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EMOTION AND THE BODY: A CORPUS-BASED INVESTIGATION OF METAPHORICAL CONTAINERS OF ANGER ACROSS LANGUAGES*

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ABSTRACT

This paper investigates the embodied conceptualization of emotions from a cognitive linguistic perspective, focusing on the metaphorical construal of the body and its parts as containers for various types of anger in English, Russian, and Spanish. Based on the statistical analysis of twenty thousand metaphorical uses of anger words from representative corpora, our results provide empirical support to the *embodied cultural prototype* view, according to which emotion conceptualization derives from both universal bodily experiences and more specific socio-cultural constructs. On the one hand, we observe a similar high salience in the three languages of the BODY IS A CONTAINER FOR ANGER metaphor, as well as cross-lingual agreement in preferring individual body parts as metaphorical containers for some specific types of anger. On the other hand, our findings highlight several areas of cross-lingual variation. These concern differences in the dominant localizations of the emotion, culture-mediated variation in its expression, and different granularity in the elaboration of the body-emotion relationship. All these features are highly interpretable *vis-à-vis* relevant research on emotion in other disciplines. To conclude, we discuss the relevance of our findings for future studies across a broader range of disciplines in the study of human affect.

Keywords: emotion, embodiment, metaphor, BODY (PART) IS CONTAINER FOR ANGER, quantitative methods in Cognitive Linguistics, English, Russian, Spanish

1. INTRODUCTION

The relationship between emotion and the human body is a multi-vector research area, the many and varied facets of which have fascinated scholars from a number of theoretical

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frameworks, including but not limited to medical anthropology (e.g., Ots 1990), cultural psychiatry (e.g., Kirmayer & Young 1998), history (Cook 2012), comparative philosophy (e.g., Marks & Amas 1995), or affective neuroscience (Damasio 1994). The relationship between the affective and the physiological (frequently reduced to the phenomenon of 'physiological arousal') is also a recurrent feature of many psychological emotion theories. Among the earlier theoretical attempts to conceptualize the link between body and affect, the views ranged from considering arousal to be the major *cause* of the emotion (as in James-Lange's theory, cf. James 1884) to seeing it as a generic ingredient dependent on the appraisal of contextual environmental cues to give rise to an emotional episode (as in Schachter-Singer's (1962) model). In contemporary psychological approaches, physiological arousal is always recognized as one of the major dimensions allowing for the differentiation of emotional states within the entire emotion domain (Russell 1980; Barrett & Russell 1993) and across cultures (Galati et al. 2008). Finally, one of todays' most influential appraisal emotion theories, the Component Process Model (Scherer 2005, 2009), proposes that patterned bodily changes constitute an indispensable component of both emotional experience *per se* and of the meaning of emotion words in all the languages of the world (Fontaine et al. 2013).

The present paper approaches the issue of the relationship between emotion and the human body from the perspective of its 'folk' conceptualization. Specifically, we are interested in the construal of the body and its specific parts as metaphorical containers for the emotions in three European languages. This focus relies on two disciplinary paradigms: linguistic anthropology and the Conceptual Metaphor Theory. We thus start with brief outlines of relevant research in these two areas.

1.1. Emotion and the Body in Anthropological Linguistics

The conceptualization of emotions via bodily states and processes is an indispensable part of the ethno-psychologies of almost all cultural groups studied to date (for an exception see Michelson 2002). In an impressive number and variety of languages—from at least twelve typologically distant families and in some isolates and dead languages—emotions can be linguistically represented via literal somatic sensations (e.g., *she blushed*) or by body-part phrases referring to both literal and imaginary processes taking place inside or with the body (e.g., *his hair stood on his head*, *his heart sank, it just makes my blood boil*) (see Annex 1 for a summary). The relevant evidence is so rich that the contention that all languages can describe emotions using both literal and metaphoric body-part expressions has been put forward as a putative emotional universal. Specifically, Anna Wierzbicka has proposed that "in all languages, people can describe cognitively-based feelings via observable bodily symptoms and figurative 'bodily images'" (Wierzbicka 1999: 36).

While the tendency itself appears to be (near)-universal, languages vary dramatically in how the link between the body and emotion is realized in them (see summary in Table 1). For one, many non-Western languages do not appear to differentiate between emotion and bodily sensation to the same extent that Western languages do.

Table 1. Variation in the linguistic codification of emotions via body-part expressions

Aspect	*Specification*	*Case studies*
I. Differentiation between the affective and the somatic	Less prominent in several non-Western cultures	▪ China (Kleinman & Kleinman 1985; Tsai et al. 2004; Tung 1994) ▪ Kenya, Tanzania (Ice & Yogo 2005; Kaaya et al. 2002; Pike & Young 2002) ▪ India (Saxena et al. 1988) ▪ Saudi Arabia (Racy 1980) ▪ Ghana (Geurtz 2002)
II. Proportion of somatic expressions in emotion vocabularies	More than a half in several African Asian and indigenous American languages	▪ Anuak (Nida 1958) ▪ Ewe (Ameka 2002; Geurts 2002) ▪ Fante and Dagbani (Dzokoto & Okazaki 2006; Dzokoto & Adams 2007) ▪ Zulu (Taylor & Mbense 1998) ▪ Dogon languages (McPherson & Prokhorov 2011) ▪ Chewong (Howell 1981) ▪ Malay (Goddard 2001) ▪ Twaka Indians (Chamberlaine 1985) ▪ Niasan (Beatty 2005) ▪ Wolof (Becher 2003)
III. Possibility to lexicalize emotions in abstract psychological language *vs* somatic expressions	Absent in several indigenous languages	▪ Wolof: sadness→ *tilimal suma xel* 'my mind is dirty'; disappointment→ *suma yaram bi yepp dee* 'my whole body died' (Becher 2003) ▪ Neo-Melanesian: disappointment→ *bel i-nogut* 'belly no good' (Hupka et al. 1999) ▪ Kootenay: angry→*sānītlwīne* 'bad-hearted he-is' (Chamberlain 1893) ▪ Niasan: guilt→*itegu dödögu* 'my heart is pressed/nagged' (Beatty 2005) ▪ Kayardild: good feelings→*mirraa bardaka* 'good stomach' (Evans 1994)
IV. Dominant emotion localizations	heart *vs* abdomen as the preferred locus of emotions	▪ Heart: English (Niemeier 1997, 2008), Spanish, Italian, French (Perez 2008), Japanese (Ikegami 2008; Occhi 2008), Hausa (Batic 2011), Thai (Berendt & Tanta 2011), Zulu (Taylor & Mbense 1998) ▪ Abdomen: — *belly/guts/stomach/gland*: Nigerian English (Bauer 1973), Tahitian (Lemaître 1995), Thaayorre (Gaby 2008), Tigre (Littmann and Hoeffner 1962), Kuot (Lindström 2002), Nipissing (Chamberlain 1895) — *the liver:* Malay (Goddard 2001), Indonesian (Siahaan 2008), Kambera (Klamer 1998), Dogon languages (McPherson & Prokhorov 2011)
V. Degree of specificity in emotion localizations	Nuanced associations between specific body parts and specific emotions.	▪ Wolof: *xol* 'heart' → grief, anger, joy, jealousy; *xel yaram* 'body'→sadness, pity; *der* 'skin'→shame (Becher 2003) ▪ Basque: *bihotz* 'heart'→positive and negative emotions; *gibel* 'liver'→negative emotions only (Ibarretxe-Antunano 2008) ▪ Chumburung: 12 different body parts→ca. 40 emotions (Hansford 2005)

For example, the Fante generic term *atsinka* encompasses both emotional experiences, like happiness or sadness, and physiological states, such as hunger or thirst (Dzokoto & Okazaki 2006). Furthermore, languages differ with regard to the salience of bodily references to emotions in their affective repertoires. For instance, in the African languages Anlo-Ewe, Ewe, Anuak, Fante and Dagbani, body-part phrases constitute more than a half of their respective emotion lexicons (Dzokoto & Okazaki 2006; Geurts 2002; Nida 1958).

This brings about the third aspect of cross-lingual divergence, namely, the availability of psychological (as compared to somatic) denominations for specific emotions. While in many Western languages abstract emotion nouns (e.g., *anger*) exist as alternatives to figurative body-part expressions (e.g., *hot-headed*), in many indigenous languages no such lexical possibility is attested. For example, McPherson and Prokhorov (2011: 39-40) comment on the near-total absence of emotion-specific vocabulary in nine Dogon languages of Mali where emotions are almost exclusively encoded in idiomatic expressions containing the word 'liver'.

Two further areas of cross-lingual divergence are directly relevant to the issues explored in this paper. The first is that languages differ with respect to the dominant, culturally-salient localization of the emotions. A frequent opposition in the literature is made between the languages where the heart is conceptualized as the main organ where emotions are believed to reside (as in Germanic and Romance languages, Japanese, or Hausa), and the languages where the main emotion 'containers' are the belly/guts or the liver (e.g., Malay, Nigerian English, Tahitian, Thaayorre, or Tigre) (see also Table 1). A good example of the latter type is Anuak, where affective experiences and dispositions are lexicalized in body-part phrases including the word *cwiny* 'liver', as in "his *cwiny* is heavy" (≈ 'he is sad'), "his *cwiny* is sweet" (≈ 'he is happy') or "his *cwiny* is burned (≈ 'he is irritable')", among others (Nida 1958: 286).

Secondly, languages differ with regard to the association between specific body parts and specific emotions. In some of them, these associations appear to be particularly elaborated and nuanced. For instance, in Wolof the heart (*xol*) is associated to grief, anger, joy, and jealousy (e.g., *dafa xett xolam* 'it pierced his heart', ≈ 'it made him jealous'), the whole body (*yaram*) is associated to sadness and pity (e.g., *suma yaram bi yepp dee* 'my whole body died', ≈ 'I am sad'), and skin (*der*) is associated with shame (e.g., *danga yàq suma der* 'you destroyed my skin', ≈ 'you made me feel ashamed') (Becher 2003: 13) (see also Table 1).

1.2. Emotion and the Body in Conceptual Metaphor Theory

The intimate relationship between the body and emotion has also been studied within Conceptual Metaphor Theory (henceforth CMT), the main theoretical framework of our study. With the geographical expansion of CMT research on emotion metaphors from American English (Lakoff & Kövecses 1987; Kövecses 1990) to other language families—such as the African (Ansah 2011; Emanatian 1995), Altaic (Matsuki 1995; McVeigh 1996), Baltic (Sirvyde 2006), Indo-Iranian (Chand 2008; Mashak et al. 2012), Romance (Barcelona 1986; Soriano 2005), Sino-Tibetan (Yu 1998), or Slavic (Apresjan & Apresjan 1993)—an increasing number of scholars have reported striking similarities in the metaphorical conceptualization of emotions across languages. This overarching coherence has been explained by means of the *embodied cognition principle*, which suggests that human cognition is conditioned by the features of the human body and sensory-motor apparatus in

interaction with the environment. The conceptual structures revealed by language are thus assumed to be ultimately grounded in physiological, motor, and sensorial experience. The *embodied cognition thesis*, first proposed within Cognitive Linguistics by Lakoff and Johnson (1980, 1999) and further developed by Gibbs (2006) and Zlatev (1997), among others (cf. Goschler 2005 for an overview), has thus emphasized the importance of conceptual metaphor as embodied thought, and special attention has been traditionally devoted to conceptual metaphors tapping on body-based experiences largely shared by all human beings. This emphasis has led to the emergence of what can be called the 'experiential view' in metaphor research (see Figure 1), where conceptual metaphors and metonymies are assumed to be first and foremost cognitive structures grounded in sensory-motor experience. Classical CMT works in this vein —such as Lakoff (1993) or Kövecses (1990) — have shown that many English emotion metaphors and metonymies are based on the features of our bodies and emotional physiology. Among the classical examples we find the metaphors THE BODY IS A CONTAINER FOR EMOTION, EMOTION IS A PRESSURIZED FLUID (IN THE BODY) and EMOTION IS A HOT FLUID (IN THE BODY). Linguistic evidence speaking for their existence has been reported across a number of typologically distant languages, including Chinese, Japanese, Hungarian, Polish, Zulu, or Tahitian (cf. Kövecses 2000b, 2002; Taylor & Mbense 1998).

