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COGNITIVE STRUCTURE AND CONCEPTUAL CLUSTERS OF EMOTION TERMS

ABSTRACT

The major underlying principle of the present paper is that, in opposition to the viewpoint of emotions as discrete entities, emotions are represented as clusters in conceptual space. The graded structure and fuzzy boundaries inherent in the *prototype-periphery* nature of these clusters dictate that the meaning of a specific emotion is governed by both inter- and intra-cluster relationships and their interactions. In addition to these relationships and interactions the paper examines both external and internal affects to compare and contrast the FEAR, COMPASSION, LOVE/JOY, and PRIDE clusters in British English and Polish. The three specific methods employed to analyze these are the GRID instrument, an online emotions sorting task, and a corpus-based cognitive linguistic methodology.

Keywords: emotions, conceptual clusters, British English, Polish, fear, compassion, love/joy, pride, GRID, online emotions sorting task, corpus methodology.

1. INTRODUCTION

The paper focuses on the fuzzy structure of emotion concepts and the phenomenon of conceptual clustering manifested in the use of language and translation. Conceptual fuzziness has been investigated in language and psychology for many years and the phenomenon of conceptual clustering was postulated in Lewandowska-Tomaszczyk (2012) and elaborated more thoroughly with respect to emotion concepts in Lewandowska-Tomaszczyk, Wilson (2016), and Wilson, Lewandowska-Tomaszczyk (2017). In the present paper we propose an overall framework to account for emotion concepts and their clustering, discussing the cognitive structure of four basic emotion clusters: FEAR (Lewandowska-Tomaszczyk, Wilson, 2013), COMPASSION (Wilson, Lewandowska-Tomaszczyk, 2016), LOVE/JOY (Wilson

et al., 2013; Lewandowska-Tomaszczyk, Wilson, 2015) and PRIDE (Wilson, Lewandowska-Tomaszczyk, 2017). These are investigated by means of three different methods: GRID methodology, an online emotion categorization and sorting task, as well as corpus-based cognitive linguistic methodology (Lewandowska-Tomaszczyk, Dziwirek, 2009). Results of the GRID, online emotions sorting task, and large data from National Polish (NKJP) and British English (BNC) corpora were juxtaposed and discussed, which made it possible to investigate the internal structure of emotion terms and enrich the analysis by providing ample contextual information concerning the use of emotion terms in language. Materials of Polish-to-English and English-to-Polish translation corpora (PELCRA, University of Lódź) and data from the automatic extraction of respective equivalents (PARALELA alignment tools (Pęzik, 2014)) were additionally analyzed to substantiate a hypothesis of clustering of conceptual meanings of emotion terms in both languages and the preference for *cluster equivalence* rather than word-for-word equivalence patterns in translation.

The results of the analysis point to the existence of some cross-cultural and cross-linguistic equivalence properties at more abstract cognitive and expressive levels on the one hand and of a more local, culture-specific manifestation of different properties and their configurations on the other. Furthermore, crisp discrimination among particular emotion terms, though made salient via languages, is not readily represented at the conceptual level of emotion structures of particular language systems.

Despite abundant evidence showing that emotions do not translate well across languages, relatively little attention has been given to the precise features of emotions that make them particularly susceptible to cross-cultural influences. To understand cross-linguistic and cross-cultural variability in the conceptual representation of emotions one first needs to consider the relevant facets pertaining to the nature of emotions. The initial focus of the present study is to determine the possible grounding of these differences in the structure and creation of emotions. Following this, the intra- and inter-structure of emotions is advanced with emphasis placed on how this is a key feature of cross-linguistic and cross-cultural variability.

1.1. Emotion concepts and culture

It is the inherent prototypical, fuzzy nature of emotion concepts that is at the root of their susceptibility to cultural influences. To understand this more fully one needs to first appreciate the role of the construction of emotions. Rather than viewing emotions in the traditional sense as discrete entities with hard-wired brain mechanisms, we follow proposals that the experience of emotions is constructed that are outlined in detail in Russell's (2003) ideas regarding the psychological construction of emotions and Bar-

rett's (2006) *conceptual act model* of emotion. In the creation of an emotion, whether *core affect*, a simple non-reflective emotional feeling of pleasure-displeasure and activation-deactivation, is experienced as a certain kind of emotion rather than another depends on the conceptual knowledge, such as sensory, motor and somatovisceral information, that is brought to bear in that particular situation (Russell, 2009; Barrett, 2006). When one considers that the interplay between the different levels of pleasure-displeasure and activation-deactivation is likely to produce a large array of different feelings associated with *core affect*, and that this is combined with a vast number of different possible instances of conceptual knowledge, then one can infer the extent of the emotional repertoire that humans can experience. Indeed, given the scale and number of the variables involved in the creation of an emotion, it can be deduced that each instance of an emotion might be unique. This challenges the typical assumption that, for a given individual, emotion concepts such as *anger* are the same for that individual on different occasions. These different types of emotion experiences can be classified as anger-like emotions, sadness-like emotions, fear-like emotions, happiness-like emotions, etc. Taking anger-like emotions as an example, the anger-like emotion experiences that an individual accumulates in their lifetime are likely to cohere into a cluster that could be termed the anger cluster. The more prototypical anger-like emotions will cohere around the centre of the anger cluster, with those anger-like emotions that are blended with other emotions, such as fear or sadness, being more peripheral. As Russell (2005) explains, at a particular point in time during a situation an individual might become aware that certain components cohere to form a pattern that resembles a mental script of a specific emotion. This awareness leads to a perceptual Gestalt being created from these components or elements that has a specific meaning that forms the basis of an emotional experience.

It is the top-down influence of language on the prototypical nature of emotion structure that is at the heart of cross-cultural influences on emotions. Staying with the example of anger, if one considers the instances of anger that a British English individual has experienced, it is clear that each of these experiences is unique to that person. Despite this collection of individual experiences of anger being different, albeit similar, to the unique array of individual experiences of anger in other individuals, each individual in a particular culture holds an approximation of the prototypical structure of each emotion in that culture. What is the conceptual glue that binds the emotion structure of each individual of a culture to the emotion structure that is representative of that culture? According to Barrett's (2006) *conceptual act model*, the anchoring mechanism that serves to cohere prototype-like instances of anger experiences to the generally regarded cultural prototype of anger is language. As a child grows up, for example, in the British English language environment it acquires an understanding of the concept *anger*, and through observation

of the linguistic labels applied by parents and significant others to its own and others' instances of anger it learns which of its anger-like experiences are more similar to prototypical anger in British English and which are more peripheral. In this way the child gains an appreciation of the graded structure of the anger concept, from the most prototypical instances at one pole through to the most peripheral experiences, which share a relatively greater degree of similarity with other emotion clusters.

However, it is clear from this that there are many different manifestations of the same emotion or types of the same emotion, such as anger. As Barrett (2006) states, the expression of anger, for example, can take many forms depending on the circumstances, including a driver shouting and shaking their fist in a moment of road rage, an employee sitting quietly in a boardroom while listening to unfair criticism from the boss, or a teacher speaking sternly but cordially to a pupil because of their misdemeanour. The actual type of anger that is represented by an anger term in a specific culture, such as *anger* in British English, is moulded by cultural influences so that the prototypical anger that represents that culture is forged into a concept that is encapsulated by the specific culture term.

To conclude, adhering to Russell's (2003) ideas regarding the psychological construction of emotion and Barrett's (2006) *conceptual act model* of emotion, it has been demonstrated that the very nature of emotion concepts and the creation of emotion experiences are at the root of cultural influences on emotions. Each creation of an emotion experience is determined by *core affect* and the conceptual knowledge such as sensory, motor and somatovisceral information that is brought to bear in a particular situation. The experiences of these emotions are stored as simulations that contain the accrued content for all these context-specific emotion memories. Through the learning of the linguistic labels associated with different instances of emotions, a child develops an understanding of emotion concepts, including the different prototypical models that are salient for each emotion term pertaining to its own particular culture. These emotion concepts differ across cultures according to cultural variation in dimensions such as individualism vs. collectivism, which is elaborated more fully in the sections that follow.

1.2. Conceptual structure of emotion clusters

The fundamental tenet of the present investigation is that the conceptual structure of emotions comprises clusters of emotions that have a closer or more distant proximity within conceptual space. This opposes the viewpoint that emotions are discrete entities that function independently of other emotions. The meaning of each individual emotion is determined by both intra- and inter-cluster relationships, as well as dynamic interactions between these.

Emotion clusters have a *prototype-periphery* structure similar to other, more concrete concepts (Rosch, 1973). These clusters are further characterized by a graded structure and fuzzy boundaries. A major structural element that determines the meaning of individual emotions within clusters is the breadth of conceptual space. For example, in addition to the more prototypical members such as *fear, terrified* and *alarm*, a relatively broader FEAR emotion cluster might also include more peripheral emotions such as *anxiety*. In comparison, in a FEAR cluster characterized by a more narrow conceptual space, *anxiety* might constitute the prototypical emotion in a separate cluster that also includes *irritation* and *annoyance*. Such variation in the breadth of conceptual space influences the meaning of *fear* and *anxiety* as well as other emotions that are related to these.

Another potential influence on the conceptual space within clusters is lexical content. A language that has a richer lexicon for a certain emotion cluster is likely to have a higher degree of granularity for that cluster. By contrast, an emotion cluster that is represented by a language with fewer lexical items is likely to have a coarser division of the conceptual space. In this case, the meaning of a lexical item is likely to cover a broader area of conceptual space and hence include more lexical items than languages that have a more granulated representation of conceptual space.

