependency methodology indicates that *ljubomora* relates to word classes labelled with WordNet hypernyms: A) *envy*, *condition*, *malice*; B) *fear*, *attentiveness*, *displeasure*; C) *sadness*, *retaliation*, *unhappiness*, *resentment*; D) *selfishness*, *stinginess*. On the other hand, *zavist* relates to word classes labelled with WordNet hypernyms: A) *retaliation*, *jealousy*; B) *envy*, *mortal sin*.

### Discussion and Conclusions

While 19<sup>th</sup>- and 20<sup>th</sup>-century Croatian literature clearly distinguishes JEALOUSY as a protective element guarding an existing relationship, and ENVY as a desire of other people’s objects or characteristics, the same cannot be said

for the views of Croatian high school students. The results of the questionnaire show that 72% of the participants had trouble discerning distinctive features of JEALOUSY and ENVY. They often used the terms interchangeably: “Jealousy is when we envy someone for their success”; and vice-versa: “Envy is when one is jealous on someone’s way of life (...)”. However, we observed an interesting conceptual transfer occurring between two lexemes. When asked about *ljubomora*, the participants wrote about “desire for something that belongs to another”. We argue this is a culturally induced process.

For centuries, Christian Europe has held ENVY as an exclusively damaging and sinful emotion. Even more, it was labelled as a mortal sin. Mortal sin is a specific cultural concept that relates to the category ENVY and tends to give a highly negative hedonic valency, even moral implications, to the concept ENVY. We speculate that teenagers have a hard time relating their own (often moderate) desires to the culturally burdened emotion ENVY and the interconnected concept of MORTAL SIN. Indeed, who wants to be associated with mortal sin when desiring a new pair of shoes? The corpus findings corroborate the results of the Questionnaire that *zavist* tends to be associated with negative cultural values, or what has been defined as malicious envy. Only exceptionally, which is shown both in corpora and the Questionnaire, envy relates to a typically positive emotional state *divljenje* (admiration).

The dominant cultural interpretation of envy as an exclusively damaging and sinful emotion could be one of the reasons for this reduction of usage of the lexeme *zavist* (envy). The other reason may be that teenagers in Croatia are heavily exposed to Anglo-Saxon pop culture that also blurs the distinction between *jealousy* and *envy* and where the phrase “I am so jealous of ...” often stands for situations when one is in fact envious to someone’s luxury items, dream vacations, or lifestyle (Ex. 6). Further research initiatives might wish to investigate which is the more predominant reason, or if and how are the two correlated.

Ex. 6 “As a medical researcher, I am jealous of people in IT, who just have to pay for a few computers and staff.” (EnTenTen15 corpus)

The Questionnaire has also revealed an unforeseen important conceptual differentiation: between benign and malicious envy. Namely, many participants transfer the aspects of benign envy onto the lexeme *ljubomora*, using the constructions such as: “without wishing harm”, or “without others being deprived”, or “not necessarily negative”. On the other hand, they reserve its malicious aspect to the lexeme *zavist* with constructions such as: “we wish harm to”, “we hate”, “we want to humiliate” the POSSESSOR. Evolutionary psychology considers ENVY as an emotion that motivates agents to acquire enough resources, advantages and strategies so that they can survive in the environment, and a few students understood that in a way in which they connected envy with a sense of admiration or respect for someone who was better off, which is consistent with the corpus analysis. This, in our opinion, suggests that some participants conceptualize envy as a two-faceted emotion. Also, a significant number of them noticed

that the intensity and duration of both emotions can exceed “normal” values resulting in negative implications both to the subjects and their relationship with others.

The participants associate jealousy and envy with other emotions and emotional states. Jealousy is most often associated with fear, suspicion, insecurity, anger, and sadness, while envy is most often associated with hate, and anger. These conceptual associations are in line with the findings made by cognitive sciences, and literary and corpus analyses.

The corpus approach revealed the more frequent usage of the *ljubomora* than *zavist* in hrWac corpus, mutual relatedness and conceptual similarity of the two source lexemes *ljubomora* and *zavist*, the structural difference of the lexical classes involving their interconnected clustered lexical classes in coordinated construction as well as the predicted hypernyms for the clustered classes. The word frequency of *ljubomora* and *zavist* in Croatian corpus corroborate the assumptions of the ongoing redistribution of conceptual content. The lexeme *zavist* has a lower frequency, perhaps at the dispense of an increasing frequency and transfer of sense features to the lexeme *ljubomora*.

The dependency-based graph analysis has demonstrated relatedness of the concepts JEALOUSY and ENVY. However, it also revealed the distinct configurations of their conceptual networks. In Croatian, *ljubomora* (Figure 2) is closely related to a cluster of negative aggressive emotional states such as *mržnja* (hate), *srdžba*, *ljutnja*, *bijes* (anger, rage), *osveta* (revenge); as well as to a cluster of psychological states related to uncertainty and distrust such as *strah* (fear), *sumnjičavost* (suspicion), *nepovjerenje* (mistrust), *oprez* (caution). On the other hand, *zavist* (Figure 3) displays relation to psychological concepts and states that are characterized by excessive desire to acquire or possess more than one needs such as *pohlepa* (avarice), *oholost* (hubris), and *obijest* (greed, wantonness). It is interesting to note that *zloća*, *zloba* and *pakost* (malice, malevolence) are connecting nodes for both jealousy and envy. In terms of the hedonic valence, both are categorized as negative emotions.

The research suggests the ongoing semasiological redistribution of conceptual content with the lexeme *zavist* transferring of some benign envy senses to the lexeme *ljubomora*. However, these initial results should be supplemented by further interdisciplinary research.

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M. Sardelić

*Croatian Academy of Sciences, Department of Historical Research, Strossmayerov trg 2, 10000 Zagreb, Croatia*

*Email: msardelic@hazu.hr*

## LJUBOMORA VS ZAVIST: EUROPSKI KULTURNI OKVIR I HRVATSKI JEZIČNI PRIMJERI

### SAŽETAK

Ovaj rad istražuje razlike u načinu na koji se razumiju emocionalna stanja ljubomore i zavisti te utjecaj kulture na izražavanje tih stanja. U radu opisujemo kognitivne sastavnice sadržaja i uspostavljamo kulturni okvir koji utječe na oblikovanje doživljaja i izražavanje emocionalnih stanja. Drugo, pokazujemo da hrvatska književnost 19. i 20. stoljeća precizno primjećuje razliku među njima, onako kako je ona opisana u znanosti. Treće, psiholingvistički upitnik korišten je za istraživanje značajki konceptualnog sadržaja ovih dviju kategorija kod 209 hrvatskih srednjoškolaca. Konačno, rezultati su uspoređeni s empirijskom korpusnom analizom jezičnih konstrukcija emocionalnih kategorija. Komplementarne metode korištene u ovom istraživanju ukazuju na trajnu semasiološku promjenu ljubomore i zavisti u većem dije-lu istraživane populacije.