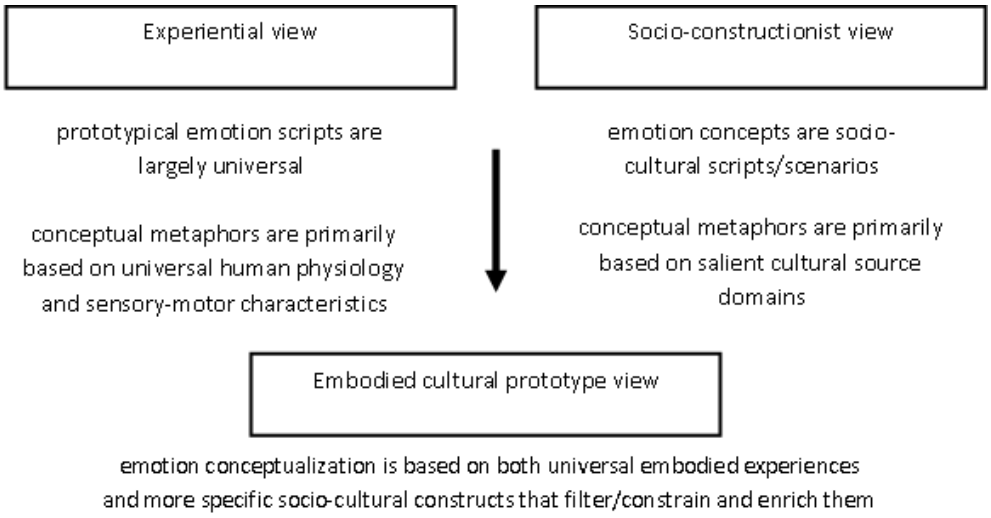

Figure 1. Perspectives on emotion conceptualization in CMT.

At the same time, the evidence on the cross-lingual divergence in the somatic codification of emotions (see Section 1.1) fostered the emergence of a more culturally-sensitive view, more in tune with the theoretical framework of 'constructionism', which encompasses, among many other disciplines, cultural anthropology (e.g., Abu-Lughod 1990; Lutz 1982, 1988; Schieffelin 1983) and cultural, social, and historical (ethno)psychology (e.g., Armon-Jones 1986; Harré 1986; Harkin 2003; Keltner & Haidt 2001; Markus & Kitayama 1991; Matsumoto et al. 2010; Stearns & Stearns 1985). In this multi-disciplinary paradigm, emotions are primarily seen as culturally, socially or historically constructed, and thus determined by presumptions, judgments and desires pertinent to the cultural belief and value systems of the particular communities. Clearly, emotions on this view are assumed to be best

understood in terms of cultural activities and locally-specific concepts and ideologies (see Figure 1).

This shift in focus from the biological to the cultural entails the possibility that different cultures may have divergent conceptualizations of comparable emotions, since they may assign different saliency to the potential source domains used to represent them. Most metaphor studies indeed reveal the existence of culture-specific figurative somatic expressions, such as the Chinese representation of anger agitation in terms of 'the hair pushing up the hat' (Yu 1998: 57), or the association of anger and nausea in Zulu (Taylor & Mbense 1998: 198-200).

The synthesis of the abovementioned 'nature *vs* nurture' dichotomy has led to a unified proposal known as the *embodied cultural prototype* view (Kövecses 2000a[1], 2005; Maalej 2004), according to which metaphorical representation relies on both universal human experiences *and* more specific socio-cultural constructs. Under this view, pan-human bodily experiences are still believed to provide the experiential 'matrix' for emotion conceptualization, but the role of culture in filtering, constraining and also enriching these schemata is more readily acknowledged, so that certain qualitative variance in the realization of universal body-based metaphors is expected. Additionally, culture is assumed to play a determinant role in the more complex conceptual metaphors that are elaborated on the basis of very basic "primary" ones.

Evidence for the embodied cultural prototype view abounds in CMT. Some of it relates to variability in the *specific source domains* employed. For example, the deemed universal metaphor ANGER IS A PRESSURIZED FLUID IN THE BODY-CONTAINER is specifically realized in Chinese as ANGER IS A PRESSURIZED *GAS* (QI) IN THE BODY-CONTAINER, given the cultural significance of *qi* in Chinese (e.g., Yu 1998). Another example is found in the Ghanaian language Akan, where, alongside with the canonical conceptualization of the body as a container for anger, very specific body parts/organs like the head and the stomach are also believed to hold anger (Ansah 2011). Evidence for the embodied cultural prototype view is also found in studies suggesting a different *degree of importance* of specific body metaphors (or their entailments) across languages. One relevant example comes from the study of Chinese body-part metaphorical expressions, which notes a preference to metaphorically represent smaller or invisible parts of the body as containers for the emotions (such as inner organs or the *qi*, the invisible soul and vital energy of the person). This preference is interpreted to relate to the tendency for 'inwardness' in the Chinese culture, with values of modesty, sedation, gentleness and obedience (Chen 2010).

1.3. Lacunae in Previous CMT Research on Body Metaphors

Despite the richness provided by CMT on both the shared and the culture-specific in the somatic representation of the emotions, several concerns remain largely unaddressed in this paradigm[2]. One such problem is the predominant focus on the mere *existence* of similar or different emotion metaphors (or their entailments) across languages. This account is necessary, but not sufficient, because even when the same (or very similar) metaphors exist in

[1] "Body-based social constructionism", as proposed in this work, is the first fully-developed formulation of the embodied cultural prototype view in Cognitive Linguistics.

[2] For the debate, see Stefanowitsch 2006 and responses in Kövecses 2008, 2011.

two cultures, they may not be exploited quantitatively to the same degree in each of them. Thus, while representing emotions metaphorically in terms of pressurized containers, hot fluids or illnesses might well be possible for a broad range of emotion categories across many languages of the world, emotion concepts may vary significantly in the *degree of their association* to these source domains, so that some of the domains may be more exploited in the representation of one emotion concept as compared to another. Recent corpus-based approaches to the study of metaphor provide convincing quantitative evidence for this contention, both comparing emotion concepts across languages (Stefanowitsch 2004) and comparing varieties of the same emotion category in a language (Ding 2011; Stefanowitsch 2004, 2006).

A second common limitation of previous work is its almost exclusive focus on the so-called *basic-level* (Rosch 1978) emotion concepts, like ANGER, FEAR, or HAPPINESS, overlooking thus subtler distinctions between the emotion subtypes within those broad emotion families or categories. This bias is a predictable 'side-effect' of the preponderant onomasiological orientation in CMT research, where broad emotion concepts are the object of study and two types of linguistic expressions are considered evidence for the existence of conceptual metaphor: metaphorical expressions containing any of the various emotion nouns taken to speak for an emotion category (e.g., 'bring *sadness*', '*grief* stricken', 'drown the *sorrow*', 'deep *misery*' or 'overcome a *depression*' for the emotion category SADNESS), and metaphorical expressions without any emotion lexemes but allegedly relevant for an emotion concept (e.g., *exploding, burnt up, stewing, fuming* or *letting off steam* for ANGER). Many of these expressions are often the result of the researcher's introspection as a native speaker, which may also bias what is assumed to be representative expressions in a language.

While the basic-level approach is fully justifiable if one targets the generalized metaphorical representation of a broad emotion family, it entails two related limitations. First, it precludes the observation of (possible) differences between variants of the same emotion (e.g., English *anger* vs *indignation*). Second, it renders it impossible to determine which specific target domain is at stake in the expressions lacking emotion lexemes. For example, do the metaphorical expressions '*he exploded*' and *'you make my blood boil*' involve the target domain ANGER (Kövecses 1986), or do they more specifically relate to the domains of FURY, RAGE, or INDIGNATION?

This indeterminacy problem is not trivial in the light of cross-cultural research on emotion categorization, where emotions have been shown to be hierarchically organized. The conceptual representation of emotion comprises three levels of categorization: *the super-ordinate level*, where emotion concepts split into positive *vs.* negative ones; *the basic level,* where emotion concepts cluster into several broad classes/categories of emotional states, such as ANGER[3], FEAR, SADNESS, HAPPINESS, or LOVE; and *the subordinate level*, which agglutinates more specific concepts denoted by lexicalized variations within each of the basic-level categories (cf. Fehr & Russell 1984; Shaver et al. 1987; Storm & Storm 1987). This hierarchical split is important because most cross-cultural differences emerge at the

[3] It is important to note that the same emotion word may be used to refer to emotions at different levels in a hierarchy. As a generic term, *anger* may refer to a class of emotions that includes anger as a specific emotion, together with frustration, annoyance, irritation, fury, and so on. It is important to distinguish the generic and specific uses of a word, for what is true of emotions referenced at a broad level of generality need not be true of emotions referenced at a lower level (cf. Averill 2009). In the present study, we use small capitals to refer to a class of emotions (ANGER) and italics to refer to subordinate level concepts (e.g., *anger, fury, rage*).

subordinate level. The variance among emotion subtypes (cf. Ogarkova 2013 for an overview) might well apply to the body metaphors as well. Some evidence for this idea can already be found in the CMT literature. For example, a study on emotion metaphors in the Ghanaian language Chumburung reports that related emotion concepts like SADNESS, SORROW, and DISAPPOINTMENT are associated to different metaphorical body-part containers: the throat, the chest, and the stomach, respectively (Hansford 2005: 168-169).

A third shortcoming of the current CMT work on emotion is the fact that findings are very rarely, if ever, interpreted in a broader research context by relating them to the results obtained in other disciplines. Although many CMT studies discuss their insights in the light of so-called 'folk' emotion theories, such as the European humoral theory (e.g., Geeraerts & Grondelaers 1995; Gevaert 2005; Ding 2011; Ding & Nöel 2012) or the theory of five elements in Chinese medicine (e.g., Yu 1995), hardly any attempt has been made to investigate whether, and if so how, the metaphorical representation of emotions coheres with the *scientific* descriptions advanced by expert emotion theories and cross-cultural emotion psychology (but see Kövecses 2000a for an exception).

The present paper closely attends to the abovementioned limitations by focusing on twenty ANGER concepts in three European languages: English, Russian, and Spanish. In order to overcome the traditional focus on qualitative descriptions, the indeterminacy problem, and the introspective bias in data analysis, we adopt a quantitative *corpus-based* methodology allowing for the statistical evaluation of the *degree of exploitation* of conceptual metaphors in the three languages on the basis of figurative expressions associated to *specific emotion lexemes* (see Section 2.2). The analysis focuses on one of the central metaphors relevant for the embodied conceptualization of the emotions: THE BODY IS A CONTAINER FOR ANGER (Section 3). Our principal aim is to see which aspects in its exploitation are shared by the three languages (Section 3.1) and which of them speak in favor of cultural specificity in the embodied representation of emotion (Section 3.2). Finally, to frame our work in a broader research context, we will first discuss the convergence of our results with findings in other disciplines, such as cross-cultural emotion psychology, cross-cultural semantics, or psycholinguistics (Sections 3.1.—3.2). We will conclude with an exploration of the relevance of our results for future studies across a broad range of disciplines in the study of human affect (Section 4).

2. THE PRESENT STUDY: DATA AND METHOD

2.1. Selection of Emotion Words and Corpora

ANGER nouns in the three languages were selected from an emotion situation labeling study (Ogarkova et al. 2012), where native speakers of five European languages (Russian, *N* = 17; Spanish, *N* = 17, French, *N* = 12, German, *N* = 17, and English, *N* = 11) were presented with a balanced set of ANGER situations and were asked to provide an emotion label (a noun or an adjective) that would best fit to describe the way they would feel in those situations[4].

[4] Substantial methodological effort was invested to ensure that the emotion-labeling task yielded a large and culturally-relevant set of ANGER labels in each of the languages. Therefore, the scenarios covered a large

The most frequently mentioned ANGER terms in English, Russian, and Spanish are shown in Table 2.

Table 2. Spanish, Russian, and English ANGER terms elicited in the emotion situation labeling task (Ogarkova et al. 2012)

Spanish	Russian	English
rabia* [anger]	razdrazhenie* [irritation]	anger*
indignación*	obida* [resentment/hurt]	rage*
ira* [wrath]	zlost'* [anger]	fury*
frustración*	gnev* ['justified anger']	frustration*
irritación *	dosada* [frustration/vexation]	irritation*
furia*	vozmuschenie* [indignation]	indignation*
enfado ['small anger']	jarost'* [fury]	resentment*
cabreo [anger, colloquial term]	negodovanie [indignation]	annoyance
molesto [annoyed]	serdityj [cross]	

Note. For readability reasons, Russian terms are transliterated from Cyrillic. * marks 20 terms for which metaphorical profiles were obtained in this study.

Since our study targets the general metaphorical representation of ANGER in present-day languages, data samples were extracted from three general large-size corpora containing, at the time of data collection, at least 100 million words: the *British National Corpus* (henceforth BNC), *Corpus del Español*, and the *Russian National Corpus* (henceforth RNC). All genres and modes of text were included in the searches, and only examples from the 20th century onwards were chosen. In several cases there were fewer than 1000 occurrences of a word in a corpus (see Section 2.2), in which case the samples were complemented with additional concordances from two supplementary corpora, *Bank of English* (British section) for English and *Corpus de Referencia del Español Actual (CREA)* for Spanish (see Annex 2 for further detail).

