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Emotion concepts in language and in translation: anxiety clusters in English and Polish

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Abstract

The focus of the present paper is on the constructionist interpretation of concepts and linguistic meanings in general with a special emphasis on emotions, and in particular on clusters of meanings of English *fear* and *anxiety*, and their corresponding emotions in Polish, as well as their relations to other emotion concepts (*sadness* and *anger*). Relevant cross-linguistic similarities and differences are examined in English and Polish monolingual and translation corpus data. Additionally, recommendations are formulated concerning the possible ways in which the results can be applied in educational settings, particularly with regard to the English language and translation.

Keywords: anger/gniew-złość; *anxiety/lęk*; cluster equivalence; corpus data; culture; English; Polish; reconceptualization; *sadness/smutek*; translation

1. Introduction

The present paper discusses a constructionist interpretation of concepts and linguistic meanings in general with a special emphasis on emotions. The focus here

is on clusters of meanings of English *fear* and *anxiety*, and their corresponding emotions in Polish. We also refer to the relations that fear and anxiety have with other emotion concepts such as *sadness* and *anger* in both languages. The manifestation of cross-linguistic similarities and differences will be examined in English and Polish monolingual and translation corpus data and some recommendations regarding the application of the results of the analysis to educational settings will be formulated. The relevant educational context refers to the development of the intermediate and advanced English language students' metacognitive skill, where metacognition, as proposed by Phelps, Ellis, and Hase (2002) is regarded as thoughtful and reflective consideration of both the things students are learning and the ways of learning.

2. Cross-linguistic meaning equivalence, reconceptualization and translation

Semantic similarities and contrasts in cross-linguistic systems can be identified in a number of ways. We propose to use the cognitive linguistic reflection proposed by George Lakoff's (1987) *criteria of meaning commensurability*.

The first of these is a *truth-conditional* comparison, which can be summed up as language users' ability to state whether sentences are true or false and whether this state is identical or different in the languages compared with regard to statements which focus on the same elements of outside world descriptions. The criterion of *use* refers to a distributional range of particular language elements, that is, the positions in a sentence and the extent to which particular meaningful forms can be used in languages. The *framing* criterion combines linguistic knowledge with knowledge of the outside world in terms of stereotypical, recurrent, or repeated chunks of knowledge and their expression in language. This criterion is connected with the identification of different *object* or *event frames/schemata*, which regulate a top-down perspective on meaning interpretations as used in different languages. Finally, the *organizational* criterion reflects distinct cross-linguistic perspectives on objects within a given grammatical, morphological, or discourse category, as, for example, in the cases of polysemy, which represents a language-specific system of meanings and distinct conceptual organization within semantic-conceptual categories across languages (Lewandowska-Tomaszczyk, 2007).

Meanings are generally fairly underdetermined entities. They acquire a conceptually more rigid status in particular contexts; however, they always possess an approximative character due to their strictly personal, inner, ineffable parts. For that reason, the *reconceptualization processes*, connected with meaning approximation (cf. Lewandowska-Tomaszczyk, 2010) involve - in monolingual communication and in translation – not only embedding in different *constructional*

properties of language, that is, phonology, morphology, and syntax, but shifts, substitutions and various compensatory transformations in the *content of linguistic units* from one speaker to another and from one language to another. The re-conceptualization resides both in language production and language reception processes and influences diverse types of *construal* of a scene (Langacker, 1987, 1991), in other words the ways in which a particular event is perceived and described in languages.

3. Emotion concepts and emotion words

Prior to assessing how emotion concepts vary across cultures it is first necessary to gain further insight into the underlying reasons for such possible differences. The illumination of such cultural variation requires an understanding of the two main current theories of emotions – appraisal theories and constructionist theories.

The main idea of modern appraisal theories is that emotions constitute emotional episodes that, rather than being states, are viewed as processes involving fluctuations in underlying components or subsystems. An appraisal component is included as one of these components, which comprises a number of environmental evaluations as well as evaluations of interactions between the individual and the environment. Emotional episodes emerge from combinations of these appraisal components, which comprise a motor component that is manifested in specific expressive behavior; peripheral physiological responses of the somatic component; action readiness and tendencies of the motivational component; and a feeling component pertaining to subjective feelings.

According to constructionist emotion theories, 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. Such ideas are outlined in detail in Russell's (2003) proposals regarding the psychological construction of emotion and Barrett's (2006) *conceptual act model* of emotion. 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. In more recent developments, Hoemann, Xu and Barrett (2019) explain that the brain produces an ad hoc emotion concept when it generates a cluster of emotion signals on the basis of emotional events in the past, that is, previous actions and sensations that were rendered into a meaningful

emotion event. This ad hoc emotion concept is the closest match to the input that is causing the new sensory signals and offers the best prediction of the neural and motor responses necessary to meet the challenges of that situation. The sensations are categorized as an emotion when a prediction is determined. At this point the brain understands that visceromotor and action responses were caused by the emotion. The role of analogy in this process is highlighted by Lewandowska-Tomaszczyk and Wilson (submitted).