In terms of inter-cluster relationships, it is clear that the proximity of two adjacent emotion clusters influences the meaning of emotions in these respective clusters. For example, an element of *joy* is likely to be more salient in *adoration* if the HAPPINESS and LOVE clusters have a greater degree of conceptual proximity.

It is important to note that the conceptual structure of emotion concepts is influenced by a plethora of contextual factors, including experience, age, gender, mood and current situation. However, this notwithstanding, it is important to underscore the influence of other dimensions such as those proposed by Hofstede (2000) or Nora's *lieux de memoire* (1996–1998), involving historiographic, geographic, symbolic, etc. realms and tokens of memory on the conceptual representation of emotions. Emotion concepts, similar to other concepts, are based on overarching, collective cultural representations that are derived from social interactions within a cultural group and which are internalized in parallel with more idiosyncratic components (Sharifian, 2015). The specific cultural influences in this respect include religion, face, honor, individualism-collectivism, power distance, and masculinity.

1.3. Culture

1.3.1. Individualism versus collectivism

1.3.1.1. Individualism

In individualistic cultures one perceives oneself as an individual, autonomous entity and there is less emphasis placed on one's relationships to others. The various accounts of individualism share the fundamental features of more of an individualized construal of goals, uniqueness and control (Oyserman et al., 2002). Highlighting the personal autonomy associated with individualism, Hofstede (1980) views the inclusion of self-fulfilment and personal accomplishments in one's identity, the importance of rights in comparison with duties, and a focus on oneself and immediate family as central features. In contrast with collectivistic individuals who have relatively more interdependence within their in-groups (e.g., family, nation), individualists show a greater degree of independence from their in-groups, which is evidenced in the importance they place on personal goals in comparison with the goals of their in-groups. Consistent with Schwarz's (1990) emphasis on the importance of individualistic status achievement, Triandis (1995) observes the negotiation of duties within social relationships. Individualists regard the formation of a positive self-concept as a fundamental personal characteristic that they closely associate with personal achievement.

1.3.1.2. Collectivism

The fundamental feature of collectivism is the closer interpersonal relationships that are present within groups, which result in these groups being more cohesive. Individuals within these groups have a greater obligation to fulfil their responsibilities towards other group members (Oyserman et al., 2002). The social, interconnected ties within the in-group are more important than the individual, autonomous functioning of the person within that group (Triandis, 1995). Consistent with the more social elements of collectivism, self-concept is based on group membership (Hofstede, 1980), and includes characteristics such as the sacrifice of the self for others and common goals, as well as the maintenance of good relations (Markus, Kitayama, 1991). Well-being for the collectivist is determined by successful performance in social roles and the completion of duties (Markus, Kitayama, 1991). Emphasis is placed on the achievement of in-group harmony by controlling the outward expression of emotions.

1.3.2. Other cultural dimensions

Four other cultural dimensions proposed by Hofstede, which can be of relevance, interact with the individualism-collectivism criterion and they can exert an influence on the structure of emotion concepts. They include

Power Distance, which measures the tolerance for inequality in a society; *Masculinity Index*, identifying the dominant values of assertiveness and achievement vs. *Femininity*, the degree of value attributed to relationships in a community; *Long-term* vs. *Short-term* orientation; and the *Uncertainty Avoidance* index, that is the extent to which a society feels threatened by uncertain or ambiguous situations.

1.4. Cognition and language

1.4.1. Cognitive-semantic blending of major ontological categories

One of the most powerful cognitive processes which leads to the development of new categories is the notion of *conceptual blending* or *conceptual integration*, first proposed by Fauconnier and Turner (2003), in which putting together two or more inputs in an organizing frame brings about a novel configuration with an emergent structure. Fuller blending is effective both at the level of emotion clusters and, to a lesser extent, in cases of mixed feelings, by which we mean feeling two, typically conflicting, emotions such as love and hate, from opposite clusters at the same time (Lewandowska-Tomaszczyk, 2010). It is also observed in the case of major ontological categories of thought, above the category of emotions and feelings, such as the metacluster of EMOTION-COGNITION-VOLITION. As argued in Dziwirek and Lewandowska-Tomaszczyk (2010) for example, the Polish verb *bać się* "to be afraid/to fear" and other verbs from the same, so-called, apprehensive class of verbs, such as *obawiać się* "to be afraid," display a polysemic chain of senses precisely of the EMOTION-COGNITION-VOLITION character in their construal in some languages. A couple of *fear*-constructions display such a blended character in both Polish and English. For example, *Boję się, czy ten złodziej znów tu nie przyjdzie*, lit. 'I'm afraid/fear if this thief will not come here again' in the sense of 'I'm afraid that this thief might come here again', is interpreted as "I don't want a thief to come, I know that he is likely to come, and I'm afraid of that." The volitional part of apprehensive meanings is observed in terms of a strong function of *desiderative states* related to *negative wish* marked by the presence of a negative marker and weaker epistemic status signaled by the implicit interrogative as in the clause "if the thief will not come here again." Such constructions represent a conceptual megacluster network including degrees of knowing, fearing (worrying), wishing.

It should be emphasized that our analysis contributes to the hypothesis we defend in the present study not only towards the cluster nature of emotion concepts but to the fact that clustering, which is often integrated with the blending of the input material, is a pervasive cognitive phenomenon, present at various levels of categorization.

1.4.2. Syntactic construal of emotions

Different portrayals of an event, conveyed by various figurative and non-figurative uses and expressed in a range of linguistic syntactic constructions, are referred to in the cognitive linguistic literature as different manifestations of the *construal* of an event (cf. Langacker, 1987; 1991). The language user may focus on individual participants such as the agent of an action or an experiencer, cause or an instrument and has at their disposal the whole array of language-specific grammatical tools to shape the perspective. In the case of emotion clusters it makes a semantic difference whether the event is construed, for example, as an agentive construction such as in Polish *Cieszę się* 'I rejoice' or, which is more common in English, in terms of the adjectival phrase *I am happy*[1].

1.4.3. Construal of emotions in metaphor

A cognitive linguistic instrument of focal importance is cross-domain mapping, which is perceived as "entrenched conceptual patterns" in figure of thought, mainly metaphor (Grady, 2007, 196).

We accept and use a meaning description in terms of semantic components and their physical physiological-psychological correlates, but make an attempt to enrich them with the analysis of *mental imagery* expressed in language, predominantly in terms of figurative uses. Metaphor is a cross-domain mapping, in which a conceptual domain is understood as a mental structure of related concepts expressing a body of knowledge. Metaphor refers to the understanding of one idea from a domain, or the whole domain (target domain), in terms of another—source domain. The source domain is usually more basic and physically grounded, which functions as a mapping site for a given target domain; e.g., the metaphor *Tom is a lion* is based on a source domain, which includes the wide concept of lions, their looks, behavior, habitat, associations and evaluation, and can be taken as a source for a number of creative metaphorical mappings, although it is most frequently the mapping site for the conventional metaphor for Tom's courageous behavior. Emotions too can be mapped onto a number of source domains, some of which are used with *emotion* concepts. Although we do not plan to focus on metaphor in the present discussion, it needs to be emphasized that metaphor is not a predominantly ornamental element in emotion discourse[2], although it can play such a role particularly in poetry, but signals our common deficit in knowledge concerning the precise nature of emotions. In other words, metaphor is one of the strategies to *approximate*

[1] For a more detailed semantic interpretation of these constructions consult Wierzbicka (1992, 1994) and Dziwirek and Lewandowska-Tomaszczyk (2010).

[2] Consult ample literature on metaphor in Cognitive Linguistics (Lakoff, Johnson, 1980; Lakoff, 1987; Lakoff, Kovecses, 1987; Dziwirek, Lewandowska-Tomaszczyk, 2010).

meanings (Lewandowska-Tomaszczyk, 2012) that are otherwise vague and indeterminate.

1.4.4. Verbal signaling of emotions

Not all emotions have evolved distinctive verbal correlates. In a number of cases what is expressed by verbal correlates are emotion clusters. The situation with linguistic comparisons and language contrasts is similar. What should be explicitly underlined is that, firstly, because of the language-and-culture-specific meaning and structure systems and, secondly, for the lack of clear conceptual boundaries across languages, meanings in one language are indeterminate, or substituted by partial, default, prototypes in context-free uses, while in cross-linguistic contexts they are notoriously asymmetrical and poorly calibrated.[3] Therefore, as proposed in Lewandowska-Tomaszczyk (2012) and fully elaborated in a number of examples of Polish and English emotion concepts (see particularly Lewandowska-Tomaszczyk and Wilson (2013), and Wilson et al. (2013)), the equivalence between language conceptual systems can only be established on the level of *cluster equivalence*. As to the numbers of emotion terms present and emerging in language, our materials include a few hundred forms in English and a comparable number in Polish. It may be interesting to note that there is a majority of negative emotion terms on the lists. People have developed to signal *some negative* emotions more frequently than other negative emotions or than positive ones mainly in the context of a lowered degree of control or the manifestation of a power relationship (pain, disgust, anger). Nevertheless, as argued above, both negative and positive emotions are more frequently signaled in terms of emotion clusters and can cover consequential or associated emotions such as, for example, in the case of *love* a cluster of LOVE, JOY and HAPPINESS.

2. MATERIALS AND METHODS

The comparison of FEAR, COMPASSION, LOVE/JOY, and PRIDE clusters in British English and Polish was achieved with the use of three complementary methodological paradigms: GRID, online emotions sorting, and cognitive corpus linguistics. For more detailed information pertaining to these methodologies see (Lewandowska-Tomaszczyk, Wilson, 2013; Wilson et al., 2013; Wilson, Lewandowska-Tomaszczyk, 2017).