2.2. Method

The method used for metaphor extraction, identification, classification, and analysis is the *metaphorical profile approach* (Ogarkova & Soriano 2014; Soriano & Ogarkova, submitted) which unfolds in the following seven steps:

- retrieval of 1000 random KWIC hits for each of the twenty ANGER nouns[5] in the three languages in the respective corpora;
- manual extraction of the metaphorical patterns (see below for details) from the pool;
- classification of the metaphorical patterns according to their source domains;

variety of ANGER-eliciting situations targeting differences on intensity, duration, social parameters, self-concept, etc. (see Ogarkova et al. 2012 for more detail).

[5] Emotion nouns rather than lemmas were used. This decision was underpinned by the convention in cross-cultural research on emotion conceptualization to use emotion nouns, which are taken to refer to an abstract store of representations (e.g., Conway & Bekerian 1987) and thus increase the psychological similarity of emotions to 'objects' (cf. Rosch 1978).

- reanalysis of 10% of the English sample with the help of another rater, and inter-rater reliability testing;
- quantifying the results both with regard to the overall number of metaphorical *patterns* instantiating a metaphor ('tokens'), and the number of different *types* of patterns observed ('types');
- for each term, conversion of the observed raw frequencies for each metaphor into relative frequencies with respect to the total number of metaphorical patterns observed for the term across all metaphors; the vector of these percentages constitutes the word's '*metaphorical profile*'[6];
- statistical analyses for cross-lingual similarities and divergences in the distribution of metaphorical patterns.

In the metaphor identification and classification stages, our method is highly comparable to the *Metaphorical Pattern Analysis* (henceforth MPA) proposed by Stefanowitsch (2004, 2006) and used further by other researchers (e.g., Ogarkova 2007; Ding et al. 2010; Ding 2011). The cornerstone of the MPA methodology is the notion of the 'metaphorical pattern', defined as 'a multi-word expression from a given source domain (SD) into which a specific lexical item from a given target domain (TD) has been inserted' (Stefanowitsch 2006: 66). For example, in our database expressions like "*anger boiled up inside her*" would be represented by the metaphorical pattern *anger boil*, and patterns like *anger boil, simmering resentment,* and *scalding rage* would be classified as instantiations of the metaphor ANGER IS A HOT FLUID IN THE BODY-CONTAINER.

However, unlike in the MPA, where all mappings are treated as independent from each other and thus equal in status , our bottom-up corpora analyses suggest that some of the metaphors do not capture entirely independent ways of representing emotions, but form a interconnected network (cf. Lakoff's proposal (1993) on 'hierarchy structures'). Consequently, some of the metaphors were grouped into coherent clusters headed by the 'root' metaphor (e.g., THE BODY IS A CONTAINER FOR ANGER) and containing (metonymy-based) subtypes (e.g., FACE/ VOICE/ EYES ARE CONTAINERS FOR ANGER).

The metaphor identification and classification procedure resulted in the establishment of the general metaphor system characterizing the representation of the twenty varieties of ANGER concepts in all three languages investigated (see Ogarkova & Soriano 2014; Soriano & Ogarkova submitted). One of the metaphors in this inventory—the BODY IS A CONTAINER FOR ANGER —will be considered in detail in the subsequent sections.

3. THE BODY-CONTAINER METAPHOR IN ENGLISH, RUSSIAN, AND SPANISH

In the metaphor system employed for the representation of ANGER concepts in the three languages, the somatic aspects of the emotion are captured by several metaphors, such as THE BODY IS A CONTAINER, ANGER IS A PRESSURIZED FLUID IN THE BODY-

[6] The term is akin to the recently emerging 'behavioural' and 'constructional profiles' operationalized in cognitive corpus semantics (Divjak & Gries 2006; Janda & Solovyev 2010).

CONTAINER, ANGER IS A HOT FLUID IN THE BODY-CONTAINER, and ANGER IS AN ILLNESS (see Ogarkova & Soriano 2014 for a general analysis of all somatic metaphors, and Soriano & Ogarkova submitted for a detailed study of ANGER IS A PRESSURIZED FLUID IN THE BODY-CONTAINER). The focus of the present paper is only on one of these metaphors—the BODY IS A CONTAINER FOR ANGER. It belongs, in our categorizing system, to the group of *primary metaphors*, where the target domain is not the emotion *per se*, but a salient aspect of the emotion, such as intensity, negativity, or – in our case – the body of the emoter. Two types of concordances were observed for the metaphor, as illustrated below:

(1) a. There was fury in his eyes [BNC, GO1]
b. Sometimes Peter's voice fills with anger [BNC, K5L]
c. Caroline felt a stir of anger within her breast [BNC, JY7]
(2) a. Anger welled within her breast [BNC, JY7].
b. Indignation and righteousness burned in my soul, unquenchably so [BNC, ADA].

Corpus concordances of the type illustrated in (1a-c) highlight only the idea that an ANGER variety (*fury*, *anger*) is contained in a body part, such as the eyes, the voice, or the breast. These expressions were thus classified once, as realizations of BODY (PART) IS A CONTAINER FOR ANGER. However, other expressions like (2a-b) highlight two ideas simultaneously: first, that an ANGER variety is contained in a (real or imaginary) body part, such as the breast or the soul; second, that an ANGER variety acts metaphorically as fire (2b) or as a fluid rising inside a container of limited capacity (2a). Thus, these expressions were annotated twice: a part of them as an instantiation of ANGER IS FIRE (‘*indignation burn’*) or ANGER IS A PRESSURIZED FLUID IN THE BODY-CONTAINER (‘*anger well’*), and the other part as a realization of the metaphor BODY (PART) IS A CONTAINER FOR ANGER (‘*anger* [verb] *within the breast’*, ‘*indignation* [verb] *in the soul’*) (cf. Stefanowitsch 2006 for a similar observation on the sentence *his eyes were filled with anger*).

The BODY-CONTAINER expressions occurring with ANGER lexemes in the corpora come in two varieties: *unspecified/general* expressions localizing ANGER somewhere in the body (or within the person in general), and more *specific localizations* placing ANGER in specific body parts or organs. Among the latter, seven types of containers were recurrent in all language samples: EYES, VOICE, FACE, HEART, SOUL, CHEST/BREAST, and HEAD (see Table 3 for English examples).

For each of the twenty ANGER terms we quantified both the token and the type frequencies (raw and relative). In addition, for each of the ANGER-word × metaphor co-occurrences, we calculated the Productivity Index (PI), a value first introduced by Oster (2010: 746-751) in her study of *fear* in English. This parameter captures the degree to which a metaphor is both quantitatively and qualitatively elaborated in a corpus sample. According to the logic of its formula[7], the more substantially a metaphor is represented in both tokens *and* types of metaphorical patterns, the higher the PI of the metaphor is. An illustration of all these quantitative analyses is provided in Table 4 for English *indignation*.

[7] The formula to calculate the *PI* index is $\frac{N_{patterns}}{Total\ N_{patterns}} * \frac{N_{types}}{Total N_{types}}$ (Oster 2010: 749).

Table 3. The BODY (PART) IS A CONTAINER FOR ANGER metaphor: structure, examples, and overall frequencies in the three languages

	Examples (English)	*En*	*Ru*	*Sp*
body proper/unspecified	*anger/frustration be inside X, rage be within X, inner fury, X be full of/filled with indignation/irritation, anger drain from X's body, resentment come from within X, deep-seated resentment*	125	98	136
eyes	*anger/irritation/fury/rage/indignation/resentment [verb] in X's eyes, anger [verb] at the back of the eyes, anger [verb] from the eyes*	41	42	25
face[1]	*anger [verb] in X's face, anger [verb] in X's features, fury be all over X's face, frustration be on X's face*	32	35	18
voice	*anger be in the voice, fill voice with anger, resentment be in X's tone, X's voice hold indignation*	36	76	8
heart	*anger in X's heart, something fill X's heart with anger*	8	19	15
soul	*indignation in X's soul*	2	37	6
chest/breast	*get anger off the chest, anger within the chest, anger within the breast*	4	5	14
head/mind	*anger in X's mind, clear anger from X's head, fury in X's head, fury fill X's brain*	13	2	1
other	*anger on X's cheeks, indignation in X's spine, anger emanate from X's pores, frustration in X's throat, anger [verb] through X's veins*	15	5	14
Total $_{body}$		*276*	*319*	*257*
Total $_{all}$		*3892*	*3631*	*3192*

Note. En=English, Ru=Russian, Sp=Spanish; *Total* $_{BODY}$= number of metaphorical expressions in the BODY IS A CONTAINER metaphor across all words; *Total* $_{ALL}$=number of metaphorical expressions across all words and metaphors.

[1] Face-expressions culled from the corpora contained patterns conceptualizing face as a container of anger (as in 'there was anger in X's face') as well as patterns conceptualizing the face as a surface on which anger appears (as in 'there was anger on X's face'). The reason underlying our decision to report them together is that both types of expressions convey the visibility of anger, which the point at stake.

Table 4. Quantitative and qualitative exploitation of the metaphor THE BODY IS A CONTAINER FOR ANGER in the representation of English *indignation*

	expressions	N_{tokens}	N_{types}	% $_{tokens}$	% $_{types}$	*PI*
general/unspecified	*X be full of/filled with indignation (26), indignation be in X (3), indignation be within X (2) , indignation be deep inside X (2)*	33	4	6,0	1,64	9,84
eyes	*a flash of indignation in X's eyes (1)*	1	1	,18	,41	,07
face	*indignation be on X's face (3), indignation in X's face (2)*	5	2	,91	,82	,75
voice	*a note of indignation in X's tone (1), indignation in X's voice (2), , X's voice hold indignation (1)*	4	3	0,73	1,23	0,9
heart	*indignation in X's heart (1)*	1	1	,18	,41	,07
soul	*indignation in X's soul (2)*	2	1	,36	,41	,15
chest	-------	0	0	0	0	0
head/mind	*indignation in X's mind (1)*	1	1	,18	,41	,07
other	*indignation be/burn in X's eyebrow (2), indignation in X's spine (1)*	3	2	,54	,82	,45
Total $_{BODY}$		*50*	*15*	*9,08*	*6,15*	*55,84*

Note. N_{tokens} = raw number of metaphorical expressions; N_{types} = raw number of types of metaphorical expressions; % $_{tokens}$ = relative weight (with respect to the total N of metaphorical expressions); % $_{types}$ = relative weight of the types (with respect to the total N of types of metaphorical expressions); *PI* = productivity index.

A statistical analysis of the data illustrated in Table 4 allows for a very granular comparison of different ANGER words, both within and across languages. Among others, the possibility stands to consider how near-synonyms—e.g., English *rage* and *fury*—vary with regard to these metaphorical patterns (see Ogarkova & Soriano 2012 for one such attempt). In the present study, however, we take a broader perspective, and rather than considering individual comparisons between terms, we focus on larger-scale patterns in metaphor exploitation. These reveal both shared (Section 3.1) and language-specific aspects (Section 3.2). In the interpretation of the results, we seek to systematically relate our findings to the previously attested accounts of cultural universality and variation in the experience of anger across cultures.

3.1. Commonalities in the Exploitation of the Metaphor the BODY IS A CONTAINER FOR ANGER in Three Languages

The exploitation of the body-container metaphor is highly similar in English, Spanish and Russian in three respects: the overall saliency of the BODY-CONTAINER metaphor, the relevance of individual body parts for specific types of anger, and the representation of translation pairs. In what follows, we will outline the relevant evidence on these issues in more detail.

3.1.1. Overall saliency of the BODY-CONTAINER metaphor in the three languages

The first aspect where the ANGER concepts in the three languages converge in their exploitation of the BODY-CONTAINER metaphor is the overall importance assigned to the metaphor. This conclusion is underpinned by two statistical observations. Firstly, computing a mean ANGER profile (across all terms) per language and comparing the resulting relative weights and productivity indexes (PIs) of the conceptual metaphors in the whole system reveals that the BODY-CONTAINER metaphor is among the top five (i.e., most salient) metaphors in the three languages, both regarding the overall number of realizations in corpora (%) and its lexical elaboration in different types of expressions (PI) (Table 5; see Ogarkova & Soriano 2014 for the full inventory of metaphors in the model).