4. Culture

There have been a wealth of recent studies showing variation in how emotion concepts are conceptualized across cultures. In our research employing the GRID, online and corpus methodologies, we have observed, for example, that Polish and English differ in their emotional profiles of fear (Lewandowska-Tomaszczyk & Wilson, 2013), pride (Wilson & Lewandowska-Tomaszczyk, 2017), and hurt (Lewandowska-Tomaszczyk & Wilson, 2021). Other studies have shown similar inequivalences in language terms across languages and cultures. For example, Alonso-Arbiol, Soriano and van der Vijer (2013) demonstrated that whereas Spanish 'desesperacion' (despair) is a combination of sadness and the anger elements of frustration/exasperation, the English and Basque (*etsipena*) equivalents are instances of a more general sadness category. In a general sense these effects show that "as people embody different cultural models, their emotions come to differ according to the different interactions and relationships that they engage in" (Boiger & Mesquita, 2012, p. 226).

The importance of the constructionist model to child development within a cultural context can be seen in Hoeman, Xu and Barrett's (2019) observation that a young infant must construct a conceptual model of the world. In the early stages of this process there will be a great deal of prediction error as processes attempting to provide correspondence between its rudimentary ad hoc concepts and sensory input will produce matches that have a greater degree of imprecision. Over time, the infant brain adapts these imprecise matches as it gains more experience matching incoming signals to build more sophisticated conceptual models. Eventually, it refines the ad hoc concepts it constructs to such an extent that they provide effective predictions in its cultural environment.

In contrast with the focus on features and components by appraisal theories, the role of the situation has a greater emphasis in cross-cultural accounts of emotion differences by constructionist theories. For example, whereas in some cultures the display of negative emotions might be less accepted as it might negatively affect interpersonal harmony, in other cultures the importance of politeness might be emphasized, and in yet other cultures shame might be employed as

a means of coercion to adhere to societal norms, and so on. For example, in a card-sort study in which American and Japanese participants categorized hypothetical situations pertaining to anger and shame, Boiger et al. (2013) showed that, consistent with the emphasis on politeness norms in Japanese culture, Japanese participants deemed that situations involving inconsiderate others were characterized more by anger than American subjects. The results for shame were also consistent with cultural expectations – whereas the American participants associated shameful situations with personal flaws, the Japanese deemed situations as being more shameful when they involved public loss of face. In terms of the conceptual act model, this demonstrates that emotions are categories that derive from how individuals in a culture collectively perceive their reality (Barrett, 2009).

5. Emotion clusters

There is evidence that the conceptual structure of emotions comprises clusters of emotions that have a closer or more distant proximity within conceptual space. Emotion clusters are groups of emotion concepts exhibiting (degrees of) similarity along a number of dimensions, such as AROUSAL (e.g., the fervency of love), VALENCE, CONTROL and particular sets of physiological, behavioral and mental properties, characterized with similar ex-bodied expression as well as results and consequences. The properties can be grouped around one or more basic emotions within an intra-cluster setting (e.g., FEAR cluster), while clusters are typically linked by inter-cluster relations (e.g., *disgust* is connected to ANGER and FEAR clusters – Lewandowska-Tomaszczyk & Wilson, 2016). Each individual emotion space on the other hand is inhabited by polysemous concepts, that is, a range of different, although related, senses of an emotion concept as, for example, in the case of different types of love.

6. Anxiety, fear, sadness and anger

Fear is a response that increases one's survival chances when faced with physical threat (Beck, Emery, & Greenberg, 2005; Öhman, 2008). The three main types of responses to fear – *fight*, *flight* and *fright* – are elicited to counteract threats that are context-specific. Whereas the *fight* response is usually utilized when it is not possible to freeze or flee (Eilam, 2005), *flight* elicits an escape response from the source of threat (Eilam, 2005), and *fright* is activated in an attempt to make a predator less likely to continue their attack (Monassi, Leite-Panissi, & Menescal-de-Oliveira, 1999) and is characterized by inhibition of bodily movements and vocalization as well as analgesia (Fiszman et al., 2008).

Despite their close conceptual proximity and similarity in providing responses to threat that enhance survival, there are certain important differences

between anxiety and fear that point to their independent status as separate emotions. The first point to make is that whereas fear is an immediate response to a specific, certain, imminent threat, anxiety is characterized by the apprehension that arises when one approaches, and possibly overestimates, an uncertain, ill-defined, ambiguous threat (Sylvers, Lilienfeld, & LaPrairie, 2011), which possibly pertains more to future danger (Epstein, 1972). As outlined above, the response mechanisms that are elicited in the fear response to such specific threats are *fight, flight* and *fright*, which help the individual deal with the source of fear (McNaughton & Corr, 2004). This contrasts with the hypervigilance in anxiety contexts (Epstein, 1972), whereby an individual anticipates an uncertain threat. As the source of the threat is more diffuse (Macleod & Rutherford, 1992), it is more difficult to initiate an active response that is effective and anxiety can therefore be deemed to be caused by unresolved fear (Epstein, 1972). As a consequence of this, anxiety is characterized by a more protracted response in comparison to the fear response, which can be relatively short-lived (Sylvers et al., 2011).

