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Barcelona, Antonio; Soriano, Cristina

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Metaphorical conceptualization in English and Spanish

Antonio Barcelona and Cristina Soriano
Department of English, University of Murcia, Spain.

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1. Introduction

The present paper is intended as an illustration of the different ways in which two different languages use metaphor to conceptualize a domain of experience and of the different ways in which this conceptualization is expressed linguistically, i.e. in the lexicon, the idioms and the grammatical patterns of each language.

The paper consists of three parts. In section 2, a brief contrastive study is presented on the metaphorical conceptualization of gaudy colors in English and Spanish, and on the associated lexicogrammar. Section 3 includes a report on a more complex study of the metaphorical and metonymic conceptualization of a larger domain, namely, the emotional domain of anger, and its associated lexicogrammar. Finally, section 4 is devoted to the presentation of some general conclusions that we feel are relevant for the crosslinguistic study of metaphor.

2. Case Study One: Gaudy colors in English and Spanish[1]

2.1. Discussion

There exists a conventional synesthetic metaphor, both in English and Spanish, which may be termed A DEVIANT COLOR IS A DEVIANT SOUND.[2] A

Correspondence: Antonio Barcelona, Department of English, University of Murcia, E- 30071, Murcia, Spain. E-mail: abs@um.es

1 An earlier version of this study was included in Antonio Barcelona, 'On the Systematic Contrastive Analysis of Conceptual Metaphors: Case Studies and Proposed Methodology', in *Applied Cognitive Linguistics II*: Language Pedagogy, eds. Martin Pütz, Susanne Niemeier and René Dirven (Berlin/New York: Gruyter, 2001), pp. 117-146.

2 See Antonio Barcelona, 'El poder de la metonimia', in *Estudios de Lingüística Cognitiva*, ed. José Luis Cifuentes Honrubia (Alicante: University of Alicante Press, 1998), 365-381, and Antonio Barcelona, 'On the plausibility of claiming a metonymic motivation for conceptual metaphor', in *Metaphor and Metonymy at the Crossroads*, ed. Antonio Barcelona (Berlin / New York: Mouton, 2000), pp. 31-58.

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gaudy, obtrusive color is understood as a loud or a strident sound. Examples include:

(1) *Julia lleva unos* colores muy chillones *en la falda.*
Julia wears some colors very shrill on the skirt.
'Julia is wearing a skirt with very shrill colors' i.e. 'Julia is wearing a flashy skirt.'

(2) *That's a* loud color *you're wearing.*

(3) *?I don't like such a* shrill *color.*

The metaphor is exploited in different ways in both languages. In English, there is a tendency to metaphorize gaudy colors as kinds of sounds, that is, as excessively intense sounds ('a *loud* color'), or, less idiomatically, as excessively high-pitched sounds ('*? a shrill shade of red*'). It is also possible, in more creative uses of the metaphor, to conceptualize them (or the objects exhibiting them) as agents which utter attention-getting sounds. Cf. this humorous example, drawn from a short story by Richmal Crompton:

(4) *She was wearing a red skirt* that cried aloud to heaven.

In Spanish, only the extended version of the metaphor is conventionally used, that is, a gaudy color is always treated as a metaphorical utterer, very often as an intentional caller. So we get examples such as

(5) *Es un color* chillón / llamativo.
It is a color screaming / calling.
'It's a screaming/calling color' i.e. 'It's a gaudy color.'

Therefore, in Spanish the metaphor seems to be used conventionally and automatically only under the extended version. And in English, the metaphor is conventionally and automatically used in its basic version, and only creatively used in its extended version. Yet the contrast between both languages is more subtle than just this. There are basically two possible lexicogrammatical realizations of this synesthetic metaphor.

(a) Phrasal realization

The metaphor is invoked by means of an auditory adjective (such as *loud*, *shrill*, *chillón*, *llamativo*) modifying, or acting as the predicate of, an NP with a color noun as head, as in examples (1), (2), (3) and (5). These adjectives simultaneously denote three properties (related to each other in a condition-result chain) of the color-percept: intensity along some dimension, deviance from a social norm, and attention-getting force. So a *loud color* or a *color chillón* is a color that is very intense along some dimension (typically luminosity and saturation); as a result of its high intensity, it departs from the (socially established) normal degree of intensity; and as a result of its deviance, it is a powerful and obtrusive eye-catcher.