Table 5. Relative frequency and productivity of the metaphor THE BODY IS A CONTAINER FOR ANGER in the mean ANGER profiles in English, Russian, and Spanish

Metaphors	English		Russian		Spanish	
	%	***PI***	***%***	***PI***	***%***	***PI***
BODY IS CONTAINER	*6,8*	*45,7*	*9,5*	*77,7*	*8,2*	*79,8*

Note. % = relative frequency, PI = productivity index.

Additionally, distribution statistics were used (a series of Fisher exact tests) to investigate the relative exploitation of the metaphor in one language compared to each of the other two. The cross-tabulation of the overall number of BODY-CONTAINER expressions and the total number of all other metaphorical expressions in each pair of languages (see Table 6) did not

yield statistically significant differences ($p > 0.05$ in all three tests, corrected[1]), suggesting a similar degree of exploitation of the metaphor in the three languages.

Table 6. The absolute frequencies of the BODY IS A CONTAINER FOR ANGER expressions in each of the languages (across all terms) and the results of Fisher exact tests

	English	Russian	Spanish	$p_{En/Ru}$	$p_{En/Sp}$	$p_{Sp/Ru}$
$N_{BODY\text{-}CONTAINER}$	279	319	257	ns	ns	ns
N_{total}- $N_{BODY\text{-}CONTAINER}$	3573	3312	2935			

Note. $N_{BODY\text{-}CONTAINER}$=number of all body-container expressions in a language across all terms; N_{total}=overall number of metaphorical expressions; ns=not significant (with corrected levels of significance). *En*=English, *Ru*=Russian, *Sp*=Spanish.

3.1.2. Relevance of individual CONTAINERS for specific types of ANGER

The second aspect where English, Russian, and Spanish ANGER words converge in their exploitation of the BODY-CONTAINER metaphor relates to the saliency of individual metaphorical CONTAINERS for the two main types of ANGER in each language. Previous analyses of our dataset (Ogarkova & Soriano 2014) identified robust similarities in the internal structure of the ANGER domain in English, Russian, and Spanish. Specifically, three independent Hierarchical Cluster Analyses executed on the metaphorical profiles of the ANGER nouns yielded a 2-cluster structure in each of the languages. The clusters were highly comparable: invariably in each of the languages, one cluster would agglutinate nouns denoting the most intense, violent forms of ANGER (English *rage* and *fury*, Russian *jarost* and *gnev*, Spanish *furia* and *ira*), while the other cluster contained the remaining terms. *T*-scores[2] were also computed on the raw frequencies of each metaphor to uncover which of them underpinned the two-cluster solutions in each language (see Ogarkova & Soriano 2014 for more detail). Several metaphors were found to contribute to this split. Among those metaphors, and relevant for the present discussion, were the metaphors THE EYES ARE CONTAINERS FOR ANGER and THE VOICE IS A CONTAINER FOR ANGER. In all three languages the more intense/violent forms of anger (*fury/rage, ira/furia, gnev/jarost'*) were preferentially associated to EYES-AS-CONTAINERS expressions, whereas VOICE-AS-CONTAINER patterns were more frequent in association to the less intense forms of anger (see Table 7).

Table 7. *T*-values of the eyes are containers for anger and the voice is a container for anger metaphors in the three languages

Cluster 1: intense/violent ANGER words				Cluster 2**:** other ANGER words			
	En	*Ru*	*Sp*		*En*	*Ru*	*Sp*
eyes-containers	0,94	0,3	0,96[#]	voice-container	0,63[#]	0,91[#]	0,44[#]

Note. [#] indicates the cases when the metaphor obtained comparably high *t*-scores also on the basis of its linguistic productivity (number of *types* of expressions instantiating the metaphor). *En*=English, *Ru*=Russian, *Sp*=Spanish.

[1] In all Fisher analyses reported in this paper, the significance levels were subjected to Bonferroni correction by dividing the significance levels into the number of the tests performed.

[2] The *t*-values for any feature for a cluster *c* out of *n* clusters are computed as follows: (mean within *c*—mean across all *n* clusters)/standard deviation of the mean across all *n* clusters (see Divjak & Gries 2006, 2008).

The relevance of EYES *vs* VOICE as the preferred metaphorical CONTAINERS for the two types of ANGER in the three languages is observed not only with regard to the absolute occurrence of these expressions in corpora ('tokens'), but also (in most cases) with regard to the number of different types of expressions ('types') in which EYES-and VOICE-CONTAINER metaphors are instantiated (marked with the symbol # in Table 7).

3.1.3. Correlations of translation pairs across languages

The third and final respect in which English, Russian, and Spanish cohere in their exploitation of the BODY-CONTAINER metaphor is the way they represent translation pairs (e.g., English *irritation*, Russian *razdrazhenie* and Spanish *irritación*). To evaluate the degree of convergence between these terms, we computed Pearson correlations of each translation pair on the various BODY-CONTAINER submetaphors (i.e., EYES, VOICE, FACE, and so on). The results revealed not only significant correlations in the profiles of these words at the 0.01 level (2-tailed), but also that the correlations ranged from high to very high (.770 to .988, see Table 8).

Table 8. Correlations (Pearson) of the BODY IS A CONTAINER FOR ANGER parts of the metaphorical profiles of ANGER nouns in English, Russian, and Spanish

English—Russian	*PC*	English—Spanish	*PC*	Russian—Spanish	*PC*
anger—zlost'	.961	anger—rabia	.958	zlost'—rabia	.959
anger—gnev	.972	anger—ira	.950	gnev—ira	.978
irritation—razdrazhenie	.988	irritation—irritación	.770	zlost'—ira	.962
frustration—dosada	.836	frustration—frustración	.987	gnev—rabia	.952
resentment—obida	.900	fury—furia	.966	razdrazhenie—irritación	.768
fury—jarost'	955	rage-furia	.915	dosada—frustración	.804
rage—jarost'	.939	indignation—indignación	.988	jarost'—furia	.955
indignation—vozmuschenie	.967			vozmuschenie—indignación	.964

Note. PC=bivariate Pearson correlations (2-tailed).

Taken together, the evidence discussed in Section 3.1 is meaningful in two ways. Firstly, our results on the similar ways in which three typologically distant languages represent the body as a container for anger contribute to the body of cross-cultural emotion research positing anger as a universal, basic, or modal emotional experience (Ekman 1992; Ortony & Turner 1990; Scherer 2005), intelligible to members of most of the cultural groups studied to date (Hupka et al. 1999; Wierzbicka 1999), characterized by cross-culturally recognizable bodily expression patterns (Ekman 1992; Hejmadi et al. 2000; Matsumoto et al. 2010) and talked about in comparable figurative terms across cultures (Chand 2008; Kövecses 2000a,b; Soriano 2005; Yu 1995, 1998, 2002). Secondly, the discriminative relevance of the EYES and the VOICE as metaphorical containers for ANGER suggested by our data coheres both with the general importance accredited to the vocal and facial expression of anger in cross-cultural emotion psychology (cf. Hejmadi et al. 2000; Matsumoto et al. 2010), and with the relevance of these modalities of emotional expression for discrimination within the anger family—specifically, between the so-called 'hot' and 'cold' types of anger referred to in

psychophysiological research (cf. Bänziger et al. 2009, Banse & Scherer 1996, see Section 4 for further discussion).

3.2. Differences in the Exploitation of the BODY IS A CONTAINER FOR ANGER Metaphor in Three Languages

Alongside with the considerable similarities in the exploitation of the BODY-CONTAINER metaphor in our data reported in the previous section, several areas of cross-lingual variance can also be observed. This variation is not random, but instantiates several previously attested peculiarities in the codification of emotion in the languages (and hence, the cultural groups) at stake. In what follows, we will discuss these areas in more detail.

3.2.1. Culture-specific preferences in emotion localization

The first area of variation relates to culture-specific preferences in localizing emotions in specific (real or imaginary) body parts. Previous research on ethno-specific concepts in Russian and English (cf. Wierzbicka 1990, 1992; Goddard & Wierzbicka 1995) has proposed an interesting dichotomy between Russian *duša* 'soul' and English *mind,* both of which are 'common sense' terms used to discuss and describe the intangible aspects of human nature in their respective cultures (cf. Goddard & Wierzbicka 1995). Both Russian *duša* and English *mind* are claimed to be poorly translatable into other cultures. With regards to the Russian concept, Wierzbicka and Goddard contend that it is 'broader in scope than French *âme* and German *Seele*, and very much broader than English *soul*' (Goddard & Wierzbicka 1995:47), and that it ultimately constitutes 'the moral and emotional core of a person' (Ibid.: 48). By contrast, lacking sufficiently good equivalents in French, German, or Russian[3], English *mind* reflects, on their account, 'the supreme value placed in modern Anglo-Saxon culture on rationality' (Goddard & Wierzbicka 1995: 46). Both concepts are integrated, in their respective cultures, into the basic dualistic models of the tangible (*body, telo* 'body') and the intangible (*mind, duša*) aspects of human nature, the difference being however that 'the model embodied in the English lexicon focuses on the intellectual and the rational aspects, whereas the basic dualistic model embodied in the Russian lexicon focuses on the emotional, the spontaneous, and the moral' (Ibid: 49).

In tune with these observations, our results substantiate the saliency of *duša* [SOUL] as a metaphorical CONTAINER for anger in Russian, paralleled by a similarly high relevance of HEAD/MIND in English. This conclusion is underpinned by four observations. Firstly, applying distribution statistics (Fisher exact) to the overall frequency of the SOUL-CONTAINER *vs* the HEAD/MIND-CONTAINER expressions in Russian and English reveals that Russian ANGER terms significantly more frequently occur in the SOUL-CONTAINER metaphorical patterns, while in English there is a stronger association between ANGER lexemes and the HEAD/MIND as a container (see Table 9). Secondly, this tendency holds true for half of the translation pairs in our data: namely, Russian *zlost'*, *jarost'*, and *obida* are significantly more frequent in the SOUL-CONTAINER expressions than their

[3] Specifically, Goddard & Wierzbicka (1995: 45) note: "In reality, neither French, nor German, nor Russian, has a precise equivalent for *mind.* The fact that the French word *esprit* and the German *Geist* translate both *mind* and *spirit* shows that they are not exact equivalents to either of these words. The closest Russian counterparts of *mind* are the related words *um* and *razum,* but like English *intellect* and *reason* in this respect, *um* and *razum* are viewed as mental faculties, rather than as 'entities' or pseudo-entities like *mind* and *soul.*"

English translation equivalents *anger*, *fury*, and *resentment* ($p < 0.05$, corrected, for all three comparisons). Thirdly, the observed pattern appears to be qualitatively robust as well: all seven Russian ANGER terms are found in SOUL-CONTAINER expressions, compared to only one word in English, *indignation*. Conversely, the HEAD/MIND-CONTAINER patterns are observed in the metaphorical profiles of five English words (*rage*, *indignation*, *anger*, *fury*, and *resentment*), against only one word in Russian (*zlost'*). Fourthly and finally, there is a clear difference in the productivity indexes of the SOUL and HEAD/MIND submetaphors in the two languages: the average PI of SOUL-CONTAINER in Russian is about *sixty* times higher than in English (1.24 *vs* 0.02, respectively), whereas the average PI of the HEAD/MIND-CONTAINER in English is more than ten times higher in English compared to Russian (0.26 *vs.* 0.03, respectively).

Table 9. Distribution of metaphorical patterns in the SOUL- and the HEAD/MIND-CONTAINER expressions in Russian and English

	English	Russian	$p_{en/ru}$
N_{SOUL}	2	37	
$N_{Total—SOUL}$	277	282	***
$N_{HEAD/MIND}$	13	2	
$N_{Total— HEAD/MIND}$	266	317	*

Note. Asterisks */ **/*** mark $p<0.05/0.01/0.001$ (corrected).

3.2.2. Cultural variation in the outward expression of anger

The second difference in the exploitation of the BODY-CONTAINER metaphor in English, Russian, and Spanish speaks for a difference between these cultures in self-construal style. *Self-construal style* is the way in which people define themselves and their relation to others in their environment (e.g., Markus & Kitayama 1991; Nisbett et al. 2001), and it is considered one of the fundamental ways in which culture shapes human behavior. In this regard, cross-cultural emotion psychology assigns cultures to two broad varieties: *individualistic*, where people think of others as independent of each other and where self-expression, self-autonomy, and pursuit of individuality are emphasized, and *collectivistic*, characterized by the 'interdependent' self-construal style, endorsing thinking of people as highly interconnected to one another ('self-in-relation') and where maintenance of social harmony and one's belongingness to a group are favored over the assertion of individuality. The best exemplars of individualistic countries are major English-speaking countries such as the USA, UK, and Australia (cf. Hofstede 2001), while Russia and Spain are commonly held to exhibit more pronounced collectivistic cultural tendencies (Tower et al. 1997; Triandis & Gelfand 1998). Cultural variance on the individualism *vs* collectivism continuum has been empirically shown to impact the appraisal, conceptualization, expression, and regulation of the emotions. With regard to anger, its expression has been consistently reported to be less outward, expressive, and explicitly confrontational in collectivistic compared to the individualistic cultures (e.g., Mesquita & Leu 2007; Mesquita & Powerell 2009).