[3] For the concept of language *calibration* see (Lakoff, 1987).

2.1. GRID

The GRID instrument (Scherer, 2005; Fontaine et al., 2013) employs a system of dimensions and components, which bring about insight into the nature of emotion prototypical structures. 24 prototypical emotion terms are evaluated on 144 emotion features in a Web-based questionnaire. The components comprise appraisals of events (31 features), bodily reactions (18 features), motor expressions—facial, vocal or gestural (26 features), action tendencies (40 features), subjective feelings (22 features), and emotion regulation (4 features). An additional three features refer to other qualities, such as frequency and social acceptability of the emotion. In each case, participants are asked to rate the likelihood of the presence of an emotion feature when an individual who speaks their language employs an emotion term when describing an emotional experience.

In addition to its componential approach, the GRID methodology offers a dimensional perspective, whereby the emotion domain is represented by a small number of underlying dimensions. Fontaine (2013) observes that "dimensional approaches play a central role in the assessment of emotional, and more broadly, affective experiences" (p. 32). Fontaine and Scherer (2013) underscore the congruence between this dimensional approach and the componential approach that they find in their results. Analyses performed on the data from all of the languages represented in the GRID project have produced a four-dimensional structure comprising VALENCE, POWER, AROUSAL and NOVELTY (Fontaine et al., 2013). It was further shown that this four-dimensional solution forms a stable structure that also provides a good representation of the componential data.

The VALENCE dimension is characterized by appraisals of intrinsic pleasure and goal conduciveness. Other features include action tendencies of approach versus avoidance, and pleasant emotions versus unpleasant emotions. Specific examples of features associated with this factor include "felt positive," "wanted to sing and dance," "in itself unpleasant for the person," "felt inhibited or blocked", and "incongruent with own standards and ideals." POWER includes appraisals of control, with the feelings of power and weakness being particularly salient. It is also characterized by appraisals of interpersonal dominance or submission, and by urges to either initiate action or refrain from this. This dimension includes features such as "assertive voice," "felt submissive," and "wanted to take the initiative her/himself." The AROUSAL dimension is mainly characterized by sympathetic arousal (e.g., rapid heartbeat and readiness for action). The features associated with this dimension include "breathing getting faster," "felt hot," "sweat," and "spoke faster." The fourth dimension is represented by NOVELTY. On this dimension appraisals of novelty and unpredictability are compared with expectedness or familiarity. Fontaine et al. (2007) found that surprise was

associated more with the NOVELTY dimension than the other emotions they analyzed. This dimension includes features such as "raised eyebrows," "jaw dropping," and "confirmed expectations."

2.1.1. Procedure

British English and Polish participants completed the GRID instrument in a controlled Web study (Reips, 2002), in which each participant was presented with an emotion term in their respective language and asked to rate it in terms of the 144 emotion features. Each of the 144 emotion features was presented separately. Participants rated the likelihood that each of the 144 emotion features can be inferred when a person from their cultural group uses that specific emotion term to describe an emotional experience. A 9-point scale was employed that ranged from extremely unlikely (1) to extremely likely (9)—the numbers 2 to 8 were placed at equidistant intervals between the two ends of the scale, with 5 'neither unlikely, nor likely' in the middle and participants typed their ratings on the keyboard. It was clearly stated that the participants needed to rate the likelihood of occurrence of each of the features when somebody who speaks their language describes an emotional experience associated with the emotion term presented.

2.2. Online Emotions Sorting Methodology

In the emotions sorting methodology, emotion terms are typically presented simultaneously on a desk in front of participants who are free to categorize them into as many or as few groups as they wish. In the online version the sorting takes place on the computer desktop.

2.2.1. Procedure

Participants volunteered to take part in the study either through direct contact by one of the authors or in response to adverts placed on Internet forums. Each volunteer was sent a link to the experimental platform and was allowed to take part in the experiment at a time and location of their choosing, with the request that they do the experiment in seclusion. The first page presented the British and Polish flags and the participants clicked on these according to their nationality. Then the instructions page appeared in the appropriate language. Initially, there was a brief introduction outlining that the study was concerned with finding out about how people think some emotions "go together" and other emotions belong in different categories. More detailed instructions regarding the specific sorting task were as follows:

> You will be presented with 135 emotions on the computer screen. We'd like you to sort these emotions into categories representing your best judgement about which emotions are similar to each other and which are different from

> each other. There is no one correct way to sort the emotions—make as few or as many categories as you wish and put as few or as many emotions in each group as you see fit. This study requires careful thought and you therefore need to carefully think about which category each emotion belongs rather than just quickly putting emotions in categories without much thought.

Following this, participants were told they would watch a video (about 8 minutes) that would demonstrate the procedure. They were told that this would be followed by a practice session that involved the categorization of food items, and once this had been completed the proper experiment with emotion terms would begin. The following message appeared in a central window on the experimental page:

> You need to click on the "New Emotions Group" button and drag emotions to create your emotion groups. When you have finished creating your emotion groups, click on the orange "DONE" button and the experiment has been completed.

2.3. Corpus linguistics

In order to extend the context of the use of emotion terms in English and Polish, we resort to large corpus data, particularly collocations and their frequencies. By analyzing authentic language we can detect shifts in meaning for the same linguistic form and we can also describe the contexts which support such shifts. Based on the frequency of occurrence, corpus-based methods let us statistically determine which linguistic meanings are most salient. The materials we use come from several sources. First, we use the British National Corpus (100 million words) and a combined Longman and Microconcord Sampler corpus (15 million words) of English. We used two large resources for Polish: the National Corpus of Polish (NKJP), which contains 300 million units of balanced data and a smaller PELCRA Sampler of 15-million words. We conducted automatic analyses of word frequencies and lexical (adjectival, verbal, and, when possible, nominal) collocations of emotion words in spoken and written texts. We also manually extracted contexts of relevant words, the axiological charge of the emotions (positive-negative) and relevant metaphors (cf. Lakoff, Johnson, 1980; Lakoff, Kövecses, 1987). The manual analyses we conducted were annotations for metaphoricity and particular metaphorical scenario membership.

The larger corpora (BNC and NKJP) and the samplers used are either of a comparable size or normalized to identical values. We calculate how many times a word or collocation occurs per one hundred million words in a process called "normalization" (McEnery, Hardie, 2012). This enables comparison across these differently sized large datasets. They cover well-balanced language materials of different genres and styles, including both written as well as spoken (ca 10%) conversational data. The search tools WS (Word-

smith Tools), SlopeQ (http://tnij.org/slopeq1), and HASK were applied to generate frequencies of occurrence of concordances and (parts of speech-sensitive) collocations (Pęzik, 2014).

Corpus studies are carried out most commonly by looking at words and their contexts (so called KWIC (Key Word In Context) searches) in large collections of authentic natural language, compiled from written and oral sources. Quantitative data sets are compared to see if an observed phenomenon (e.g., a co-occurrence) is significantly more frequent than another. Frequencies of lexical co-occurrences are also used for descriptive purposes and exemplification.

We also resort to parallel, translational corpora of Polish-to-English and English-to-Polish authentic translated texts (see pelcra.clarin-pl.eu), which provide ample materials to support the presence of the fuzziness between emotion inter- and intra-categorial boundaries as well as the thesis of meaning approximation and cluster equivalence in language.

A note of caution should be added to the interpretation of quantitative data across languages as frequencies are typically sensitive to language types. Certain prepositional phrases such as, for example, *z dumą* "with pride" can be used interchangeably with *dumnie* "proudly" in some contexts while in some others the preference will be for one of them with a different distribution in Polish and English. Quantitative data will not always present these subtle differences and particular examples need to be more precisely interpreted on an individual basis.

The overall frequency of all emotion terms is higher in Polish than in English, which can be interpreted as typological differences between the two languages with respect to the part-of-speech preference patterns rather than evidence of the linguistic preferences of the relevant speakers and writers.[4] Moreover, the Polish samplers, relative to the complete Polish corpora, contain smaller amounts of spontaneous spoken data and more numerous samples of journalistic prose and literary texts, with the latter particularly conducive to a greater prevalence of baroque, emotion and emotional language.[5] Although clearly marking the emotional layers of meaning by means of prosodic characteristics, spoken language will often perform this indirect-

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[4] For the concept of language *calibration* see (Lakoff, 1987).

See (Wierzbicka, 1992; 1994) and (Dziwirek, Lewandowska-Tomaszczyk, 2010) for a discussion of the part-of-speech based differences of expressing emotions between Polish and English. As is also found in (Dziwirek, Lewandowska-Tomaszczyk, 2010), Polish emotion terms are more frequently expressed in some types of discourse as adjectives, while in their English (translational) equivalents it is the corresponding nominal structures that are preferred in the examined data as, for example, in: Lennie dropped his head *in shame* at having forgotten./Lennie spuścił głowę *zawstydzony* tym, że się zapomniał. He lowered his head *in shame*/ Opuścił głowę *zażenowany*. And yet, in larger samples the proportions are different: BNC (100 mln segments): *ashamed* 1023, *with shame* 49, *in shame* 36, *of shame* 135; NKJP (ca 240 mln segments): Adj *zawstydzon** 787, Prep N *ze wstydem* 223, *ze wstydu* 473).

[5] See (Bednarek, 2008) for a differentiation between the language of emotions and emotional talk.

ly with a more constrained use of explicit emotion terms. The present work contains some observations and examples drawn from the PELCRA English-Polish and Polish-English parallel corpora to provide relevant materials for the juxtaposed English and Polish discourse strategies in use.