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In Spanish, these are properties of the sound emitted by the metaphorical agent-utterer (the color itself) which are indirectly mapped onto a color percept. That is, a *color chillón / llamativo* is a color figuratively treated as an agent that emits a sound exhibiting these three properties. As I said above, this happens in the extended version of the metaphor. There are however some differences between these two Spanish adjectives.

Chillón can be used both metaphorically and nonmetaphorically. You can say nonmetaphorically:

(6) *Juan es muy chillón*
Juan is very shrill
'Juan screams too often.'

Chillón can also be used as a noun in the source domain,

(7) *Juan es un chillón*
Juan is a shrill-person
(approximately) 'Juan is a loudmouth.'

though not in the target,

(8) **Ese color es* un chillón
That color is a shrill-person
(approximately) 'That color is a loudmouth.'

and it is endowed with strong negative overtones in the source and in the target domains, thus further defining the deviance of the sound as deviance from good taste.

Llamativo can *only* be used in the target domain. It is not a *fully* transparent metaphorical expression, but an instance of a living metaphor whose source domain sense has become obsolete; however, since speakers are still aware of its connection to the verb *llamar* 'call', it still retains a measure of metaphorical transparence (i.e. its source domain sense is indirectly recoverable). On the other hand, it can only be used as an adjective, never as a noun,

(9) **Ese color es* un llamativo
*That color is a calling-thing
'That color is something that calls you.'

and it does not necessarily have any negative overtones; its deviance simply consists of a rather marked departure from normality, so that the adjective is often almost equivalent to *unaccustomed, uncommon.*

In English, such adjectives as *loud, shrill* (the latter perhaps less idiomatically), modifying or predicating an NP with a color noun as head, symbolize the same properties (intensity, deviance and attention-getting potential). These properties are predicated of the color percept, which is viewed as a sound, not as an agent that produces a sound.

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(b) Clausal realization

The metaphor is invoked by means of an agentive clause whose subject NP contains a color noun as head, whose verb denotes the production of a certain sound (crying, shouting, jarring) and which often includes a directional complement (typically a PP).

Examples include (4) above and

(10) Francamente, e*sos colores* chirrían *entre sí.*
Frankly, those colors jar between them.
'Frankly, those colors jar with each other.'

(11) *These colors* grate on everyone.

(12) *That color really* screams.

In these cases, only the extended version of the metaphor can be realized (i.e. the version in which the color is a metaphorical agent), not the basic version, as this type of clause symbolizes an agent-action-direction-endpoint semantic schema. The clausal expression of the extended version of the metaphor is less conventionalized in both languages, hence more creative, than the phrasal expression of either the basic or the extended version of the metaphor.

2.2. Summary of results of case study 1

The *basic version* of the metaphor A DEVIANT COLOR IS A DEVIANT SOUND can only be expressed in English within an NP. This version is not used in Spanish.

The *extended version* of the metaphor can be phrasally expressed in Spanish, but not in English. And it can be expressed clausally in both languages, but then these clauses are somewhat stylistically marked as creative or colorful.

The following table presents these findings synoptically:

Table 1. Versions of A DEVIANT COLOR IS A DEVIANT SOUND in English and Spanish

	Basic version	Extended version (agentive)
English	Phrasal: √	Phrasal: -
	Clausal: -	Clausal: √ (marked)
Spanish	Phrasal: -	Phrasal: √
	Clausal: -	Clausal: √ (marked)

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3. Case Study 2: Anger in English and Spanish

3.1 Introduction

Our second case study is a contrastive analysis of the metaphorical systems underlying the conceptualization of anger in English and Spanish. It complements Barcelona's introductory work on the subject[3] and resembles many others carried out on varied emotions around the world: Hungarian,[4] Chinese,[5] Japanese,[6] Zulu,[7] Polish,[8] Wolof,[9] etc.

3.2. Data and methodology

The present study is based on an inventory of more than 200 figurative expressions conventionally used to talk about anger in each language. They have been compiled from dictionaries, thesauri, novels, previous literature on the topic, introspection and corpora (*Corpus de Referencia del Español Actual* for Spanish and the *Lexis-Nexis* newspaper data base for English).