This type of cultural variation can be explored in our data thanks to the differentiation observed within the metaphor BODY IS A CONTAINER FOR ANGER between specific types of body parts or organs. A distinction can be made between the *internal* (the BODY, the HEART, the SOUL, the HEAD/MIND, and the CHEST) and the *external* (the EYES, the FACE,

and the VOICE) types of metaphorical containers[4]. As is evident from this differentiation, the internal type of metaphorical containment captures the internalized, less visible or not perceptible aspects of anger (as the emotion is thought to reside in the deeper parts of the body). By contrast, the external localizations (eyes, voice, face) highlight the perceptual visibility and expressiveness of anger, the possibility of perceiving it with the senses (visually or audibly).

What interested us in this relation was the degree to which each of the twenty ANGER concepts in the three languages would be preferentially associated to the external (visible, expressive) vs. the more internal parts of the body. To investigate it, we calculated, for each term, the ratio of patterns highlighting 'externalized' ANGER compared to 'internalized' ANGER. Comparing the resulting values for translation pairs yields a pattern that is largely consistent with the abovementioned cultural peculiarities of the English-, Russian-, and Spanish-speaking populations. Specifically, almost all English ANGER terms occur relatively more frequently in metaphorical contexts highlighting bodily visibility and perceptibility, compared to their Russian and Spanish counterparts (see Table 10).

Table 10. Ratios of the relative weight of 'external' vs. 'internalized' types of containment in Russian, English, and Spanish ANGER words

English	*R*	Russian/Spanish	*R*
anger	0,79	zlost'	0,34
		gnev	0,94[§]
		ira	0,58
		rabia	0,32
irritation	3,5	razdrazhenie	2,58
		irritación	0,21
frustration	0,33	dosada	1,17[§]
		frustración	0,09
indignation	0,27	vozmuschenie	0,76[§]
		indignación	0,35[§]
fury	2,0	furia	1,0
		jarost'	0,71
resentment	0,48	obida	1,21[§]

Note. *R* = ratio of the 'external' vs the 'internal' CONTANER expressions. [§]signals exceptions from the pattern

This difference is particularly noticeable in the comparison of FURY words (allegedly the most virulent, socially disruptive types of anger): in the metaphorical profile of English *fury*, the expressions highlighting its expressive/perceptible characteristics are twice more frequent than those emphasizing its relation to the internal body organs (ratio = 2); by contrast, in the corresponding Russian and Spanish terms, the proportion is balanced (ratios of 1.0 for Spanish *furia*) or shifted in favor of a more internalized type of containment (ratio of 0.7 for Russian *jarost'*). The exceptions from this pattern (marked with the symbol [§] in Table

[4] In this operationalization we have been inspired by Ding & Noël's (2012) proposal to differentiate between two types of metaphorical containers for SADNESS: '*the heart-type'* which locates the emotions in the human body in general, blood, bosom, brain, breast, heart, liver, spirit, soul and thought; and the '*eye-type'* where emotion containers are eyes, face, glance, look, smiles, laughter, look, manner, smile, tear, tone and voice.

9) affect only the ANGER varieties of a lesser intensity, such as Russian *obida* and *dosada*, and the moral, justified, socially sanctioned types of anger denoted by Russian *vozmuschenie*, *gnev*[5] and Spanish *indignación* (see Section 5 for further discussion).

3.2.3. Differences in the degree of specificity of the somatic codification of emotions

The third and final area of contrast between our three samples has to do with the psychological construct of s*omatization*, and more specifically with the general cultural tendency to encode emotions somatically or, conversely, to represent them in abstract psychological language (cf. Kleinman & Kleinman 1985; Tsai et al. 2004). With respect to the languages in our study, recent psychiatric (Shiroma & Alarcon 2011) and (psycho)linguistic works (Wierzbicka 1992, 1998; Pavlenko 2002) have highlighted that the connection between emotions and the body is encoded and emphasized in Russian to a higher degree than in English.

Although – as reported in section 3.1.1 - our data do not reveal any significant differences between our languages in the *overall* association strength of the ANGER terms with the BODY- CONTAINER metaphor, significant differences between English and Russian in the predicted direction have been reported for the entire cluster of the somatic metaphors (including the BODY- CONTAINER metaphor as well as ANGER IS A PRESSURIZED FLUID IN THE BODY, ANGER IS A HOT FLUID IN THE BODY and ANGER IS AN ILLNESS - see Ogarkova & Soriano in press). Additionally, two other findings specifically concerning the BODY-CONTAINER metaphor offer indirect support to the contention that the body is more saliently encoded in the metaphorical representation of anger in Russian than in English.

Firstly, the mean relative weight of the BODY-CONTAINER expressions is somewhat higher in Russian than in English (9.51% against 6.8%, respectively), and this difference becomes more pronounced in their corresponding Productivity Indexes (77.79 and 45.7 in Russian and English, respectively, see Table 5 in Section 3.1.1).

Secondly, and more conspicuously, the body-based representation of Russian ANGER is more nuanced, as evidenced by the a meaningful difference in the distribution of metaphorical patterns in the two languages with respect to the root metaphor BODY compared to the various specific body parts. Distribution statistics (Fisher exact) on these frequencies reveal that, while English ANGER has a significantly stronger association with the general representation of ANGER as an entity located in the BODY "generally" (unspecified with regard to specific body locations), Russian ANGER terms more frequently occur in expressions invoking specific body parts (Table 11).

Congruently, the mean Productivity Indexes are higher for specific body localizations in Russian (8.45 vs 3.94 in English), and for general bodily references in English (6.36 vs 4.06 in Russian), and this general tendency is also observed between translational pairs. Here, with very few exceptions, the PIs of Russian terms for specific body localizations are higher than those of their English counterparts; conversely, the PIs of the English terms for general bodily references are higher than the corresponding indexes of the Russian anger words (Table 12).

[5] With regard to *gnev* (roughly, 'justified anger') many researchers note that this ANGER word in Russian (in contrast to others, especially zlost' 'anger') has the connotation of a socially appropriate state, of the emotion one has fighting for one's nation or fighting for one's rights (Kassinove & Sukhodol'skyy 1995); the typical antecedents of *gnev* are also reported to be serious violations of social, cultural, or moral prescriptions (Krylov 2007).

Table 11. Distribution of metaphorical patterns in the specific *vs* the unspecified types of containment in English and Russian

	English	*Russian*	$p_{en/ru}$
N UNSPECIFIED LOCALIZATIONS ('BODY')	125	98	
N SPECIFIC LOCALIZATIONS ('BODY PARTS')	151	221	***

Note. Asterisks */ **/*** mark p < 0.05/0.01/0.001.

Table 12. Productivity indexes of the root BODY IS A CONTAINER metaphor and its sub-metaphors for Russian and English ANGER words

Russian	*PI*		English	*PI*	
	unspecified	specific		unspecified	specific
zlost'	4,96	6,2	anger	6,26	4,23
gnev	4,22	3,62#			
razdrazhenie	1,85#	5,55	irritation	1,65	5,13
dosada	2,27	21,69	frustration	3,85	0,21
vozmuschenie	9,5	7,13	indignation	9,84	2,46
obida	3,65	9,36	resentment	7,18	3,83
jarost'	1,99	4,47#	fury	5,49	6

Note. PI=productivity Index; # signals exceptions from the pattern.

Taken together, the findings presented in Section 3.2 are meaningful in several ways. First of all, these results contribute to the body of research emphasizing the cultural dimensions of the emotions, where affective phenomena are assumed to be largely determined by the systems of cultural belief and values of particular communities (Armon-Jones 1986; Averill 1980; Kleinman & Good 1985), and where emotional qualities are taken to be interpretable in terms of cultural activities, concepts and locally-specific consensual ideologies (Ratner 1997: 210-213). Congruently with this understanding of the emotions, our results suggest that the representation of ANGER in connection to the BODY and specific BODY-PARTS is *modulated* by culturally-relevant practices regarding emotion expression, such as those underpinned by the individualistic *vs* collectivistic cultural orientations—and hence the corresponding attitudes towards the open manifestation of socially disruptive emotions like anger. Furthermore, our results reflect two general features of the cultures investigated, namely a heightened socio-cultural saliency of specific concepts capturing the intangible aspects of human nature (Russian *duša* or English *mind*), and culture-specific variance in the saliency of the somatic.

4. DISCUSSION AND CONCLUSION

Multi-disciplinary research on the embodied conceptualization of emotions is characterized by a tension between emphasizing the common aspects of emotional experience across cultures, underpinned by universal human physiology, and the more specific aspects of that experience due to the constraining or amplifying influences of culture. The present paper explores this issue from a cognitive linguistic perspective, and, more specifically, from the theoretical standpoint of Conceptual Metaphor Theory. Looking at the ways in which three European languages (English, Russian, and Spanish) exploit THE BODY IS A CONTAINER

FOR ANGER metaphor, and drawing our conclusions from the statistical analysis of twenty thousand contexts of use of anger words from large general corpora, our study provides empirical support to the *embodied cultural prototype* view (Kövecses 2000a; Maalej 2004), according to which emotion conceptualization derives from *both* universal embodied experiences and more specific socio-cultural constructs. On the one hand, some aspects of the exploitation of the BODY IS A CONTAINER FOR ANGER metaphor are strikingly similar in the three languages studied. For example, in all three languages the BODY-CONTAINER metaphor is one of the central mappings in the general ANGER metaphorical system, enjoying no privileged status on any of them compared to the others. Furthermore, in all three languages the degree of exploitation of specific metaphorical CONTAINERS, like the EYES and the VOICE, contributes (along with other metaphors) to the internal organization of the entire ANGER category, which comprises two very comparable clusters in the three languages. Finally, our results also suggest that cross-lingual similarity in the exploitation of the BODY-CONTAINER metaphor applies not only to the general category of ANGER, but also to the translation pairs within.

On the other hand, our results highlight several meaningful patterns of cross-lingual variation, highly interpretable in the context of past work. Here, the findings emphasize the importance of culturally salient concepts for specific emotion localizations (such as Russian *duša* and English *head/mind*) and cross-lingual variance in the general tendency to represent emotions in specific bodily parts or more generically. Russian ANGER is more robustly exploited in metaphorical expressions with specific body-part localizations, as compared to English ANGER, which prefers a more general bodily representation. Finally, our results suggest that the exploitation across languages of the BODY-CONTAINER metaphor for ANGER correlates with specific cultural differences in social attitudes towards the outward manifestation of other-directed negative affect. In agreement with previously attested features of our lingual groups concerning individualistic *vs* collectivistic 'cultural syndromes' (cf. Triandis 1993), we find a stronger association with 'external body parts" (promoting the visibility of anger) in English, and a stronger link with the 'internal body parts' (promoting the internalized, non-perceptible aspects of anger) in Russian and Spanish.

The significance of the 'metaphorical profile' approach advocated in the present paper is apparent in a number of domains. Firstly, the quantitative, bottom-up, data-driven methodology advanced in our study enriches the current palette of methodologies employed in Conceptual Metaphor Theory to investigate the embodied conceptualization of emotions. More specifically, our method contributes to overcoming the observational, introspection-based approach that has traditionally characterized emotion metaphor studies and it illustrates the interdisciplinary potential of Conceptual Metaphor Theory (and cognitive linguistics, more generally) to provide insights comparable to those obtained in cross-cultural emotion psychology, cultural semantics, psychiatry, and psycholinguistics.

But our results do not merely converge with the findings in several of the affective sciences. More than that, they open up a platform for further research in those disciplines. Firstly, our findings are relevant for psycho-physiological research on the facial and vocal expression of emotion. Our corpora data suggest that the most intense varieties of ANGER (such as English *fury*, *rage*, Spanish *furia*, or Russian *jarost'*) are more profusely coded in metaphorical expressions associated to the EYES, as compared to other anger varieties more associated to the VOICE. Therefore, it would be of interdisciplinary interest to experimentally explore whether the facial recognition of 'hot' anger (cf. Banse & Scherer 1996) is more

accurate than the recognition in the face of less aroused versions of the emotion, whereas 'cold' anger varieties would be more accurately recognized in the vocal expression modality. An experimental study involving German-speaking participants (Bänziger & et al. 2009) provides preliminary support to this possibility: in this study, 'hot' anger was indeed found to be more accurately recognized in the visual channel than 'cold' anger. Although the same held true for the vocal channel (i.e., 'hot' anger was recognized better than 'cold' anger in the voice as well), 'cold' anger depictions were slightly better recognized from the voice than from the face (Bänziger et al. 2009: 697).