Another word of caution referring to frequencies of the reaction types should also be added in connection with the corpus methodology. Corpora have their limitations. There are tools available to generate frequencies of individual items and phrases, concordances with expanded contexts, collocations and keywords. There are also encouraging results of automatic metaphor identification (e.g., Gries, Stefanowitch, 2006). However, when it comes to semantic and pragmatic annotations of meanings in use, particularly in large corpora, adequate corpus tools have not yet been fully developed.

3. EMOTION CLUSTERS

By comparing the FEAR, COMPASSION, LOVE/JOY, and PRIDE clusters in British English and Polish, the aim is to determine how these differ in terms of both external vs. internal influences and intra- vs. inter-cluster relationships.

3.1. Fear

The online emotions sorting data show that British English and Polish FEAR clusters are similar. The British English FEAR cluster comprises *fear, dread, horror, fright, hysteria, shock, alarm, panic,* and *terror*. Similarly, the Polish FEAR cluster contains *strach* "fear," *hysteria* "hysteria," *przestrach* "fright," *groza* "awe, dread, terror," *panika* "panic," *trwoga* "alarm," and *przerażenie* "dismay, terror, horror, torment."

Fear is a response that enhances one's survival chances when faced with a physical threat (Beck et al., 2005; Öhman, 2008) and comprises three main types, *fight*, *flight* (both coined by Canon (1932)) and *fright*. *Fight* is a more active response to fear, in which an organism fights the source of danger. According to Eilam (2005), the *fight* response involves a direct attack aimed at the source of fear in order to dissuade it from launching its own offensive, and it occurs when it is not possible to freeze or flee. In contrast, *flight* involves the organism escaping from the source of threat (Eilam, 2005). Fiszman et al. (2008) explain that *fright* "is a reflexive and involuntary defensive response characterized in several species by profound motor inhibition, lack of vocalization, tremors, and analgesia, with evidence of preserved awareness of the environment" (193–194). In a broader context, LeDoux and Gorman (2001) explain further that in more everyday situations the behavioral correlates of *fright* are becoming withdrawn, avoidant, and sometimes despondent. An individual with the *fright* response experiences a paralyzing effect and feels weak, submissive, passive and controlled by fear.

In terms of the GRID analyses, whereas *fight* is characterized by a feeling of power that corresponds to the high POWER GRID features, *fright* is associated with feelings of weakness and submission, as well as impulses to refrain from action and is consistent with low POWER GRID features.

Although both British English and Polish conceptualizations of fear comprise *fight, flight* and *fright*, the results showed a clear pattern of differences between these languages in terms of *fight* and *fright*. As can be seen in Table 3 the GRID and corpus results are consistent in showing that whereas *fear* is characterized more by *fight*/high POWER than *strach*, *strach* is more associated with lower *fright*/low POWER than *fear*. Specifically, Table 3 shows that the significantly higher ratings for *fear* (mean, 6.11) in comparison with *strach* (mean, 5.09) on the high POWER GRID features, is reflected in the corpus results, with *fight* scenarios being more salient for *fear* (41.8%) than *strach* (24.3%). The greater difference between the low POWER features and the high POWER features for *strach* (means of 6.02 and 5.09, respectively) in comparison with *fear* (means of 5.97 and 6.11, respectively) in the GRID results was even more pronounced in the corpus results (whereas *strach* is characterised by more *fright* scenarios (47.1%) than *fight* scenarios (24.3%), these scenario types are comparable for *fear* (39.8 for *fright* scenarios versus 41.8% for *fight* scenarios)).

The top collocational patterns (Tables 1 and 2) of Verbs in English and Polish also confirm the GRID and scenario preference data.

Table 1. English *fear* – Verbal collocations (BNC)

#	Collocate	POS[a]	A[b]	TTEST[c]	MI3[d]
1	express	V%	128.0	10.54	17.87
2	allay	V%	61.0	7.78	20.44
3	overcome	V%	49.0	6.65	15.59
4	confirm	V%	45.0	5.78	13.83
5	raise	V%	55.0	5.55	13.55

POS: part of speech[a], A: raw frequency[b], TTEST: t-test[c], MI: Mutual Information[d]

Table 2. Polish *strach* "fear" – Verbal collocations (NKJP)

#	Collocate	POS	A	TTEST	MI3	Eng. equivalents
1	pomyśleć	verb	493.0	21.69	23.34	think
2	czuć	verb	258.0	14.42	19.31	feel
3	budzić	verb	225.0	14.39	20.25	wake
4	żyć	verb	204.0	12.60	18.43	live
5	paść	verb	166.0	12.37	19.40	fall
6	trząść	verb	136.0	11.55	20.93	tremble

Table 3. Comparison of *fright*/low POWER and *fight*/high POWER in corpus and GRID results

	Fear	*Strach*
Corpus Methodology – *fright* Scenario (%)	39.8	47.1
Corpus Methodology – *fight* Scenario (%)	41.8	24.3
GRID Methodology – Low POWER (means)	5.97	6.02
GRID Methodology – High POWER (means)	6.11	5.09

An attempt at gaining an understanding why *strach* is characterized by relatively low POWER/*fright* in comparison to *fear* requires an assessment of the inter-cluster relationships between the STRACH and FEAR clusters and their respective SADNESS clusters.

3.1.1. Fear and sadness

An understanding how the pattern of relationships between the FEAR and SADNESS clusters might influence the differences in low POWER/*fright* versus high POWER/*fight* that were shown for British English and Polish above might be gained from the results of the online emotions sorting study and the correlational analyses performed on the POWER dimension GRID data. There were lower interconnections between the British English FEAR and SADNESS cluster emotions than between the corresponding Polish clusters, STRACH and SMUTEK, respectively. For the purposes of comparison, Figure 1 presents superimposed representations of the relationship between the English and Polish FEAR clusters and their corresponding sadness variants at the centre. It can be seen, for example, that the co-occurrence values between *fear* and *sadness* (10), and *alarm* and *sadness* (11) are lower than the values between *strach* "fear" and *smutek* "sadness" (22) and *trwoga* "alarm" and *smutek* "sadness" (25). These results highlight the possibility that the salience of low POWER/*fright* in *strach* is due to the relatively closer proximity between the STRACH and SMUTEK cluster emotions. Further analyses on the GRID data suggests that this propinquity is possibly underscored by the GRID POWER dimension. Specifically, Table 4 shows that the correlation between *strach* and *smutek* on the GRID POWER dimension is significantly higher than between *fear* and *sadness*.

Although correlation analyses do not allow firm inferences to be made regarding directionality in relationships, it could possibly be deduced on the basis of the greater prevalence of sadness and depression among Poles compared with a greater tendency towards happiness in the British (e.g., Steptoe, Wardle, 2001; Mikolajczyk et al., 2008) that it is *smutek*, which is characterized by a similar low POWER as other variants of the sadness emotion,

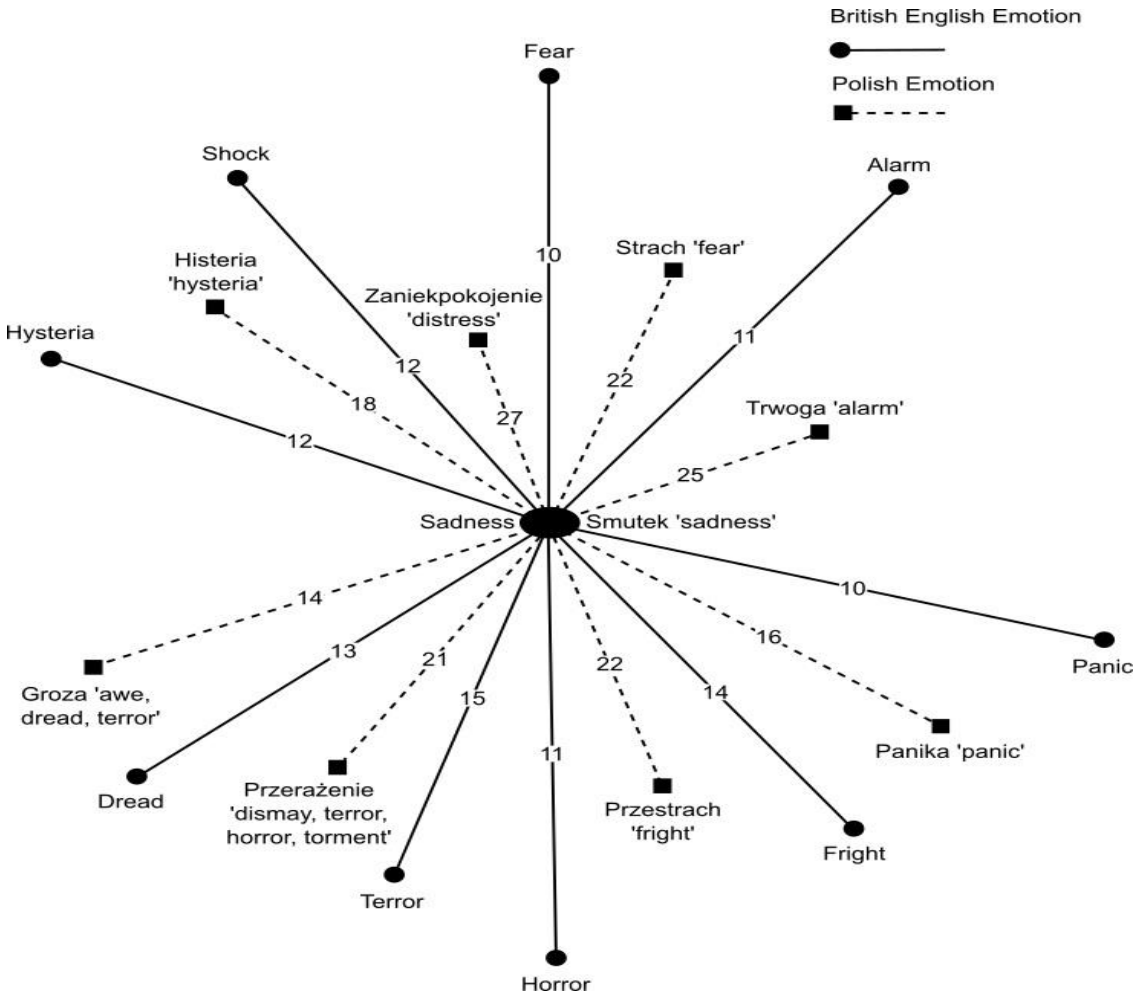
that causes the relatively low POWER/*fright* in *strach* and that this is central to the observation of the relatively close relationship between the STRACH and SMUTEK clusters.