The study comprises two parts. In the first one each language was individually analyzed following Lakoff and Kövecses's methodology[10]

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[3] Antonio Barcelona, 'Análisis contrastivo del léxico figurado de la ira en inglés y en español', *Actas del VI Congreso Nacional de Lingüística Aplicada (AESLA)* (Santander: Universidad de Cantabria, 1989), pp. 141-149.

[4] Zoltán Kövecses, *Metaphor and Emotion. Language, Culture, and Body in Human Feeling* (Cambridge: Cambridge University Press, 2000), pp. 149-150, and Zsuzsanna Bokor, 'Body-based constructionism in the conceptualization of anger', Paper 17 in the *C.L.E.A.R. Series (Cognitive Linguistics: Explorations, Applications, Research)* (Working papers of the Department of English, Hamburg University, and Department of American Studies, Eötvös Lorand University, Budapest, 1997).

[5] Ning Yu, 'Metaphorical expressions of anger and happiness in English and Chinese', *Metaphor and Symbolic Activity* 10 (2) (1995), 59-92; and Brian King, 'The Conceptual Structure of Emotional Experience in Chinese' (Ohio State University, Ph.D. dissertation, 1989).

[6] Keiko Matsuki, 'Metaphors of Anger in Japanese', in *Language and the Cognitive Construal of the World*, eds. John Taylor and Robert MacLaury (Berlin: Gruyter, 1995), pp. 137-151.

[7] John Taylor and Thandi Mbense, 'Red Dogs and Rotten Mealies: How Zulus Talk about Anger', in *Speaking of Emotions. Conceptualization and Expression*, eds. Angeliki Athanasiadou and Elżbieta Tabakowska (Berlin/ New York: Gruyter, 1998), pp. 191-226.

[8] Mikołajczuk, Agnieszka, 'The metonymic and metaphorical conceptualization of anger in Polish', in *Speaking of Emotions. Conceptualization and Expression*, eds. Angeliki Athanasiadou and Elżbieta Tabakowska (Berlin/ New York: Gruyter, 1998), pp. 153-190.

[9] Pamela Munro, 'ANGER IS HEAT: Some data from a crosslinguistic survey', (Unpublished manuscript. Department of Linguistics, University of California at Los Angeles, 1991).

[10] George Lakoff and Zoltán Kövecses, 'The Cognitive Model of Anger Inherent in American English', in *Cultural Models in Language and Thought*, eds. Dorothy Holland and Naomi Quinn (New York: Cambridge University Press, 1987), pp. 195-221.

and Barcelona's guidelines for the identification and characterization of conceptual metaphor.[11]

For the second part, we followed Barcelona's methodology for the systematic contrastive analysis of metaphor and metonymy.[12] Due to time and space constraints, only three parameters of comparison were selected: existence / non-existence of the mapping in the language, degree of conceptual elaboration and degree of linguistic conventionalization. A fourth parameter, degree of linguistic exploitation, was also added.

The first part of the analysis revealed that two broad types of metaphor are present in the anger system: generic-level and specific-level.[13] Generic metaphors (like MORE IS UP or INTENSITY IS HEAT) participate, but with a very skeletal structure. Anger specific-level metaphors, on the contrary, provide the bulk of the conceptual form of the emotion. Table 2 presents an inventory of the basic-level metaphors shared by English and Spanish.

Table2. Basic-level metaphors shared by English and Spanish

ANGER IS A (HOT) FLUID IN A CONTAINER
ANGER IS FIRE
ANGER IS INSANITY
ANGER IS AN AGGRESSIVE ANIMAL
ANGER IS A NATURAL PHYSICAL FORCE
ANGER IS A BURDEN
ANGER IS AN OPPONENT/ A CONTROLLER
THE CAUSE OF ANGER IS PHYSICAL NUISANCE

3.3. Differences due to language-specific submappings

Spanish and English share the same set of basic-level metaphors for the conceptualization of anger, but some language-specific submappings within those metaphors can be identified too.

11 Antonio Barcelona, 'Clarifying and applying the notions of metaphor and metonymy within cognitive linguistics. An update', in *Metaphor and Metonymy in Comparison and Contrast*, eds. René Dirven and Ralf Pörings (Berlin/ New York: Gruyter, 2002), pp. 207-277.

12 Antonio Barcelona, 'On the Systematic Contrastive Analysis of Conceptual Metaphors: Case Studies and Proposed Methodology'.