Our findings are also relevant for cross-cultural emotion psychology. The linguistic data highlight the possibility that the tendency to inhibit outward anger manifestation in collectivistic (as opposed to individualistic) societies might not necessarily concern *all* anger experiences, but be particularly relevant for the most virulent, socially-threatening, or poorly-controlled ones, like fury. By contrast, our findings on 'indignation' and 'justified anger' words in Spanish and Russian show that the cultural urge to regulate anger expression may be less pronounced when it comes to socially sanctioned, morally justified forms of anger—i.e., those that arise in response to serious violations of social, cultural, or moral prescriptions. While anger in general is consensually viewed as more discouraged in collectivistic (compared to individualistic) societies (e.g., Briggs 1970; Bender et al. 2007; Kitayama et al. 2006; Myers 1979), there is hardly any research in current cross-cultural psychology exploring whether this general inhibiting tendency applies to all varieties of anger, or to the same extent (cf. Ogarkova in press). The results of our study suggest that these finer intra-categorical distinctions are worth attending to, and considering them in future studies could reasonably be expected to provide us with a more realistic and complete picture of the socially maintained practices regarding anger expression across cultures.

Thirdly and finally, our results offer interesting insights for the psycholinguistic research on emotion somatization. It has been shown by many relevant studies that salience in somatization has a clear *quantitative* dimension, being reflected in large numbers of somatic words in semi-structured interviews on emotional topics (Tsai et al. 2004) and the overpowering reference to body-parts in the discursive responses to emotional stimuli (Pavlenko 2002). As a complement, our results suggest that the *qualitative* aspects of the embodied codification of emotions, such as the use of more *vs* less specific designations in the bodily references to affective states, can be a legitimate aspect to look at in the study of somatization at large.

The findings of the present study emphatically highlight the idea that a meaningful investigation of emotion is best undertaken in a cross-disciplinary, mutually-informative, and cooperative fashion, combining insights from the many disciplines involved in the study of human affect. As the present study has hopefully demonstrated, cognitive linguistics *is* one of the most valuable disciplines in this enterprise and modern methods in conceptual metaphor analysis allow for the fruitful comparison of findings across disciplinary domains.

REFERENCES

Aksan, Mustafa. 2006. The container metaphor in Turkish expressions of anger. *Journal of Linguistics and Literature* 3(2), 103-124.

Ameka, Felix K. 2002. Cultural scripting of body parts for emotions: On jealousy and related emotions in Ewe. *Pragmatics & Cognition* 10(1-2), 27-55.

Ansah, Gladys N. 2011. The cultural basis of conceptual metaphors: the case of emotions in Akan and English. In Kathrin Kaufhold, Sharon MsCulloch, and Ana Tominc (eds.) *Papers from LAEL PG 2010*, Volume 5, 2-26. Lancaster University. URL http://www.ling.lancs.ac.uk/pgconference/v05/LAEL_Volume5_2011.pdf

Apresyan, Valentina & Apresyan, Yurij. 1993. Metafora v semanticheskon predstavlenii emotsij' [Metaphor in the semantic representation of emotions]. *Vopsory Yazykoznaniya* 3, 27–35 [in Russian].

Armon-Jones, Claire. 1986. The thesis of constructionism. In Romano Harré (ed.) *The Social Construction of Emotions*, 32-56. Oxford: Blackwell.

Averill, James R. 1980. A constructivist view of emotion. In Robert Plutchik and Henry Kellerman (eds.) *Emotion: Theory, research and experience*, vol. 1, 305-339. London: Academic Press.

Averill, James R. 2009. Vocabulary of emotion. In David Sander & Klaus R. Scherer (eds.) *Oxford Companion to Emotion and the Affective Sciences*, 403-404. Oxford/New York: Oxford University Press.

Banse, Reiner & Scherer, Klaus R. 1996. Acoustic profiles in vocal emotion expression. *Journal of Personality and Social Psychology* 70(3), 614-636.

Barcelona, Antonio. 1986. On the concept of depression in American English: a cognitive approach. *Revista Canaria de Estudios Ingleses* 12, 7-35.

Barrett, Lisa F., & Russell, James A. 1999. Structure of current affect. *Current Directions in Psychological Science* 8, 10-14.

Batic, Gian C. 2011. Love Encoding in Hausa: Sources and Conceptual Models. In Gian Batic (ed.) *Encoding Emotions in African Languages*, 139-151. LINCOM Studies in African Languages 84. Muenchen: Lincom GmbH.

Bauer, Anton. 1973. *Das melanesische und chinesische Pidginenglish*. Regensburg: Carl.

Bänziger, Tanja, Grandjean, Didier, & Scherer, Klaus R. 2009. Emotion recognition from expressions in face, voice, and body: the Multimodal Emotion Recognition Test (MERT). *Emotion* 9(5), 691-704.

Beatty, Andrew. 2005. Emotions in the field: what are we talking about? *Journal of Royal Anthropological Institute* 11, 17-37.

Becher, Jutta. 2003. Experiencer Constructions in Wolof. *Hamburger Afrikanistische Arbeitspapiere* 2. URL http://www.aai.uni-hamburg.de/afrika/HAAP/Becher2003.pdf

Bender, Andrea, Spada, Hans, Seitz, Stefan, Swoboda, Hannah, & Traber, Simone. 2008. Anger and rank in Tonga and Germany: Cognition, emotion, and context. *Ethos* 35 (2), 196-234.

Berendt, Erich & Tanita, Keiko. 2011. The 'heart' of things: a conceptual metaphoric analysis of *heart* and related body parts in Thai, Japanese and English. *Journal of Intercultural Communication Studies (ICS)* 20(1), URL: http://www.uri.edu/iaics/content/2011v20n1/06ErichABerendtKeikoTanita.pdf

Bondeelle, Olivier. 2011. From body to emotion in Wolof: a phraseology process. In Gian C. Batic (ed.) *Encoding Emotions in African Languages*, 17-34. LINCOM Studies in African Languages 84. Muenchen: Lincom GmbH.

Briggs, Jean L. 1970. *Never in anger: Portrait of an Eskimo family*. Cambridge, MA: Harvard University Press.

Bugenhagen, Robert D. 2001. Emotions and the nature of persons in Mbula. In Jean Harkins and Anna Wierzbicka (eds.) *Emotions in Crosslinguistic Perspective*, 73-118. Berlin: Mouton de Gruyter.

Chamberlaine, Alexander F. (1895). On the words for "anger" in certain languages: a study in linguistic psychology. *The American Journal of Psychology* 6(4), 585-592.

Chand, Vineeta. 2008. Fire and hot liquids: Anger in Hindi and English. In Frank Boers, Jeroen Darquennes, Koen Kerremans and Rita Temmerman (eds.) *Multilingualism and Applied Comparative Linguistics*, Volume II, 2-24. Cambridge: Cambridge Scholars Publishing.

Chen, Peilei. 2010. A cognitive study of 'anger' metaphors in English and Chinese idioms. *Asian Social Science* 6(8), 73-76.

Conway, Martin A. & Bekerian, Debra A. 1987. Situational knowledge and emotion. *Cognition & Emotion* 1, 145–191.

Cook, Hera. 2012. Emotions, body, sexuality, and sex education in Edwardian England. *The Historical Journal* 2, 475-495.

Damasio, Antonio R. 1994. *Descartes' Error: Emotion, Reason and the Human Brain.* New York: Putnam's Sons

Deignan, Alice & Potter, Liz. 2004. A corpus study of metaphors and metonyms in English and Italian. *Journal of Pragmatics* 36,1231-1252.

Diller, Anthony & Juntanamalaga, Preecha. 1990. Full hearts and empty pronominals in Thai. *Australian Journal of Linguistics* 10 (2), 231-255.

Ding, Yan. 2011. Metaphors of SADNESS: intraconceptual and interconceptual variation. *Unpublished PhD dissertation*. Hong Kong: the University of Hong Kong.

Ding, Yan & Nöel, Dirk. 2012. Where was and is sadness? A corpus-based diachronic investigation of metaphorical containers of sadness in English. Paper presented at *the 35th LAUD Symposium*. Koblenz-Landau, March 26-29.

Ding, Yan, Nöel, Dirk, and Wolf, Hans-Georg. 2010. Patterns in metaphor translation: a corpus-based case study of the translation of fear metaphors between English and Chinese. In Richard Xiao (ed.) *Using Corpora in Contrastive and Translation Studies*, 40-61. Newcastle: Cambridge Scholars Publishing.

Divjak, Dagmar & Gries, Stefan. 2006. Ways of trying in Russian. Clustering and comparing behavioral profiles. *Corpus Linguistics and Linguistic Theory* 2(1), 23-60.

Divjak, Dagmar & Gries, Stefan. 2008. Clusters in the mind? Converging evidence from near-synonymy in Russian'. *The Mental Lexicon* 3(2), 188–123.

Dzokoto, Vivian & Adams, Glenn. 2007. Analyzing Ghanaian emotions through narrative: a textual analysis of Ama Ata Aidoo's novel changes. *Journal of Black Psychology* 33, 94-112.

Dzokoto, Vivian & Okazaki, Sumie. 2006. Happiness in the eye and the heart: somatic referencing in West African emotion lexica. *Journal of Black Psychology* 32(2), 117-140.

Emanatian, Michelle. 1995. Metaphor and the expression of emotion: the value of cross-cultural perspectives. *Metaphor and Symbol*10 (3), 163-182.

Evans, Nicholas. 1994. Kayardild. In Cliff Goddard and Anna Wierzbicka. (eds.) *Semantic and lexical universals: theory and empirical findings*, 203-228. Amsterdam: John Benjamins.

Fehr, Beverky, & Russell, James A. 1984. Concept of emotion viewed from a prototype perspective'. *Journal of experimental psychology*: *Genera*l 113, 464-486.

Fesmire, Steven A. 1994. Aerating the mind: the metaphor of mental functioning as bodily functioning. *Metaphor and Symbolic Activity* 9(1), 31-44.

Fontaine Johny, Scherer, Klaus, & Soriano, Cristina (eds). 2013. *Components of Emotional Meaning: A Sourcebook*. Oxford: Oxford University Press.

Gaby, Alice. 2008. Gut feelings: locating intellect, emotion and life force in the Thaaorre body". In Farzad Sharifian, René Dirven and Susanne Niemeier (eds.) *Culture, Body and Language*, 27-45. Berlin: Mouton de Gruyter.

Galati, Dario, Sini, Barbara, Tinti, Carla, & Testa, Silvia. 2008. The lexicon of emotion in the neo–Latin languages. *Social science information* 47(2), 205–220.

Gibbs, Raymond W. 2006. Embodiment and Cognitive Science. Cambridge: Cambridge University Press.

Geurts, Kathryn. 2002. On rocks, walks, and talks in West Africa: cultural categories and an anthropology of the senses. *Ethos* 30 (3), 178-198.

Goddard, Cliff & Wierzbicka, Anna. 1995. Key words, culture and cognition. *Philosophica* 55 (1), 37-67.

Goddard, Cliff. 2001. Hati: A key word in the Malay vocabulary of emotion. In Jean Harkins and Anna Wierzbicka (eds.) *Emotions in Cross–linguistic Perspective*, 171-200. Berlin: Mouton de Gruyter.

Goschler, Juliana. 2005. Embodiment and Body metaphors. *metaphorik.de* 9, 33-52.

Hansford, Gillian. 2005. Body Metaphor in Chumburung. *Journal of West African Languages* XXXII, 1–2. URL: http://www.journalofwestafricanlanguages.org/Files/pdf/32-12/jwal-32-12-Hansford.pdf

Harré, Romano (ed.) 1986.*The social construction of emotions*. Oxford/New York: Basil Blackwell.

Harkin, Michael. 2003. Feeling and Thinking in Memory and Forgetting: Toward an Ethnohistory of the Emotions. *Ethnohistory* 50(2), 261-284.

Hasada, Rie. 2002. Body part terms and emotion in Japanese. *Pragmatics and Cognition*, 10(1-2), 107-128.

Hejmadi, Ahalya, Davidson, Richard, & Rozin, Paul. 2000. Exploring Hindu Indian emotion expressions: evidence for accurate recognition by Americans and Indians. *Psychological Science* 11(3), 183-187.

Hofstede, Geertz. 2001. *Culture's consequences: comparing values, behaviors, institutions, and organizations across nations*. Thousand Oaks CA: Sage Publications.