Table 4. Correlations between British English vs. Polish Fear and Sadness on the GRID POWER Dimension

	fear-sadness
British English	*sadness-fear (0.00)*
Polish	*smutek-strach (0.46*)*

* significant at 0.05 level

Figure 1: Interconnections between FEAR cluster emotions and sadness in English and Polish



3.2. Empathy/sympathy/compassion

The online emotions sorting data show that British English and Polish EMPATHY/SYMPATHY/COMPASSION clusters are similar in terms of their relatively small size. A major difference between the British English cluster and the Polish cluster is that in the case of the latter the Polish equivalent of sympathy, *sympatia*, possesses uniquely positive VALENCE and is more of a member of the Polish LOVE cluster rather than the Polish EMPATHY/SYMPATHY/COMPASSION cluster. This is clearly demonstrated in the comparison in Figure 3 between the relatively higher co-occurrences between *sympatia* "sympathy, fondness" and *miłość* "love, affection" (32) and between *sympatia* "sympathy, fondness" and *lubienie* "liking, fondness" (43) vis-à-vis the lower interconnections between *sympatia* "sympathy, fondness" and *empatia* "empathy" (28) and between *sympatia* "sympathy, fondness" and *współczucie* "compassion, sympathy" (16), and the opposite pattern in Figure 2: lower interconnections between *sympathy* and *love* (21), and between *sympathy* and *fondness* (27), compared with higher interconnections between *sympathy* and *empathy* (48), and between *sympathy* and *compassion* (39).

One of the most interesting features of the EMPATHY/SYMPATHY/COMPASSION cluster is the VALENCE of compassion. Although compassion is similar to sympathy in that it is evoked in response to the plight of others, it is associated with relatively more negative states as well as with a more positive, active response that is characterized by a desire to help, which may or may not be manifested behaviorally (Gladkova, 2010). There is an apparent paradox between the association of positive feelings (e.g., warmth) and negative feelings (e.g., sorrow and sadness) that can both be characterized by compassion. As Fontaine and Scherer (2013) note, whereas the negative VALENCE inherent in compassion is based on the reaction to the plight of others, the positive VALENCE that additionally characterizes this emotion derives from the possible interpersonal bond that one might develop with the suffering individual and the possible help offered.

The online emotions sorting, GRID, and corpus linguistics methodologies are consistent in showing that British English *compassion* has a more positive VALENCE than *współczucie*. In terms of the former methodology, the relatively greater positivity of *compassion* is demonstrated in the comparison between British English and Polish compassion and their respective HAPPINESS, SADNESS and LOVE clusters. Despite *compassion* and *współczucie* having similar co-occurrences with their respective HAPPINESS cluster emotions (e.g., *compassion—joy* (8) compared with *współczucie—radość* "joy, glee, delight" (7)), the relatively higher interconnections between LOVE cluster emotions and *compassion* (e.g., *compassion—love* (25) in comparison with *współczucie—miłość* "love, affection" (6)) is consistent with the more

positivity of *compassion*. This is corroborated by the relatively lower interconnections between SADNESS cluster emotions and *compassion* (e.g., *compassion – depression* (0) vis-à-vis *współczucie—depresja* "depression" (8)).

The more negative valence of Polish *współczucie* can also be demonstrated in terms of parallel language data (*paralela* tools), in which the Polish term, apart from the frequent English lexicographic equivalents *compassion* and *sympathy*, corresponds to a range of English cluster members of a somewhat more negative character, e.g.:

(1)

Eng. with which he habitually covers up his *sympathetic impulses of mirth and pity*

Pol. którym zazwyczaj pokrywał *pogodne i pełne politowania współczucie*, lit. "which covered jolly and full of denigrating pity—compassion"

(2)

Eng. Have compassion on my great need

Pol. Ulituj się mej ciężkiej niedoli, lit. "Have pity on my hard misfortune"

A likely possible source of the cross-cultural variation in the VALENCE of compassion is the cultural dimension of individualism-collectivism (Hofstede, 1980). The main feature of individualism vs. collectivism that is relevant to the present discussion is self vs. other focus of orientation, respectively. Whereas self-focus in individualism is characterized by personal autonomy, personal goals, personal attitudes, and individual responsibility for actions, other-focus in collectivism is underscored by the focus on interpersonal ties, common goals and the maintenance of good relations (Hofstede, 1980; Triandis, 1995; 2001; Choi et al., 1999, and Markus, Kitayama, 1991). The greater focus on interpersonal relationships in relatively more collectivistic cultures such as Poland would probably engender an outward focus on the suffering person and hence the more salient meaning of compassion is likely to be the negativity associated with sorrow, sadness or distress. The focus on independence and autonomy in individualistic cultures such as Britain means that the British are more likely to focus on themselves when confronted with an individual who is suffering, which makes the possible help and control that they will provide in that situation more conceptually salient to them, and it is hence more positive.

The second possible facet of the explanation regarding British English vs. Polish differences in the VALENCE of compassion concerns the relatively more positive VALENCE of *sympatia*. Specifically, as discussed above, *sympatia* is conceptually closer to the MIŁOŚĆ (love) cluster rather than the WSPÓŁCZUCIE (compassion) cluster, while English *sympathy*, which does include the positive elements of liking, when used in the negative sense, typically refers to Emotion Events expressing an irreversible loss (*grief*), similar to Polish *współczucie*. The absence of a direct equivalent of *sympa-*

thy in the Polish EMPATHY/COMPASSION cluster means that the conceptual space of this cluster differs to that of the English EMPATHY/SYMPATHY/ COMPASSION cluster. In comparison with *sympathy*, which absorbs some of the negative meaning in the English EMPATHY/ SYMPATHY/COMPASSION cluster, it is possible that *współczucie* has a wider conceptual space within the Polish EMPATHY/COMPASSION cluster that encompasses some of the negative meaning that would have been the domain of *sympatia* were it present in this cluster as an equivalent of *sympathy*. To conclude, it is possible that the meaning of *sympatia* exerts an inter-cluster effect of a relatively close proximity between this emotion and the MIŁOŚĆ (love) cluster, which we argue could influence the intra-cluster relations of *współczucie* in the Polish EMPATHY/COMPASSION cluster.

The third possible reason for the relatively more positive VALENCE of compassion concerns the association between *współczucie* and *politowanie* that was has been shown in the online emotions sorting and the corpus data. As *politowanie* is expressed by the experiencer who has a sense of superiority or even contempt toward the person s/he pities, thus also showing elements of negative pride (Polish *pycha*), it is clear how a degree of conceptual proximity between *współczucie* and *politowanie*, as shown in the interconnection (19) between these two emotions in Figure 3, can make the former more negative.