7. Research aims and methodology

The methods that we employ in the present chapter, which are discussed in the sections to follow, are designed to focus on the differences between British English versus Polish ANXIETY clusters. There will be further assessment of the relationships between each of these clusters and their respective FEAR, SADNESS and ANGER clusters.

7.1. 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 in an experimental GUI on a computer. In the only study employing the category sorting task in a cross-cultural perspective (to our knowledge), the conceptual structure of Dutch vs. Indonesian was investigated by Fontaine et al. (2002). The category sorting task has also been used to determine the conceptual structure of pleasure (Dubé & Le Bel, 2003).

In the present study we adapted the NodeXL (Smith et al., 2010) tool to provide information pertaining to the ANXIETY cluster in British English and Polish and the relationship between each of these to their respective FEAR, ANGER and SADNESS clusters. Although the most common use of NodeXL is to analyze relationships between individuals using online social media networks, we employ NodeXL to create graphical representations of the Polish and British English co-occurrence emotion matrices. The graphs created are similar to those produced by the synonyms

rating methodology employed by Heider (1991) to compare and contrast emotion terms across three Indonesian languages. In Heider's (1991) study participants provided a synonym emotion for each target emotion term and in the maps of the emotion domains the nodes are represented by the individual emotion terms. For the sake of consistency, we adopt the same terminology as Heider (1991) where possible. The main difference is in the terms used to refer to the links that show the relationships between the nodes. Whereas for Heider connection strength refers to the between-subjects frequency with which an emotion term is given as the synonym for another, the connection strength in our NodeXL graphs represent the co-occurring frequency of the emotion terms in the online emotions sorting data and are hence either referred to as co-occurrence values or interconnections.

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 watched a video (about 8 minutes) that demonstrated the procedure. This was followed by a practice session that involved the categorization of food items, and once this had been completed the proper experiment with emotion terms began. 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.

7.2. Language corpora

There are two basic reference corpora used in our study. They are the British National Corpus (BNC) for English and the National Corpus of Polish (NKJP). Furthermore, materials from Polish and English monitor corpora (monco.frazeo.pl, monco.frazeo.com) are also generated, which present media language concordances and collocations from contemporary English and Polish radio, TV, newspaper, and Internet sources.

The materials contained in the BNC and NKJP are structurally comparable to a large extent and contain language from similar domains, styles and genres, although, as will be presented, the narrow contexts in which the forms of the relevant emotion clusters are used are not always identical in the two languages. The analysis of the quantitative data is completed by some cognitive linguistic instruments referring to the *construal* (Langacker, 1987, 1991) of particular Emotion Events. More authentic data in both languages are acquired from the monitor corpora – English and Polish, which represent present-day language usage.

Access to collocational patterns (Pęzik, 2012, 2014) in all these sources make it possible for us to examine the meaning nuances of the relevant lexis in the examined languages, via their co-occurrence regularities. An additional significant source of the materials for our study are parallel, translation corpora, from English-to-Polish and from Polish-to-English (*paralela* – Pęzik, 2016).

8. Results

8.1. Online emotions sorting results

It can be seen in Figures 1 and 2 that the co-occurrences between *lęk* and Polish FEAR cluster emotions (e.g., *trwoga* 'alarm' (40) and *strach* 'fear' (37)) are higher than those between *anxiety* and British English FEAR cluster emotions (e.g., *alarm* (21) and *fear* (30)). Likewise, the interconnections between *lęk* and Polish SADNESS cluster emotions (e.g., *depresja* 'depression' (31) and *smutek* 'sadness, sorrow' (27)) are higher than those between *anxiety* and British English SADNESS cluster emotions (e.g., *depression* (24) and *sadness* (14)). There is more similarity in the co-occurrence values between *lęk* and *anxiety* and their respective anger cluster emotions (e.g., *anger* (10) vs. *złość* 'anger 1' (6), *gniew* 'anger 2' (5); *fury* (6) vs. *furia* 'fury' (8)).