Howell, Signe. 1981. Rules not words. In Paul Heelas and Andrew Lock (eds.) *Indigenous psychologies: The anthropology of the self*, 133-143. San Diego, CA: Academic Press.

Hupka, Ralph B., Lenton, Alison P., & Hutchison, Keith A. 1999. Universal development of emotion categories in natural language. *Journal of Personality and Social Psychology* 77 (2), 247-278.

Ibarretxe–Antuňano, Iraide. 2008. Guts, heart, and liver: the conceptualization of internal organs in Basque. In Farzad Sharifian, René Dirven and Susanne Niemeier (eds.) *Culture, Body and Language*, 103-128. Berlin: Mouton de Gruyter.

Ice, Gillian H. & Yogo, Jaja. 2005. Measuring stress among Luo elders: development of the Luo Perceived Stress Scale. *Field Methods* 17(4), 394-411.

Ikegami, Yoshihiko. 2008. The heart: what it means to the Japanese speakers. In Farzad Sharifian, René Dirven and Susanne Niemeier (eds.) *Culture, Body and Language*, 169-190. Berlin: Mouton de Gruyter.

Iordanskaja, Lidia. 1986. Russian expressions denoting physical symptoms of emotions: an example of two-argument lexical functions. *Lingua* 69(3), 245-282.

Jaisser, Annie. 1990. DeLIVERing: an introduction to psycho-collocations with SIAB in White Hmong. *Linguistics of the Tibeto-Burman Area* 13(1), 159-177.

James, William. 1884. What is an emotion? *Mind* 9, 188-205.

Janda, Laura & Solovyev, Valery. 2009. What constructional profiles reveal about synonymy: a case study of Russian words for SADNESS and HAPPINESS. *Cognitive Linguistics* 20(2), 367-393.

Kaaya, Sylvia F., Fawzi, Mary. C., Mbwambo, Jessie K., Lee, B., Msamanga, Gernard I., & Fawzi, Wafaie. 2002. Validity of the Hopkins Symptom Checklist–25 amongst HIV–positive pregnant women in Tanzania. *Acta Psychiatrica Scandinavica*, 106, 9–19.

Kassinove Howard & Sukhodolsky, Denis G. 1995. Anger disorders: Basic science and practice issues. Issues in comprehensive pediatric nursing 18(3), 173-205.

Keltner, Dacher, & Haidt, Jonathan. 2001. Social functions of emotions. In Tracy Mayne & George Bonanno (eds., *Emotions: Current issues and future directions*, 92-213. New York: Guilford Press.

Kirmayer, Lawrence J., & Young, Allan. 1998. Culture and somatization: clinical, epidemiological, and ethnographic perspectives. *Psychosomatic Medicine* 60, 420-430.

Kitayama, Shinobu, Mesquita, Batja, & Karasawa, Majumi. 2006. Cultural affordances and emotional experience: Socially engaging and disengaging emotions in Japan and the United States. *Journal of Personality and Social Psychology 91*(5), 890–903.

Klamer, Marian. 1998. The liver as the location of emotions: noun incorporation in Kambera. In Matt Pearson (ed.) *Recent papers in Austronesian linguistics: Proceedings of the third and fourth meetings of the Austronesian Formal Linguistics Association (AFLA)*. UCLA Occasional Papers in Linguistics 21, UCLA Department of Linguistics.

Kleinman, Arthur & Good, Byron J. (eds.) 1985. *Culture and depression*, Berkeley. University of California Press.

Kleinman, Arthur and Kleinman, Joan. 1985. Somatization: the interconnections in Chinese society among culture, depressive experiences, and the meanings of pain. In Arthur Kleinman and Byron Good (eds.) *Culture and depression: Studies in the anthropology and cross–cultural psychiatry of affect and disorder*, 429-490. Berkeley: University of California Press.

Kövecses, Zoltán 1990. *Emotion concepts*. New York: Springer.

Kövecses, Zoltán. 1995. Anger: its language, conceptualization, and physiology in the light of cross-cultural evidence. In John R. Taylor & Robert E. MacLaury (eds.), *Language and the cognitive construal of the world*, 181-196. Berlin: Mouton de Gruyter.

Kövecses, Zoltán. 1998. Are there any emotion-specific metaphors?, in Angeliki Athanasiadou and Elzbieta Tabakowska (eds.) *Speaking of Emotions: Conceptualization and Expression*, 127-151. Berlin and New York: Mouton de Gruyter.

Kövecses, Zoltán. 2000a. *Metaphor and Emotion.* New York/Cambridge: Cambridge University Press.

Kövecses, Zoltán. 2000b. The concept of anger: universal or culture-specific? *Psychopathology* 33, 159-170.

Kövecses, Zoltán. 2002. *Metaphor: a practical introduction*. Oxford/New York: Oxford University Press.

Kövecses, Zoltan. 2005. *Metaphor in Culture. Universality and Variation*. New York: Cambridge University Press.

Kövecses, Zoltan. 2008. Conceptual metaphor theory: some criticisms and alternative proposals. *Annual Review of Cognitive Linguistics* 6, 168-184.

Kövecses, Zoltan. 2011. Methodological issues in conceptual metaohor theory. In Sandra Handl and Hans-Jorg Schmid (eds.) Windows to the mind: Metaphor, metonymy, and conceptual blending, 23-40. Berlin/New York: Mouton de Gruyter.

Krylov Yurij V. 2007. *Emotivnij concept ZLOST' v russkoj yazykovoj kartine mira: identifikatsiya i razgranitchenie mental'nih i yazykovyh struktur* [The concept of 'ZLOST' in Russian linguistic picture of the world: identification and dissociation of mental and linguistic spaces]. Unpublished PhD thesis. Novosibirsk: Novosibirsk state pedagogical university.

Kuzar, Ron & Kidron,Yael. 2002. My face is paling against my will: Emotion and control in English and Hebrew. *Pragmatics & Cognition* 10(1-2), 129-157.

Lakoff, George & Kövecses, Zoltán. 1987. The cognitive model of anger inherent in American English. In Dorothy Holland and Naomi Quinn (eds.) *Cultural Models in Language and Thought*, 195-221. New York: Cambridge University Press.

Lakoff, George, & Johnson, Mark. 1980. *Metaphors we live by*. Chicago: University of Chicago Press.

Lakoff, George, & Johnson, Mark. 1999. *Philosophy In The Flesh: the Embodied Mind and its Challenge to Western Thought*. New York: Basic Books.

Lakoff, George. 1993. The contemporary theory of metaphor. In Andrew Ortony (ed.) *Metaphor and thought*, 202-251. Cambridge: Cambridge University Press.

Lemaître, Yves. 1995. *Lexique de Tahitien contemporain*. Paris: IRD Editions.

Lindstrőm, Eva. 2002. The body in expressions of emotion: Kuot. *Pragmatics & Cognition* 10(1-2), 159-184.

Littmann, Enno & Hoeffner, Maria. 1962. *Woerterbuch der Tigre–Sprache*. Wiesbaden: Franz Steiner Verlag.

Lutz, Catherine A. 1982. The domain of emotion words on Ifaluk. *American ethnologist* 9, 113-128.

Lutz, Catherine A. 1986. Emotion, thought, and estrangement: Emotion as a cultural category. *Cultural anthropology* 1(3), 287-309.

Lutz, Catherine A. 1988. *Unnatural emotions: everyday sentiments on a Micronesian atoll and their challenge to western theory*. Chicago: University of Chicago Press.

Maalej, Zouhair. 2004. Figurative language in anger expressions in Tunisian Arabic: An Extended View of Embodiment. *Metaphor and Symbolic Activity* 15 (1&2). 85—98.

Maalej, Zouhair. 2007. Figurative dimensions of 3yan "eye" in Tunisian Arabic. Paper presented at *the 10th Cognitive Linguistics Conference*, Crakow, 15-20 July 2007.

Marks, Joel, & and Ames, Rodger (eds.) 1995. *Emotions in Asian Thought, A Dialogue in Comparative Philosophy*. Albany, NY: SUNY Press.

Markus, Hazel R. & Kitayama, Shinobu. 1991. Culture and the self: implications for cognition, emotion and motivation. *Psychological Review* 98, 224-253.

Mashak, Shahrzad P., Pazhakh, Abdolreza, & Hayati, Abdolmajid. 2012. A comparative study on basic emotion conceptual metaphors in English and Persian literary texts. *International Education Studies* 5(1), 200-207.

Matsuki, Keiko. 1995. Metaphors of anger in Japanese. In John Taylor and Robert E. Maclaury (eds.) *Language and the Cognitive Construal of the World*, 137-151. Berlin/New York: Mouton de Gruyter.

Matsumoto, David, Yoo, Seung Hee, & Joanne Chung. 2010. The expression of anger across cultures. In Michael Potegal, Gerhard Stemmler, & Charles Spielberger (eds.) *International Handbook of Anger*, 125-138. Springer: New York, Dordrecht, Heidelberg, London.

McElhanon, Kenneth A. & McElhanon, Noreen A. 1970. *Selepet-English Dictionary, Pacific Linguistics.* Canberra: Australian National University.

McElhanon, Kenneth A. 1977. Body image idioms in Irianese and Papua New Guinean languages. *Irian*, 6, 3-27.

McPherson, Laura & Prokhorov, Kirill. 2011. Structural correlates of 'liver' expressions in Dogon emotional vocabulary. In Gain C. Batic (ed.) *Encoding Emotions in African Languages*, 38-56. *LINCOM Studies in African Languages 84*. Muenchen: Lincom GmbH:

McVeigh, Brian J. 1996. Standing stomachs, clamoring chests and cooling livers: Metaphors in the psychological lexicon of Japanese. *Journal of Pragmatics* 26, 25-50.

Mesquita, Batja & Leu, Janxin. 2007. The cultural psychology of emotion. In Shinobu Kitayama and Dov Cohen (eds.) *The handbook of cultural psychology*, 734-759. New York: Guilford Press.

Mesquita, Batja & Powerell, Ryan. 2009. Cultural specificity. In David Sander and Klaus R. Scherer (eds.) *Oxford Companion to Emotion and the Affective Sciences*, 107. Oxford: Oxford University Press.

Michelson, Karin. 2002. Emotions in Oneida. *Pragmatics and Cognition* 10(1-2), 185-206.

Mithun, Marianne. 1984. The evolution of noun incorporation. *Language* 60, 847-94.

Mumford, David B. 1993. Somatisation: a transcultural perspective. *International Review of Psychiatry* 5, 231-42.

Myers, Fred R. 1979. Emotions and the self: A theory of personhood and political order among Pintupi aborigines. *Ethos 7*, 343-370.

Nida, Eugene. 1958. Analysis of meaning and dictionary making. *International Journal of American Linguistics* 24, 279-92.

Niemeier, Susanne. 1997. To have one's heart on the right place. Metaphorical and metonymic evidence from the folk model of the heart as the site of emotions in English. In Birgit Smieja and Meike Tasch (eds.) *Human Contact through Language and Linguistics*, 87-106. Frankfurt am Main/ New York: Peter Lang.

Niemeier, Susanne. 2008. To be in control: kind–hearted and cool–headed. The head–heart dichotomy in English. In Farzad Sharifian, René Dirven and Susanne Niemeier (eds.) *Culture, Body and Language*, 349-373. Berlin: Mouton de Gruyter.

Nisbett, Richard E., Peng Kaiping, Choi, Incheol, & Norenzayan, Ara. 2001. Culture and systems of thought: holistic versus analytic cognition. *Psychogical Review* 108, 291-310.

Occhi, Debra J. 2008. How to have a HEART in Japanese. In Farzad Sharifian, René Dirven and Susanne Niemeier (eds.) *Culture, Body and Language*, 191-212. Berlin: Mouton de Gruyter.

Oey, Eric. 1990. Psycho–collocations in Malay: a Southeast Asian areal feature. *Linguistics of the Tibeto–Burman Area* 13(1), 141-157.

Ogarkova, Anna & Soriano, Cristina. 2014. Variation within universals: the metaphorical profile approach and ANGER concepts in English, Russian, and Spanish. In Andreas Mussolf, Fiona MacArthur and Julio Pagani (eds.) *Metaphor in Intercultural Communication*, 93-116. London: Continuum.

Ogarkova, Anna. 2013. Folk emotion concepts: lexicalization of emotional experiences across languages and cultures. In Johny Fontaine, Klaus R. Scherer and Cristina Soriano (eds.) *Components of emotional meaning: A sourcebook*, 46-62. Oxford: Oxford University Press.

Ogarkova, Anna, Soriano, Cristina, and Lehr, Caroline. 2012. Naming feeling: Exploring the equivalence of emotion terms in five European languages'. *Lodz Studies in Language*, 24, 245-276.