Figure 2: British English EMPATHY/SYMPATHY/COMPASSION Cluster

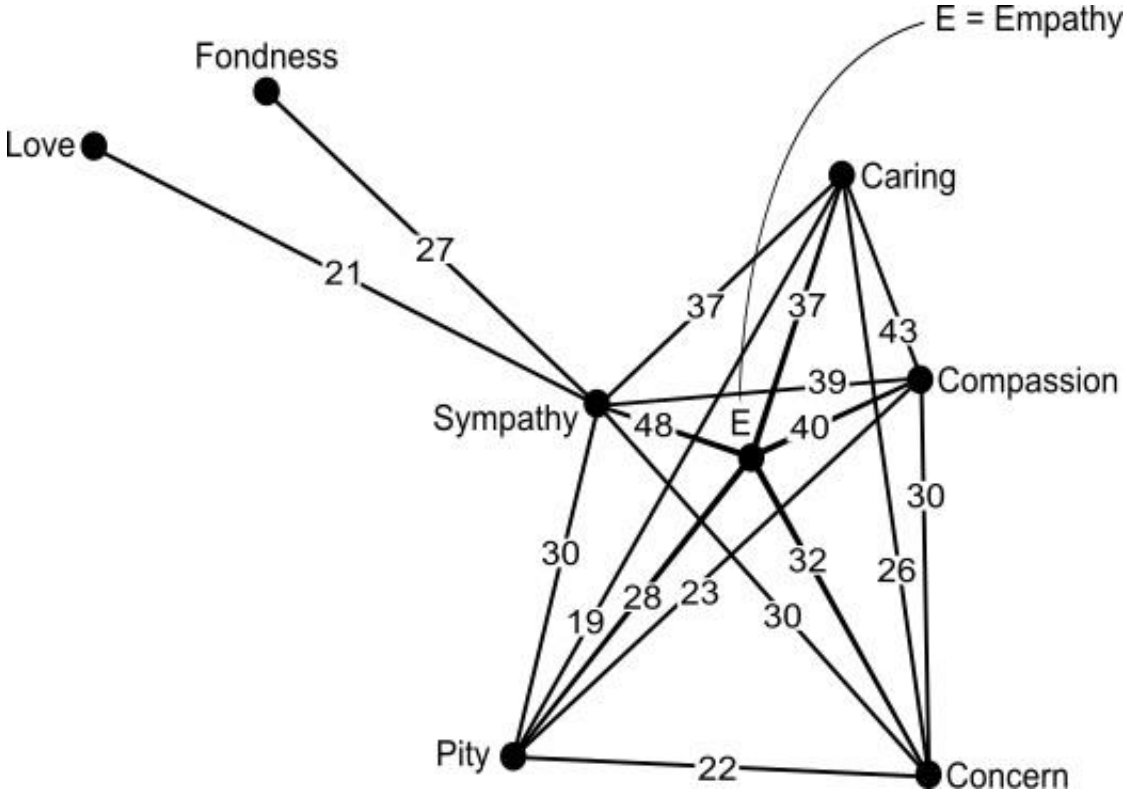
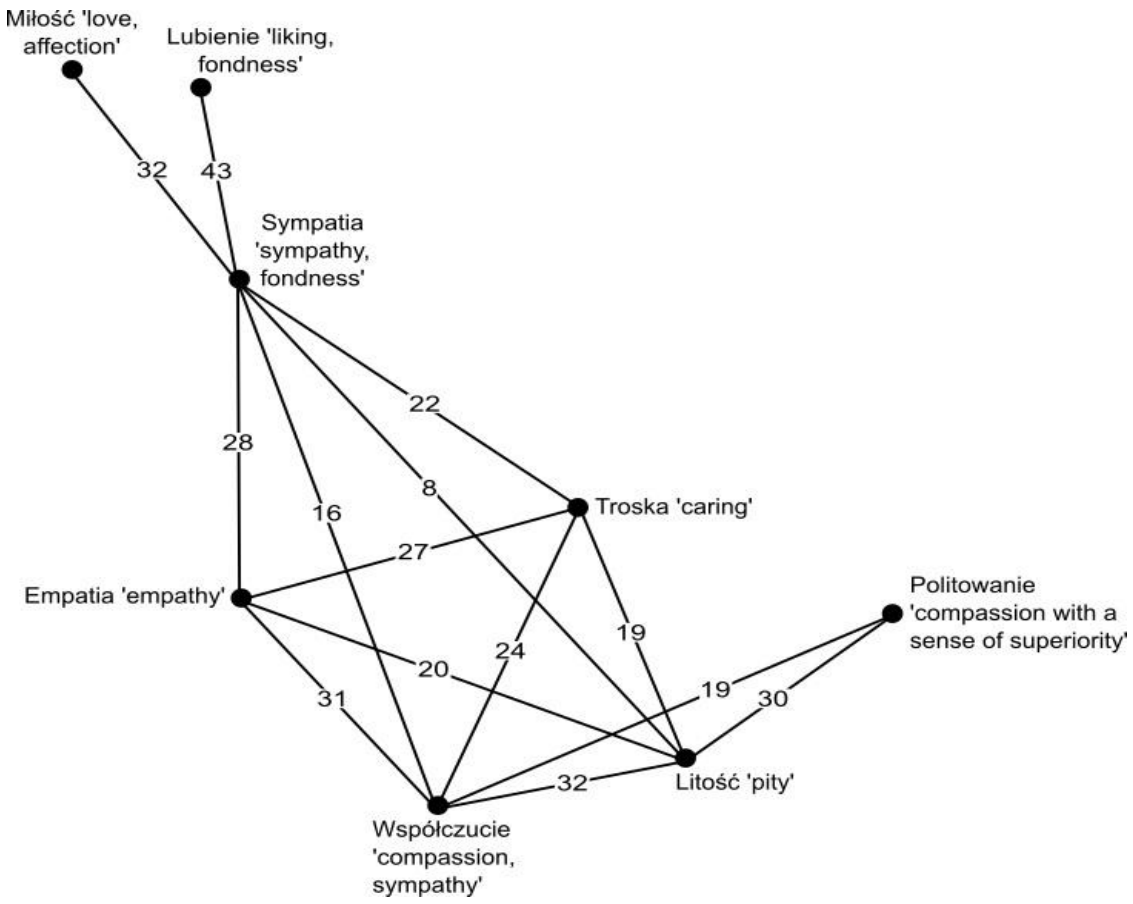


Figure 3: Polish EMPATHY/COMPASSION Cluster



3.3. Love, Happiness/Joy, and Self-achievement

It is initially important to consider the general structure of the LOVE, HAPPINESS/JOY, and SELF-ACHIEVEMENT clusters. The online emotions sorting data provide information about the content of these clusters in British English and Polish. Overall, the content of these clusters appears to be similar in the two languages. The British English HAPPINESS/JOY cluster contains emotions such as *happiness, joy, cheerfulness, pleasure, excitement, ecstasy, euphoria, jubilation, delight*, and *enjoyment*. Similarly, the Polish English HAPPINESS/JOY cluster includes emotions such as *szczęscie* "happiness," *radość* "joy, glee, delight," *wesołość* "gaiety, merriness," *pogoda ducha* "cheerfulness," *ekstaza* "ecstasy," *euphoria* "euphoria, exhilaration," and *entuzjazm* "enthusiasm." In terms of the LOVE cluster, both languages have emotions that represent romantic love (British English: *lust, passion, infatuation, arousal, attraction*, and *desire*; Polish: *żądza* "lust, desire," *pożądanie* "desire, lust," *namiętność* "passion," *zauroczenie* "infatuation," *fascynacja* "fascination," and *zachwyt* "fascination, enchantment") and companionate love (British English: *love, fondness, affection, tenderness,*

adoration, attraction, and devotion; Polish: *miłość* "love," *podziw* "adoration, admiration," *uwielbienie* "adoration, admiration," *czułość* "tenderness," *ciepło* "warmth," *sympatia* "sympathy, fondness," *przyjaźń* "friendship," *delikatność* "gentleness, kindness," and *bliskość* "closeness"). In the results of their sorting study, Uchida and Kitayama (2009) showed that the personal achievement cluster comprised features related to achieving goals, optimism, and self-esteem. The data from our online emotions sorting study have similarly produced British English and Polish clusters pertaining to these features: the British English SELF-ACHIEVEMENT cluster comprises *contentment*, *satisfaction*, *hope*, *relief*, *peacefulness* and *serenity*; and *spełnienie* "fulfilment," *zadowolenie* "gladness, contentment," *optymizm* "optimism," *nadzieja* "hope," *ulga* "relief" and *spokój* "serenity, peacefulness" form the Polish SELF-ACHIEVEMENT cluster.

Adjectival collocational patterns of *joy* in English (Table 5) show some differences in the *degree* of joy, described in terms of adjectives denoting more intensive expressive force in Polish (Table 6).

Table 5: English *joy* – Adjectival collocates (BNC)

#	Collocate	POS	A	TTEST	MI
1	great	AJ%	91.0	8.21	1.45
2	sheer	AJ%	31.0	5.46	4.48
3	full	AJ%	35.0	4.55	3.15
4	pure	AJ%	20.0	4.25	2.10
5	parliamentary	AJ%	18.0	3.94	2.08
6	christian	AJ%	17.0	3.68	5.81
7	greatest	AJ%	14.0	3.34	1.34
8	holy	AJ%	11.0	3.05	2.54
9	surprise	AJ%	10.0	2.86	4.76
10	real	AJ%	18.0	2.70	4.24

Table 6: Polish *radość* "joy" – Adjectival collocates (NKJP)

#	Collocate	POS	A	TTEST	MI	English equivalents
1	wielki	Adj	1211.0	29.06	2.60	great
2	ogromny	Adj	364.0	17.67	3.76	huge
3	pełny	Adj	245.0	12.91	2.51	full
4	wieczny	Adj	136.0	11.19	4.64	eternal
5	prawdziwy	Adj	158.0	9.92	2.25	true
6	mój	Adj	321.0	7.19	0.74	my
7	szczery	Adj	49.0	6.45	3.67	sincere
8	nieopisany	Adj	32.0	5.60	6.86	undescribable
9	spontaniczny	Adj	33.0	5.50	4.60	spontaneous
10	jaki	Adj	263.0	5.44	0.58	what

On the basis of the greater emphasis on interpersonal harmony in collectivistic cultures, one would expect a relatively closer conceptual proximity between the SELF-ACHIEVEMENT cluster and the LOVE cluster for the relatively more collectivistic Polish in comparison to the more individualistic British. Clearly, if one values close interpersonal relations with significant others one is likely to gain a sense of accomplishment from this. In comparison with the GRID results, which were ambivalent with respect to expectations, the online emotions sorting results produced results that were more consistent with predictions. In contrast with the British English personal achievement emotions that have relatively low interconnections with the British English LOVE cluster, the Polish personal achievement emotions have relatively high co-occurrence connections with Polish emotions related to love. For example, it can be seen in Figure 5 that the interconnections between *miłość* "love, affection" and personal achievement emotions such as *spełnienie* "fulfilment" (28) and *zadowolenie* "gladness, contentment" (18) are higher than the corresponding co-occurrences between *love* and *satisfaction* (9), and between *love* and *contentment* (11) (see Figure 4).