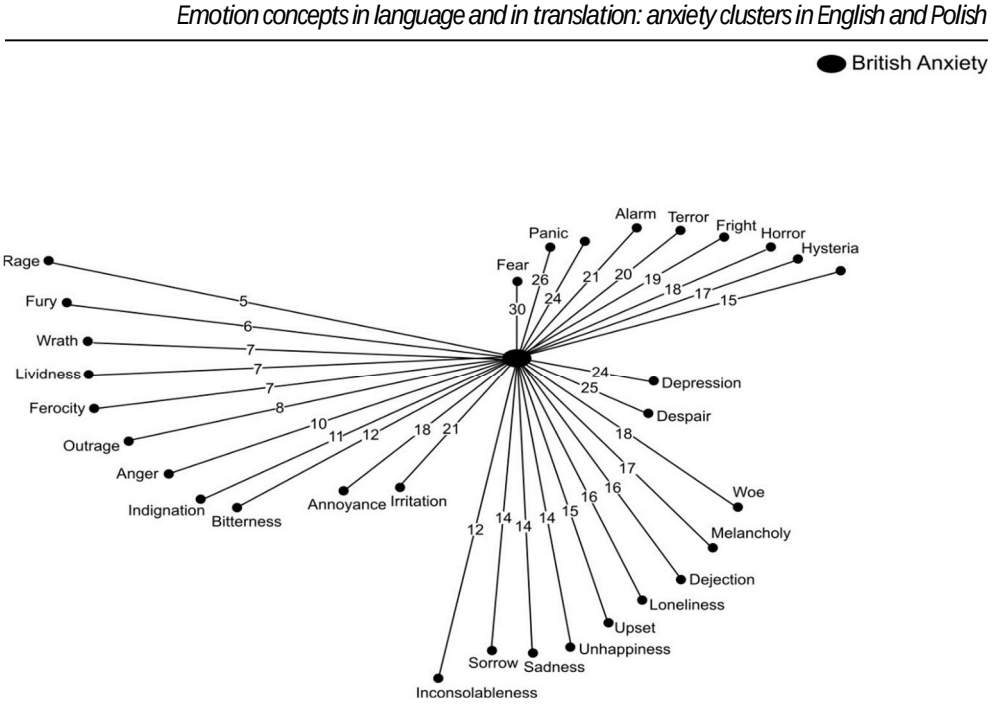

Figure 1 Co-occurrences between *anxiety* and British English FEAR, SADNESS and ANGER cluster emotions

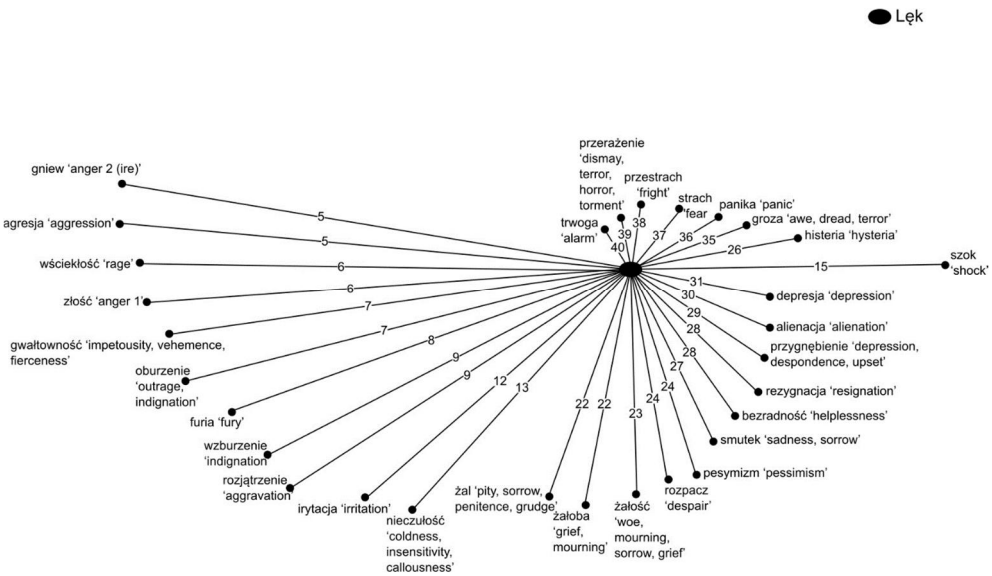

Figure 2 Co-occurrences between *lęk* and Polish FEAR, SADNESS and ANGER cluster emotions

8.2. Meaning insight from the corpus analysis

One of the most characteristic indicators of the semantics of word meanings are collocational patterns, namely the lexical items co-occurring with the form more frequently than by chance. They do not only show recurrent formal patterns of word combinations but also patterns of meanings that embody the closeness of senses in terms of distributional – *iconicity links* (Haiman, 1980).

8.2.1. Collocation patterns[1]

A comparison of the monolingual English and Polish collocational data generated from the BNC and NKJP presented in (1) and (2) for the verb forms in both languages shows a similar type of pattern in general, with a certain preference for the Polish lexis to express *lęk* – related forms in metaphorical terms (Lakoff & Johnson, 1980) more frequently than in English. The finding that the source of both *anxiety* and *lęk* in the metaphoric Source Domain *budzić* 'wake/wake up' in 1 and 5 in (2) as well as in the English collocates (1) *mount* 22 or *control* 18, as well as *dispel*, *control*, *relieve*, etc. indicate these processes.

On the other hand, it is only in English that the concept of *anger* (21) appears in the most frequent *anxiety* collocate list in (1), which may indicate closer cognitive semantic relations between the ANXIETY and ANGER clusters in this language.