Ogarkova, Anna. 2007. Green-eyed monsters: a corpus-based study of the concepts of ENVY and JEALOUSY in modern English. *metaphorik.de* 13, 87-147.

Ogarkova, Anna & Soriano, Cristina. 2012. Conceptual metaphor in the study of emotion: method and applications. Paper presented at the workshop "*Emotion and metaphor, ancient and modern: Interdisciplinary perspectives*". Geneva (Switzerland), March 14.

Ortony, Andrew & Turner, Terence. 1990. What's basic about basic emotions? *Psychological review* 97, 315—331.

Oster, Ulrike. 2010. Using corpus methodology for semantic and pragmatic analyses: What can corpora tell us about the linguistic expression of emotions?. Cognitive *Linguistics* 21(4), 727-763.

Ots, Thomas. 1990. The angry liver, the anxious heart, and the melancholy spleen. *Culture, Medicine, and Psychiatry* 14, 21-58.

Pavlenko, Aneta. 2002. Emotions and the body in Russian and English. *Pragmatics and Cognition* 10 (1-2), 201-236.

Pérez, Regina G. 2008. A Cross-Cultural Analysis of Heart Metaphors. *Revista Alicantina de Estudios Ingleses* 2, 25-56.

Pike, Ivy L. & Young, Alyson. 2002. Understanding psychosocial health among reproductive age women from Turkana District, Kenya and Mbulu District, Tanzania. *American Anthropological Association Annual Meeting Abstracts* 479.

Priestly, Carol. 2002. Insides and emotion in Koromu. *Pragmatics & Cognition* 10(1-2), 243-270.

Racy, John. (1980). Somatization in Saudi women: a therapeutic challenge. *British Journal of Psychiatry*, 137, 212-216.

Ratner, Carl. 1997. In defense of activity theory. *Culture and Psychology* 3, 211-223.

Reh, Mechtild. 1998. The language of emotion: an analysis of Dholuo on the basis of Grace Ogot's novel Miaha. In Angeliki Athanasiadou and Elzbieta Tabakowska (eds.) *Speaking of emotions*, 375-408. Berlin/New York: Mouton de Gruyter.

Rosch, Eleanor. 1978. Principles of categorization. In Eleanor Rosch and Barbara Lloyd (eds.) *Cognition and categorization*, 27-48. Hillsdale, NJ: Lawrence Erlbaum Associates.

Russell, James A. 1980. A circumplex model of affect. *Journal of Personality and Social Psychology* 39, 1161–1178.

Saxena, Shekhar, Nepal, Mahendra & Mohan, Devinder. 1988. DSM–111 axis I diagnoses of Indian psychiatric patients with somatic symptoms. *American Journal of Psychiatry* 145, 1023-1024.

Schachter, Stanley & Singer, Jerome 1962. Cognitive, Social, and Physiological Determinants of Emotional State. *Psychological Review* 69, 379–399.

Schieffelin, Edward. 1983. Anger and Shame in the Tropical Forest: On Affect as a Cultural System in Papua New Guinea. *Ethos*, 11 (3), 181-191.

Scherer, Klaus R. 2005. What are emotions? And how can they be measured? *Social science information* 44(4), 695-729.

Scherer, Klaus R. 2009. The dynamic architecture of emotion: Evidence for the Component Process Model. *Cognition and emotion* 23(7), 1307-1351.

Seidensticker, Tilman. 1992. *Altarabisc, Herz und sein Wortfeld*. Otto Harrassowitz, Wiesbaden.

Sharifian, Farzad, Dirven, René, Yu, Ning & Niemeier, Susanne (eds.) 2008. *Culture, Body and Language*. Berlin: Mouton de Gruyter.

Shaver, Phillip, Schwartz, Judith, Kirson, Donald, & O'Connor, Cary. 1987. Emotion knowledge: further exploration of a prototype approach. *Journal of personality and social psychology* 52, 1061-1086.

Shiroma, Paulo R. and Alarcon, Renato D. 2011. Time for healing: somatization among chronically mentally ill immigrants. *Journal of Cultural Diversity* 18(1), 3-7.

Siahaan, Poppy. 2008. Did he break your heart or liver? A constrastive study of metaphorical concepts from the source domain ORGAN in English and Indonesian. In Farzad Sharifian, René Dirven and Susanne Niemeier (eds.) *Culture, Body and Language*, 45-74. Berlin: Mouton de Gruyter.

Sirvyde, Ruta. 2006. Facing Fear: A corpus-based approach to fear metaphors in English and Lithuanian'. *Man and the World. Foreign Languages* 3, 81-88.

Soriano, Cristina. 2005. The conceptualization of anger in English and Spanish: a cognitive approach. *Unpublished Ph.D. dissertation*, University of Murcia.

Soriano, Cristina & Ogarkova, Anna. (submitted). Metaphorical profile analysis in the study of anger: A new method and a new model.

Stearns, Peter, & Stearns, Carol. 1985. Emotionology: clarifying the history of emotions and emotional standards. The American History Review 90(4), 813-830.

Stefanowitsch, Anatol. 2004. HAPPINESS in English and German: A metaphorical-pattern analysis', in Michel Achard and Suzanne Kemmer (eds.) *Language, Culture, and Mind*, 137-149. Stanford: University of Stanford.

Stefanowitsch, Anatol. 2006. Words and their metaphors. A corpus-based approach', in Anatol. Stefanowitsch and Stefan Gries (eds.) *Corpus-based Approaches to Metaphor and Metonymy*, 61-105. Berlin & New York: Mouton de Gruyter.

Storm, Christine, & Storm, Tom. 1987. A taxonomic study of the vocabulary of emotions. *Journal of Personality and Social Psychology*, 53, 805-816.

Taylor, John R. and Mbense, Thandi G. 1998. Red dogs and rotten mealies: How Zulus talk about anger. In Angeliki Athanasiadou and Elzbieta Tabakowska (eds.) *Speaking of Emotions: Conceptualisation and Expression*, 191-226. Berlin and New York: Mouton de Gruyter.

Tower, Rupert K., Kelly, Caroline, & Richards, Anne. 1997. Individualism, collectivism and reward allocation: A cross-cultural study in Russia and Britain'. *British Journal of Social Psychology* 36, 31-345.

Triandis, Harry C. 1993. Collectivism and individualism as cultural syndromes. Cross-Cultural Research 27 (3-4), 155-180.

Triandis, Harry C., & Gelfand, Michele J. 1998. Converging measurement of horizontal and vertical individualism and collectivism. *Journal of Personality and Social Psychology* 74, 118-128.

Tsai, Jeanne L., Simeonova, Diana I., & Watanabe, Jamie T. (2004). Somatic and Social: Chinese Americans Talk about Emotion, *Pers Soc Psychol Bull* 30, 1226-1238.

Tung, May. 1994. Symbolic meanings of the body in Chinese culture and 'somatization'. *Culture, Medicine and Psychiatry* 18, 483-492.

Turpin, Myfany. 2002. Body part terms in Kaytetye feeling expressions. *Pragmatics & Cognition* 10(1-2), 271-305.

Vainik, Ene. 2011. Dynamic body parts in Estonian figurative descriptions of emotions.In: Zouheir Maalej and Ning Yu (eds.) *Embodiment via body parts: Studies from various languages and cultures,* 41-70.Amsterdam & Philadelphia: John Benjamins.

Weiss, Jerome. 1977. *Folk psychology of the Javanese of Ponorogo*. Ph.D. thesis New Haven: Yale University.

White, Geoffrey M. 1978. Ambiguity and Ambivalence in A'ara Personality Descriptors. *American Ethnologist* 5, 334-360.

White, Geoffrey M. 1980. Conceptual Universals in Interpersonal Language. *American Anthropologist* 82, 759-781.

Wierzbicka, Anna. 1990. Dusa ('soul'), toska ('yearning'), sud'ba ('fate'): Three Key Concepts in Russian Language and Russian Culture. In: Z. Saloni (ed.) *Metody formalne w opisie jesukow slowianskish*, 13-36. Bialystok: Bialystok Univ. Press.

Wierzbicka, Anna. 1992. *Semantics, culture, and cognition: Universal human concepts in culture-specific configurations.* New York: Oxford University Press.

Wierzbicka, Anna. 1998. 'Sadness' and 'Anger' in Russian: the non-universality of the so-called 'basic human emotions'. In Angeliki Athanasiadou and Elzbieta Tabakowska (eds.) *Speaking of Emotions: Conceptualisation and expression*, 3-28. Berlin: Mouton de Gruyter.

Wierzbicka, Anna. 1999. Emotional universals. *Language design* 2, 23-69.

Ye, Zhengdao. 2002. Different modes of describing emotions in Chinese: Bodily changes, sensations, and bodily images. *Pragmatics & Cognition* 10(1-2), 307-339.

Yoon, Kyung-Joo. 2004. Korean maum *vs.* English heart and mind: contrastive semantics of cultural concepts. *Proceedings of the 2003 Conference of the Australian Linguistic Society*. URL: http://www.als.asn.au/proceedings/als2003/yoon.pdf

Yu, Ning. 1995. Metaphorical expressions of anger and happiness in English and Chinese. *Metaphor and Symbolic Activity* 10(2), 59-92.

Yu, Ning. 1998. *The contemporary theory of metaphor in Chinese: A perspective from Chinese.* Amsterdam: John Benjamins.

Yu, Ning. 2002. Body and emotion: Body parts in Chinese expression of emotion. *Pragmatics & Cognition* 10(1-2), 341-367.

Zlatev, Jordan. 1997. *Situated Embodiment*. S*tudies in the emergence of spatial meaning*, Stockholm: Gotab.

Annex 1. Studies on Body-Part Linguistic Expressions in Encoding Emotions

Family	Languages	Case studies
Indo-European	English, Greek, Italian, Persian, Polish, Russian,	Apresyan & Apresyan 1993; Deignan & Potter 2004; Fesmire 1994; Iordanskaja 1986; Niemeier 1997, 2008; Sharifian 2007; Theodoropoulou 2012; Wierzbicka 1999
African	(Tunisian)Arabic, Anuak, Chumburung, Dagbani, Dholuo, Ewe, Fante, Hebrew, Ntrubo, Wolof, Zulu	Ameka 2002; Becher 2003; Bondeelle 2011; Dzokoto & Adams 2007; Dzokoto & Okazaki 2006, Geurts 2002; Hansford 2005; Kuzar & Kidron 2002; Maalej 2000, 2007; Nida 1958; Reh 1998; Seidensticker 1992; Taylor & Mbense 1998
Altaic	Turkish, Korean	Aksan 2006 ; Kyung-Joo Yoon 2004
Sino-Tibetan	Chinese	Ye 2002; Yu 2002
Hmong–Mien	Hmong	Jaisser 1990
Austronesian	Indonesian, Irianese and Papua New Guinean languages, Japanese, Javanese, Kambera, Koromu, Malay, Mbula, Ponorogo	Bugenhagen 2001; Goddard 2001; Hasada 2002; Klamer 1998; McElhanon 1977; Oey 1990; Priestly 2002; Siahaan 2008; Weiss 1977
Austro-Asiatic	Chewong	Howell 1981
Papuan	Selepet	McElhanon & McElhanon 1970
Thai	Thai	Diller & Juntanamalaga 1990
Uralic	Estonian, Hungarian	Kövescses 2000; Vainik 2011
Native American	Chocktaw, Oneida, Piro	Michelson 2002; Mithun 1984
Australian Aboriginal	Kaytetye, Kayardild, Thaayorre	Evans 1994; Gaby 2008; Turpin 2002
isolates	Basque, Kuot	Ibarretxe-Antunano 2008; Lindström 2002
	Gothic, Latin, Old Hebrew, Old Greek, Old Arabic, Old Koromu	Chamberlaine 1894; Priestly 2002; Seidensticker 1992

Annex 2. Number and origin of KWIC occurrences used in present study

Russian			*English*			*Spanish*		
	RNC	*other*		*BNC*	*BoE*		*CdE*	*CREA*
gnev	1000	—	rage	1000	—	ira	1000	—
vozmuschenie	1000	—	fury	1000	—	furia	893	107
jarost	1000	—	anger	1000	—	rabia	1000	—
zlost	1000	—	indignation	406	594	frustración	204	796
razdrazhenie	1000	—	resentment	1000	—	indignación	750	250
obida	1000	—	irritation	642	358	irritación	172	828
dosada	974	—	frustration	1000	—			
Total [corpus]	*6974*			*6048*	*952*		*4019*	*1981*
Total [language]	***6974***			***7000***			***6000***	

Note. BoE=Bank of English (British section); CdE= Corpus del Español.

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