The individualistic-collectivistic dimension also predicts differences between the British and the Polish in terms of the inter-cluster relationships of the HAPPINESS cluster. Specifically, from the greater importance of interpersonal harmony in collectivistic cultures one would expect a relatively closer conceptual proximity between the HAPPINESS cluster and the LOVE cluster for the relatively more collectivistic Polish, but a closer conceptual propinquity between the HAPPINESS cluster and the SELF-ACHIEVEMENT cluster for the more individualistic British, who place more emphasis on accomplishment and autonomy. Our results showed more evidence for the former than the latter. The closer relationship between the Polish relative to the British HAPPINESS and LOVE clusters is demonstrated in the interconnections in the online emotions sorting data. For example, compared with the relatively close interconnections between *miłość* "love, affection" and *szczęście* "happiness" (36), and between *miłość* "love, affection" and *radość* "joy" (29) (see Figure 5), there were lower co-occurrence values between *love* and *happiness* (11), and between *love* and *joy* (11) (see Figure 4). In contrast, the SELF-ACHIEVEMENT clusters in Polish and British English were similar in their proximity to their respective HAPPINESS clusters. For example, it can be seen in Figure 4 that the interconnections between *contentment* and *happiness* (32), and *contentment* and *joy* (26) are similar to those between *zadowolenie* "gladness, contentment" and *szczęście* "happiness" (28), and between *zadowolenie* "gladness, contentment" and *radość* "joy" (27) (see Figure 5).

The results suggesting an interpersonal basis to happiness in the more collectivistic Polish culture is consistent with other evidence. For example, the more collectivistic South African participants in Pflug's (2009) study characterized happiness in terms of close family bonds and harmonious

interpersonal relations. Uchida and Kitayama (2009) similarly report that their Japanese respondents associated hedonic experience with social harmony. Uchida et al. (2004) also note that happiness is based on social harmony in East Asian cultures and Kwan et al. (1997) similarly showed that relationship harmony was a greater predictor of life satisfaction in a relatively more collectivistic Hong Kong sample than a US sample. In their sorting study, Uchida and Kitayama (2009) observed that the Japanese classified the general hedonic state of happiness in terms of social harmony. Ford et al. (2015) also underscore a collective source of happiness that is based relatively more on social engagement. With regard to an interpersonal basis to happiness extending to romantic relationships, Lu and Gilmour (2004) showed that Chinese students conceptualized happiness in terms of both their love for their lover/spouse as well as for friends and family. The derivation of happiness from romantic love can also be seen in young, relatively more collectivistic Bangladeshi women who describe how crucial their marital relationships are for their happiness (Camfield et al., 2009). The importance of good family relationships, including those between romantic partners, is also at the heart of happiness for the Inuit (Kral, Idlout, 2012), a people who have been identified as highly collectivistic (Beckstein, 2014).

Figure 4: Selected Emotions in the British English LOVE, HAPPINESS and SELF-ACHIEVEMENT Clusters

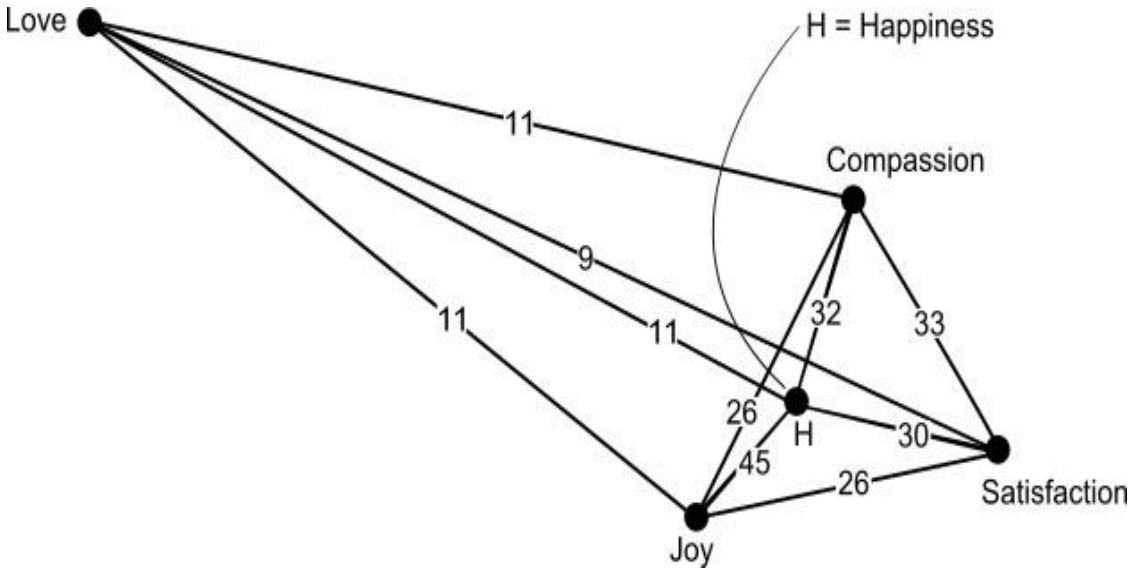
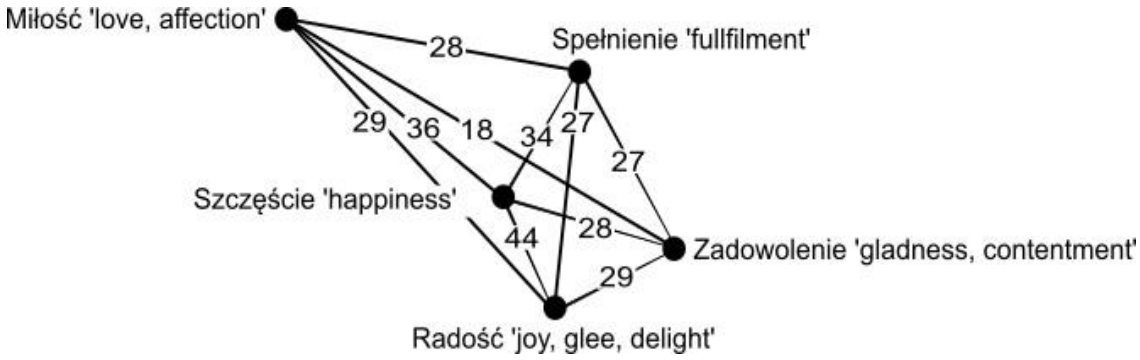


Figure 5: Selected Emotions in the Polish LOVE, HAPPINESS and SELF-ACHIEVEMENT Clusters



3.4. Pride

Pride is generally considered to be a self-conscious emotion that can lower the risk of social rejection by enhancing one's acceptance and social status within a group (Leary et al., 1995). The expression of pride bolsters self-esteem and conveys the message that one is worthy of praise and increased status (Tracy, Robins, 2008). More recent research argues against the traditional view of pride as a single emotion. Tracy and Robins (2004) propose two distinct facets of pride—authentic pride, which is the more positive pro-social form that is associated with enhancement of self-esteem and status outlined above, and a hubristic type of pride that is characterized more by narcissism, which can lead to aggression, as well as disharmony in interpersonal relationships (see also Bushman and Baumeister (1998) and Paulhus et al. (2004)).

Although the online emotions sorting data show that PRIDE clusters in British English and Polish are similar in terms of their relatively very small size (the British English PRIDE cluster comprises *pride, triumph, enthusiasm* and *satisfaction* (see Figure 6), and the Polish PRIDE cluster contains *duma* "pride," *triumph* "triumph, jubilation" and *podziw* "adoration, admiration" (see Figure 7)), it should be noted that there are a variety of different cultural and linguistic types of pride in both languages. In Polish there are three concepts *duma*, *pycha*, and *próżność,* which correspond to the two English notions *pride* and *vanity*. While Polish *duma* is conventionally considered as authentic pride, at least more frequently than English *pride*, both *próżność* and *pycha* possess clear negative connotations and can be considered variants of *hubris*. Although both Polish *próżność* and its English lexicographic equivalent *vanity* denote excessive pride in both languages, it is Polish *próżność* that is primarily associated with the meaning of mental emptiness (superficiality, stupidity). Both refer to excessive pride, self-conceit and too much concern with oneself. Nevertheless, the causes (stimu-

li) of *vanity/próżność* in Polish and English Emotion Events (see Lewandowska-Tomaszczyk and Wilson (2013) for a discussion of Emotion Events) are not necessarily identical.

The variation of pride in Polish and British English is underscored by both cultural and semantic influences. Regarding the former, an important differentiating feature of pride in individualistic and collectivistic cultures is self *versus* other orientation, respectively. Whereas collectivists are relatively more likely to be proud of significant others, the value placed on self-fulfilment that is associated with a more personal type of this emotion is more likely to be salient in individualistic cultures (e.g., Stipek (1998); Ogarkova et al. (2012)). With respect to the latter, it is important to not only consider British English *pride* and its widely accepted Polish equivalent *duma*, but also *hubristic* pride, which is represented in Polish by *próżność* and *pycha*. While p*różność* is most frequently rendered as English *vanity*, *pycha* – sharing the equivalence space with the more positive *duma* – can be deemed to be close to English *pride* in some contexts.

The results from the three methodologies showed evidence that the British English and Polish clusters of PRIDE are influenced by both cultural and semantic influences. The former centers on pride of self vs. others in individualistic vs. collectivistic cultures. Specifically, the more positive VALENCE of *duma* in comparison with *pride* might be due to the former being more communal in nature as one would expect in a relatively more collectivistic culture such as Poland. One interpretation of the relatively strong interconnection between *podziw* "adoration, admiration" and *duma* (22) (see Figure 7) shown in the online emotion emotions sorting study results is consistent with this. This relatively high co-occurrence, in comparison to that between *pride* and *adoration* (10) (not shown in Figure 6 due to the low co-occurrence value), possibly shows the relatively greater salience of communal pride of others in the DUMA cultural schema.