(1) Verbal collocates of *anxiety*

#	Collocate	A	TTEST
1	cause	57.0	6.87
2	express	53.0	6.86
3	fear	22.0	4.41
4	increase	26.0	4.16
5	arouse	15.0	3.78
6	reduce	22.0	3.75
7	provoke	15.0	3.74
8	suffer	17.0	3.41
9	share	16.0	3.33
10	experience	14.0	3.30
11	relieve	11.0	3.21
12	create	18.0	2.97
13	alleviate	9.0	2.95
14	cope	11.0	2.93
15	associate	11.0	2.71
16	dispel	6.0	2.40
17	worry	8.0	2.31
18	control	10.0	2.31
19	feel	26.0	2.26

[1] All the items included in the tables are presented with the corresponding statistical significance values, in particular *t*-test.

20	allay	5.0	2.21
21	anger	5.0	2.14
22	mount	6.0	2.14
23	generate	7.0	2.13
24	grow	11.0	1.94
25	overcome	5.0	1.87

(2) Verbal collocates of *lęk*

#	Collocate	A	TTEST
1	budzić	365.0	18.78 'wake (up)'
2	odczuwać	230.0	14.99 'feel'
3	czuć	179.0	12.05 'feel'
4	wywoływać	130.0	11.15 'call up'
5	wzbudzać	111.0	10.40 'wake'
6	przeżywać	108.0	10.12 'live through'
7	związać	125.0	9.26 'bind'
8	napawać	83.0	9.07 'indulge in'
9	ogarnąć	82.0	8.92 'overwhelm'
10	ogarniać	72.0	8.39 'overwhelm' (Perfective)
11	poczuć	75.0	8.09 'feel'
12	rodzić	66.0	7.72 'bear'
13	pojawiać	72.0	7.50 'appear'
14	powodować	59.0	6.71 'cause'
15	towarzyszyć	52.0	6.59 'accompany'
16	narastać	44.0	6.46 'grow'
17	pokonać	50.0	6.42 'win over'
18	wyrażać	49.0	6.41 'express'
19	wywołać	47.0	6.26 'call forth'
20	wynikać	69.0	6.05 'result'
21	pozbyć	35.0	5.66 'get rid of'
22	ukryć	38.0	5.52 'hide'
23	doświadczać	32.0	5.51 'experience'
24	podszyć	30.0	5.44 'pose as'
25	przełamać	30.0	5.35 'break'

It also seems characteristic that while the collocations of the *reduce* (6), *relieve* (11), *cope with* (14) type in (1), which signify control over this emotion, appear more frequent in English than in Polish (2), the Polish collocations indicate the growing feeling of anxiety (9, 10, 12, 15, 16) more often than in English as observed in the first 16 collocation patterns in (2).

In the examples in (3) below the collocations of *anxiety* from the monco.fraz eo.com resources function as confirming evidence of the presence of ANGER emotion cluster members, cooccurring with *anxiety* in English discourses. In (4) the combinatorics paths of *anxiety* and *anger* are identified in more detail.

(3) *Anxiety* collocations 90-100 monco.frazeo.com [English media data 2021][2]

		Frequency	Paths
90	anger	87	{anger and anxiety=21},{anger , anxiety=14},{anxiety and anger=12}
91	feeling	83	{feelings of anxiety=25},{feeling of anxiety=9},{feelings of depression , anxiety=3}
92	panic	83	{anxiety and panic=22},{anxiety , panic=10},{panic and anxiety=5}
93	them	83	{anxiety really link them=5},{them anxiety=4},{anxiety for them=2}
94	symptom	82	{symptoms of anxiety=22},{symptoms of depression and anxiety=9},{anxiety symptoms=7}
95	struggle	82	{struggle with anxiety=9},{struggling with anxiety=8},{struggled with anxiety=7}
96	pain	82	{pain and anxiety=29},{pain , anxiety=5},{anxiety , pain=4}
97	even	80	{even anxiety=7},{anxiety even=5},{anxiety and even=5}
98	could	79	{anxiety could=8},{could feel my anxiety=2},{anxiety , it could=2}
99	lead	78	{lead to anxiety=11},{anxiety led=3},{anxiety leading=3}
100	out	78	{anxiety out=22},{out of anxiety=4},{out the anxiety=3}

(4) Combination paths of Eng. *anxiety* and *anger* in moco.freazeo.com

Frequency: 87

#		Frequency
1	anger and anxiety	21
2	anger, anxiety	14
3	anxiety and anger	12
4	anxiety, anger	8
5	anger or anxiety	3
6	anxiety or anger	2
7	anxiety, dread and anger	1
8	anger, the anxiety	1
9	anger and an anxiety	1
10	anger, frustration, anxiety	1

The English *anxiety* collocation lists in (1), (3) and (4) above express another regularity – the presence of *anger* terms in the English monitor collocations – as opposed to the Polish monitor data in (5) and (6), which indicate the prevalence of smutek (18) 'sadness' and depresja (19) 'depression' feelings over those of gniew 'anger 1' and złość 'anger 2.'