Possible semantic differences in the meaning of pride between the two languages are shown in the corpus data. The data revealed asymmetries in the distribution of the pride-related linguistic collocates between English and Polish particularly in the collocation patterns of the PRIDE cluster members. Polish *duma* (Table 7) combines with positively charged collocates, while both *pycha* and *próżność* display their clearly negative character. Moreover, *duma* is more frequently combined with the nouns of a collective type (*naród* "nation," *rodzina* "family," etc.). *Pride* in English shows either a negative or a positive charge and the most characteristic use in its negative polarity is reflected in its religious occurrence, in which it is singled out as one of the seven main/deadly sins, while in Polish this role is taken over by *pycha* (Table 8), an instance of hubristic pride. The concept of *vanity* and its close counterpart *próżność* (Table 9), on the other hand, are other instances of hubristic pride, although in this case the metaphorical sense of

emptiness, present in the semantic content of these terms in both languages, uncovers the epithet of "mental emptiness" underlying their meanings. Hubris in Polish then has two manifestations, namely *pycha* and *próżność*, linked with loftiness and stupidity (mental emptiness), respectively.

Figure 6: British English PRIDE Cluster

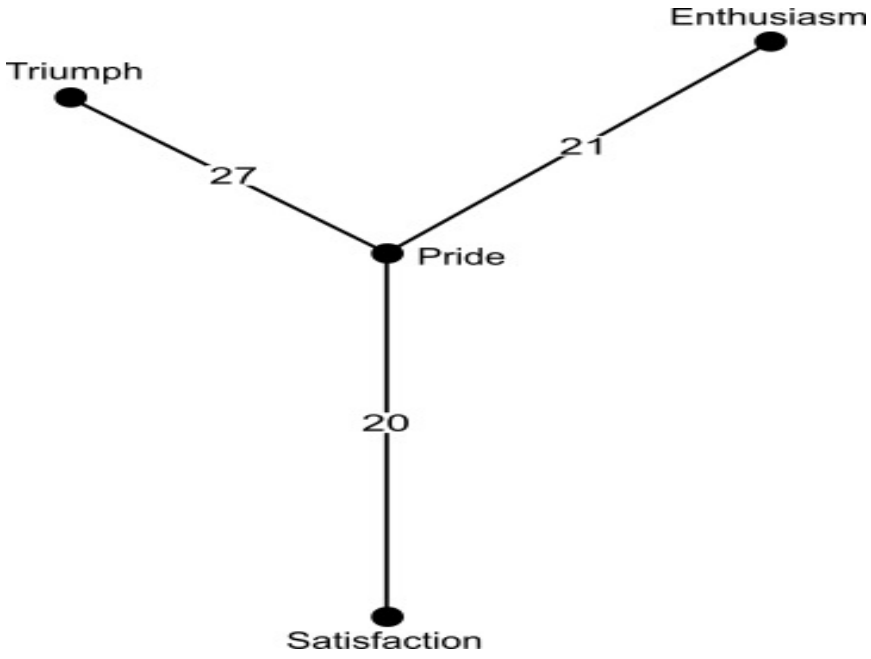


Figure 7: Polish PRIDE Cluster

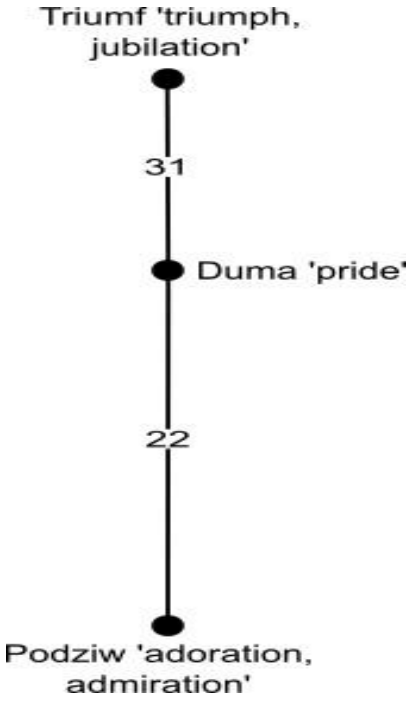


Table 7: Polish *duma* "pride" – Top Verbal collocates

#	Collocate	POS	A	TTEST	MI3	Eng. equivalents
1	mówić	Verb	466.0	18.53	20.54	talk
2	podkreślać	Verb	152.0	11.99	19.68	emphasize
3	pokazywać	Verb	138.0	11.39	19.25	show
4	rozpierać	verb	109.0	10.43	23.91	burst with
5	urazić	verb	94.0	9.66	21.36	hurt

Table 8: Polish *pycha* "hubristic pride" – Verbal collocates (considered one of the deadly sins in Catholicism) (NKJP)

#	Collocate	POS	A	TTEST	MI3	Eng. equivalents
1	grzeszyć	verb	24.0	4.89	18.56	sin
2	unosić	verb	17.0	4.07	14.46	float in air (metaphor)
3	zgubić	verb	16.0	3.96	14.74	lose
4	ukarać	verb	14.0	3.68	13.64	punish
5	zgrzeszyć	verb	9.0	2.99	15.70	sin

Table 9: *próżność* "vanity" – Verbal collocates (NKJP)

#	Collocate	POS	A	TTEST	MI3	Eng. equivalents
1	łechtać	verb	21.0	4.58	22.27	tickle (metaph. 'trigger')
2	połechtać	verb	17.0	4.12	21.52	*as above (Perfective)*
3	zaspokajać	verb	11.0	3.30	15.54	satisfy
4	zaspokoić	verb	6.0	2.42	12.13	*as above (Perfective)*
5	pozbawić	verb	6.0	2.34	9.78	deprive

4. CONCLUSIONS

By comparing a number of British English and Polish emotion clusters we have demonstrated that the differences in emotions within these clusters between these two languages are determined by varying degrees of both external vs. internal influences and intra- and inter-cluster relationships.

A potential explanation for the relatively low POWER/*fright* in *strach* in comparison to *fear* centers on the relationship between the FEAR and SADNESS clusters. Specifically, it is possible that the low POWER/*fright* in *strach* is influenced by the closer relationship between *strach* and *smutek* on the POWER dimension, especially as sadness and depression appear to be more prevalent among Poles than the British.

When one compares *compassion* with *współczucie* one can observe the effects of both external vs. internal influences as well as intra- and inter-cluster relationships. Regarding external effects, the more positive VALENCE

of *compassion* is consistent with this emotion being a more inward-oriented emotion than the more negative, outward-oriented *współczucie*. Both intra- and inter-cluster relationships can be seen as a consequence of the lack of an equivalent emotion in the Polish EMPATHY/COMPASSION cluster to English *sympathy* (recall that *sympatia* possesses a uniquely positive VALENCE in Polish). It is possible that *współczucie* has a wider conceptual space within the Polish EMPATHY/COMPASSION cluster that encompasses some of the negative meaning that would have been the domain of *sympatia* were it present in this cluster as an equivalent of *sympathy*. The effect of intra-cluster relationships can also be seen in the third possible reason for the relatively more positive VALENCE of compassion. The rather close relationship between *współczucie* and *politowanie* means that the sense of superiority or even contempt associated with *politowanie* can make *współczucie* more negative.

The external influence of individualism vs. collectivism would appear to exert a profound influence on the intra- and inter cluster structure pertaining to love, happiness and self-achievement. The online emotions sorting results show that both the Polish SELF-ACHIEVEMENT and HAPPINESS clusters have relatively high co-occurrence connections with the Polish LOVE cluster, resulting in one LOVE/HAPPINESS/SELF-ACHIEVEMENT cluster in Polish compared with two clusters in British English—a LOVE cluster and a HAPPINESS/SELF-ACHIEVEMENT cluster.

The PRIDE clusters in British English and Polish show yet another pattern that is underscored by external vs. internal influences on intra-cluster relationships. The external influence is characterized by the possibility that the more positive VALENCE of *duma* is due to the relatively greater salience of communal pride of others in the DUMA cultural schema as a consequence of the relatively more collectivism in Polish culture. The internal influence centers on some asymmetries in the English and Polish lexical systems. Polish has a larger set of PRIDE cluster members than English, which allows a more granular classification of shades of pride in Polish than in English. Out of the basic three in Polish, it is *duma* which is most positive (neutral and weakly negative in some contexts), while the other two, *próżność* and *pycha*, involve a negative charge in all contexts. English has two corresponding word forms for pride, which makes the comparison non-symmetric, and hence the distribution of their positive and negative evaluative aspects is distinct from that in Polish.

To recapitulate, as was signaled in Section 5 and elaborated on in the analyses of the selected examples of emotion clusters in Section 7, the concepts people use in communication exchanges are usually only partially overlapping and the cross-linguistic comparison confirms the inherent asymmetry and absence of full calibration of senses in the case of emotion concepts. Both in monolingual communication and in translation, people

often seek emotion lexical labels in the pool of associated emotion cluster members rather than resorting to one, usually prototypical, lexicographic equivalent.

The study reconfirms the presence of the crucial parameter of semantic approximation, connected with the language typological parameter—the linguistic type a given system represents, in which some ontological categories are verbally marked and can be expressed, while some others are absent or left non-verbalized in the system.

The conclusions of this discussion also confirm the thesis of Cluster Equivalence across languages. Human cognition and communication, either in the case of the same language or a translation, do not engage the use of identical *single-word* meanings but are based rather on semantic *clusters*, or mental areas, structured around *similar, albeit not identical, content*.

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