(5) *Lęk* collocation list (1-26) monco.frazeo.pl

		Frequency	Paths
1	paniczny	84	{paniczny lęk=76},{paniczny wręcz lęk=2},{lęk paniczny=2} 'panic(ing)'
2	odczuwać	23	{odczuwa lęk=38},{odczuwają lęk=20},{odczuwać lęk=15} 'feel'
3	budzić	46	{budzi lęk=108},{budzić lęk=30},{budzą lęk=29} 'wake (up)'
4	**lęk**	128	{lęk wysokości , lęk=3},{lęk przed śmiercią , lęk=3},{lęk przed ksenofobią i lęk=2} 'anxiety'
5	strach	248	{strach i lęk=54},{lęk i strach=44},{lęk , strach=38} 'fear'
6	niepokój	153	{lęk i niepokój=31},{niepokój i lęk=30},{lęk , niepokój=28} 'uneasiness'
7	niepewność	109	{lęk i niepewność=32},{lęk , niepewność=23},{niepewność , lęk=12} 'uncertainty'
8	wzbudzać	108	{wzbudzać lęk=14},{wzbudza lęk=13},{wzbudzają lęk=8} 'wake'

[2] http://monco.frazeo.com/collos?q=anxiety&o=on&sf=0&o=on&col_rows=10000&col_start=0&colPos=%5BA-Za-z%5D.*&customColPos=&colPosit=-5&colPosit=-4&colPosit=-3&colPosit=-2&colPosit=-1&colPosit=1&colPosit=2&colPosit=3&colPosit=4&colPosit=5&colMF=2&dq=&checkbox-toggle=on&f=&t=&p=1&sd=2021-08-12+09%3A58%3A10&l=20#

9	wywoływać	167	{wywołuje lęk=41},{wywołują lęk=13},{wywoływać lęk=12} 'call forth'
10	stres	115	{stres i lęk=26},{lęk i stres=20},{lęk , stres=16} 'stress'
11	paraliżować	46	{lęk paraliżuje=10},{lęk i paraliżują=5},{paraliżuje ich lęk=3} 'paralyze'
12	irracjonalny	37	{irracjonalny lęk=29},{lęk jest irracjonalny=2},{lęk ...irracjonalny=1} 'irrational'
13	pandemia	31	{lęk w dobie pandemii=3},{pandemia a lęk=3},{pandemia , lęk=2} 'pandemic'
14	przerażenie	38	{lęk i przerażenie=14},{lęk , przerażenie=4},{przerażenie i lęk=3} 'terror'
15	samotność	45	{lęk przed samotnością=12},{samotność i lęk=6},{lęk i samotność=4} 'loneliness'
16	przełamać	88	{przełamać lęk=41},{przełamać ten lęk=5},{przełamała lęk=5} 'break'
17	przezwyciężyć	40	{przezwyciężyć lęk=15},{przezwyciężył lęk=2},{przezwyciężył em lęk=2} 'win'
18	depresja	58	{lęk , depresja=8},{lęk i depresję=7},{lęk i depresja=6} 'depression'
19	smutek	51	{smutek , lęk=13},{smutek i lęk=7},{lęk , smutek=6} 'sadness'
20	ogarniać	32	{ogarnia lęk=7},{ogarnia nas lęk=5},{ogarnia ją lęk=3} 'overwhelm'
21	**złość**	42	{lęk , złość=8},{złość i lęk=4},{złość , lęk=3} 'anger 2'
22	gniew	42	{lęk , gniew=8},{gniew , lęk=5},{lęk przed gniewem=4} 'anger 1'
23	konopka	28	{konopki „ lęk=9},{konopki „ lęk=3},{konopki za film „ lęk=2} 'family name Konopka'
24	koronawirusa	21	{lęk w dobie pandemii koronawirusa=1},{lęk falą wzrostu zachorowań na koronawirusa=1},{lęk o szybkość rozprzestrzeniania się koronawirusa=1} 'coronavirus'
25	przełamywa**ć**	29	{przełamywać lęk=6},{przełamując lęk=3},{przełamuje lęk=3} 'break'
26	potęgowa**ć**	26	{potęguje lęk=6},{lęk potęguje=2},{lęk potęgował=1} 'increase'

(6) Combination paths of *lęk* and *smutek* moncofrazeo.pl[3]

Frequency: 51

#	Paths	Frequency
1	smutek, lęk 'sadness, anxiety'	13
2	smutek i lęk 'saness and anxiety'	7
3	lęk, smutek 'anxiety, sadness'	6
4	lęk i smutek 'anxiety and sadness'	5
5	lęk, głęboki smutek 'anxiety, deep sadness'	1
6	smutek, depresję i lęk 'sadness, depression and anxiety'	1
7	smutek, rozczarowanie, lęk 'sadness, disappointment, anxiety'	1
8	smutek lęk 'sadness anxiety'	1
9	smutek, niezadowolenie, lęk 'sadness, dissatisfaction, anxiety'	1
10	lęk, złość, smutek 'anxiety, anger2, sadness'	1

The asymmetry between Polish and English *anxiety – lęk* clusters observed in the Polish and English monolingual corpora are further confirmed in the English-to-Polish and Polish-to-English translational data, discussed in the forthcoming section.

8.2.2. Parallel data

Both the analysis of monolingual corpus data and that performed by the online sorting tasks show the absence of full equivalence patterns between the English *anxiety* cluster members and their Polish closest dictionary equivalent *lęk*, as well as various other emotion cluster members centered around both *anxiety* and *lęk*.

[3] http://monco.frazeo.pl/collos?q=l%C4%99k&o=on&sf=0&o=on&col_rows=10000&col_start=0&colPos=%5BA-Za-z%5D.*&customColPos=&colPosit=-5&colPosit=-4&colPosit=-3&colPosit=-2&colPosit=-1&colPosit=1&colPosit=2&colPosit=3&colPosit=4&colPosit=5&colMF=2&dq=&checkbox-toggle=on&f=&t=&p=1&sd=2021-08-12+10%3A12%3A17&l=20#

The translator aims to achieve the closest resemblance in meaning between the SL verbal stimulus and the TL realization. In all the paralela corpus texts the frequency list of the Polish equivalents locates the form *lęk* at the top position, followed by *niepokój*, and a range of forms indicating bodily expression symptoms of anxiety (7, 8, 9 below). We find similar equivalence patters in the case of the translations of Polish *lęk* and *niepokój* into English.

(7) Eng. anxiety >>> Polish:

		Inflectional forms				Dice[4]
1	lęk 'anxiety'	[lęk, lęku, lęk, lękiem, lęki, lęków, lęki]	467	1696	2079	0.198
2	niepokój 'uneasiness'	[niepokój, niepokoju, niepokój, niepokojem]	565	1598	2989	0.198
3	lękowy 'anixety (Adjective)'	[lękowe, lękowych, lękowymi, lękowym, lękowy]	169	1994	31	0.143
4	bezsenność 'insomnia'	[bezsenność, bezsenność, bezsenności]	202	1961	982	0.121
5	depresja 'depression'	[depresja, depresji, depresję, depresją]	273	1890	3079	0.099
6	pocić 'sweat'	[pocenie]	82	2081	432	0.061
7	uogólnić 'generalize'	[uogólnione, uogólnionych, uogólnionymi]	84	2079	514	0.061
8	splątać 'tangle, confuse'	[splątanie, splątania]	87	2076	687	0.059
9	dezorientacja 'desorientation'	[dezorientacja]	58	2105	139	0.049
	...					
16	drażliwość 'irritability'	[drażliwość]	46	2117	251	0.037

(8) Polish *lęk*>> English:

		Inflectional forms identified				Dice
1	anxiety	[anxiety, anxiety]	314	862	1948	0.183
2	insomnia	[insomnia, insomnia, insomnia, insomnia, insomnia]	131	1045	849	0.122
3	sweating	[sweating]	73	1103	462	0.085
4	clammy	[clammy]	42	1134	70	0.065
5	palpitation	[palpitations, palpitation]	51	1125	392	0.063
6	irritability	[irritability]	40	1136	272	0.054
7	lability	[lability]	35	1141	131	0.052
8	tremor	[tremor, tremors]	52	1124	913	0.049
9	depression	[depression, depression]	110	1066	3263	0.048
10	height	[heights, height]	88	1088	2509	0.047

Showing 1 to 10 of 795 entries

(9) Polish *niepokój*>> English:

		Inflectional forms identified				Dice
1	restlessness	[restlessness, restlessness]	315	1805	146	0.244
2	anxiety	[anxiety, anxiety]	375	1745	1887	0.171
3	tiredness	[tiredness]	110	2010	600	0.078
4	insomnia	[insomnia, insomnia]	100	2020	681	0.069
5	drowsiness	[drowsiness]	85	2035	477	0.063

[4] The first three numbers in all *paralela* equivalence tables included in the paper (7) – (9) refer to frequencies in different segments of the corpus, while *Dice* indicates the statistics of Dice probability values.

6	uneasiness	[uneasiness]	75	2045	177	0.063
7	vomit	[vomiting]	123	1997	1676	0.063
8	tremor	[tremor]	88	2032	685	0.061
9	nausea	[nausea]	159	1961	2997	0.060
10	dizziness	[dizziness, dizziness]	136	1984	2366	0.059

In the following section various asymmetries in meaning are identified between the main English emotion term *anxiety* and Polish corresponding forms in professional translations of different genres occurring first of all in official documentation of various types, restricted domain texts, including medical ones as well as in the language of literature. It will be seen to what extent the prototypical lexicographic pattern *anxiety – lęk* is used in actual translations and what other cluster members are considered closer equivalents in particular discourse contexts and how frequently they appear in the examined corpus materials.

(10) Official - political, cultural, sociological – documents

anxiety – obawa/obawy (plural)

(i) great *anxiety* > ogromne *obawy*

(ii) The reason they gave was their concern and *anxiety* that relations with Russia should not deteriorate > Jako uzasadnienie podały troskę i *obawę* o niepogarszanie stosunków z Rosją.

anxiety - niepokój

(iii) daily financial and practical problems, which create feelings of *anxiety* > codzienne problemy finansowe i praktyczne, które wywołują u nich *niepokój*

anxiety – pretensje 'grievances'

(iv) It called on the Chinese Government to respond to the *anxiety* of the Tibetan > Prosiła władze chińskie o odpowiedź na pretensje Tybetańczyków

anxiety – zaniepokojenie 'uneasiness (Perfective of 'niepokój}'

(v) indicators of *anxiety* > wskaźnikach *zaniepokojenia*

(11) Medical and psychological texts

anxiety – lęk/lekowy (Adjective)

(i) In humans serotonin signalling has been implicated in disorders including depression and *anxiety* > U ludzi procesy sygnalizacyjne z udziałem serotoniny mają związek z zaburzeniami takimi jak depresja i *stany lękowe*

(ii) the correlation between psychological trauma and development of pathological *anxiety* > korelacja między trauma psychiczną a rozwojem *lęku* patologicznego

(12) Literary texts

anxiety - trwoga

(i) Edgar, in his *anxiety* for her, forgot her hated friend > Edgar, zdjęty *trwogą*, zapomniał o znienawidzonym przyjacielu żony

anxiety – zdenerwowanie 'nervousness (Perfective}'

(ii) They, laughing at her *anxiety* and gravity, came with her into the hall. > Rozbawieni jej powagą i *zdenerwowaniem* wyszli razem z nią do hallu.

anxiety – obawa/obawy (Plural)

(iii) At the same time he was saying to himself that there could be no earthly reason for *anxiety*. > Jednocześnie powtarzał sobie, że nie ma najmniejszego powodu do *obaw*.

anxiety – chęć 'wish, to be anxious to'

(iii) and a *nervous anxiety* to get out of that bunker as quickly as possible > i *gwałtowną chęć* jak najszybszego wydostania się z bunkra

anxiety – troska/zatroskany (Adjetive) worry'

(iv) becoming very much aware of his loss, [he] had been hanging about in great *anxiety* > spostrzegłszy zgubę, zatrzymał się w pobliżu *wielce zatroskany*

free of anxiety – beztroska 'without+care'

(v) Everything felt *free of care and anxiety* > Wszystko tchnęło świąteczną *beztroską i niefrasobliwością*

anxiety – strach 'fear'

(vi) with an extremely sensible *expression of anxiety* on his face > w jego oczach wyraz utajonego *strachu*

anxiety – przykrość/przykry (Adjective) annoyance

(vii) [she] changed the subject to one of less *anxiety* to all > zmieniła temat na inny, mniej dla wszystkich *przykry*

approving anxiety – aprobata 'approval'

(viii) [he tried] to watch with a sort of approving *anxiety* > z wyczekującą *aprobatą* przyglądał się

While the literary language presents the most varied instances of translational options, the *cluster equivalence* and cross-linguistic *meaning reconceptualization* observed in all the materials show the highest frequency of the emotion of *niepokój* 'uneasiness' lit. 'non-quietness, peace' in the data in all types of style. It can also be seen that there is a preference for one equivalent for *lęk* in the texts of medicine and psychology, and a range of corresponding forms in literary texts such as *trwoga*, *zdenerwowanie*, *obawa*, *chęć*, *[nie]frasobliwość*, *przykrość*, *aprobata*, etc. coming from the cluster members of *lęk* in Polish.

9. Conclusions

The presence of meaning asymmetries in cross-linguistic contexts is not a novel finding. However, it is a much more complex task to identify the differences more precisely. In the present study we made an attempt to show what is the conceptual construction of emotion meanings, how they differ between Polish and English with

reference to the emotion concepts embracing *anxiety* and *lęk* clusters and what processes are involved in the translation from one language to the other.

Meaning reconceptualization discussed in the paper, related to and caused to some extent by the asymmetry between structural differences between languages, is clearly observed in the phenomenon of cluster equivalence patterns between the source and the target language in translation. And yet, as indicated in the examples from the parallel, translation corpus, the selection of particular equivalents by translators from the spaces of meanings at their disposal is not accidental. It is governed by grammatical tools offered by a particular language on the one hand, genre and style of the source text, which are not discussed in the present study, and on the other – by the translator's sensitivity to the context and by what George Lakoff (1987) calls particular language and equivalent *commensurability* of the systems, cultures, and situations. The capacity to recognize and consciously use such contexts in different languages and cultures can only be acquired during continual self-reflection and metacognitive thinking about the construction of language meanings and their possible *re-creation* in different systems and contexts.

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Corpora

British National Corpus (BNC) https://www.english-corpora.org/bnc/
Narodowy Korpus Języka Polskiego (NKJP) www.nkjp.pl
Media corpora: Polish monco.frazo.pl, English: monco.frazeo. com
Parallel Polish-to-English and English-to Polish corpus: *paralela* http://paralela.clarin-pl.eu/