13 Zoltán Kövecses, *Metaphor. A Practical Introduction* (Oxford and New York: Oxford University Press, 2000), pp.38-9.

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Spanish, for example, does not conceptualize the effect of anger as 'steaming'. Typical English instantiations of the mapping, such as (13-14), do not have any equivalent in peninsular Spanish.

(13) *To get all* steamed *up*

(14) *To let off* steam

English, on the other hand, lacks any expressions related to 'frying' to talk about causing anger or experiencing it. This is possible in Spanish, though, where expressions such as (15) are conventionalized in colloquial style.

(15) *Me tienes* frito
me you-have fried
'I am fed up with you'

In English the effects of anger are also conceptualized as 'stewing' (16). However, in Spanish mappings of this sort are not related to anger, but to lust or intense excitement (17).

(16) *He was* stewing

(17) *Él estaba* recocido *por lo que había oído* (Vulgar)
he was re-stewed by what he-had heard
'he was very excited/ sexually aroused by what he had heard.'

3.4. Differences due to the degree of linguistic conventionalization

Another aspect in which two languages can differ is the degree of entrenchment or conventionalization of the linguistic manifestations of a shared mapping. Those linguistic instantiations can range from fully conventionalized constructions to completely new, colorful and creative ones.

For example, in English, the linguistic realizations of THE EFFECTS OF ANGER ARE BOILING/ BURNING are more conventionalized than their equivalent expressions in Spanish. Spanish, for instance, does not have any verb equivalent of the English *to smolder*, but we have found evidence in our data that the same meaning can be expressed in the language through a rather colorful expression:

(18) *'Aún podía sentir los* rescoldos *de su ira'*
still I-could feel the embers of his/her anger
'I could still feel his/her smoldering.'

Similarly, fully conventionalized English expressions to talk about anger like *to simmer* or *to do a slow burn,* which do not exist in Spanish as such, could be expressed in the language by means of more colorful expressions:

(19) *Martín* hervía a fuego lento
Martin was-boiling at fire low
'Martin was simmering.'

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(20) *María iba* quemándose poco a poco
Mary was-going burning little by little
'Mary was doing a slow burn'.

Another way in which we can observe conventionalization differences between two languages is by looking at polysemy. In English some linguistic realizations of ANGER IS INSANITY are so conventionalized in the language that they have become polysemic. This is the case of the adjective *mad* and the verb *to madden*. In Spanish, the equivalent adjective *loco* (mad, crazy) and the verb *enloquecer* (to madden) are polysemic, but they are not univocally related to anger: *loco* refers to a generic lack of control and can be applied to any intense emotion (21-2).

(21) *Se puso* loco *de ira*
himself he-put crazy of anger
'he got mad'.

(22) *Se puso* loco *de contento*
himself he-put crazy of joy
'he was crazy with joy.'

Conversely, Spanish has more conventionalized realizations of the mapping THE EFFECT OF ANGER ON THE PERSON IS SWELLING. This entailment submapping of ANGER IS A (HOT) FLUID IN A CONTAINER is instantiated in Spanish by the polysemous verb *hinchar* (*to swell/ to annoy*) and the adjective *hinchado* (*swollen/ fed up*). Both the original and the metaphorically derived meanings of these constructions can be found in the dictionary. In Spanish the swollen parts can be the whole body (23), the nose (24) or even the testicles, in contrast to Hungarian – for example – where the swollen part is the head.[14] In English there seem to be no body parts implicated, but the body as a whole (25).

(23) *Me estás* hinchando (Colloquial)
me you-are swelling
'you are annoying me.'

(24) *Me estás* hinchando las narices (Colloquial)
me you-are swelling the noses
'you are annoying me'

(25) *He is* swelling *with indignation*

Expressions like (25) evidence that English exploits this mapping too. However, the English constructions can be applied to other emotions as well (e.g. 'swelling with pride'), whereas Spanish *hinchar* is anger-specific.

[14] Kövecses, *Metaphor. A Practical Introduction*, p. 150.

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3.5. Differences due to the degree of conceptual elaboration

A third possible type of contrast between two languages is their degree of elaboration of shared mappings, i.e. 'differences between both languages owing to the existence of a version of the metaphor in one language and its absence, or limited use, in the other'.[15] Different versions of a metaphor can be produced by special-case elaborations or by combination with other metaphors, as we shall see.

One such example is the metaphorical submapping THE EXPRESSION OF ANGER IS AN EXPLOSION, an entailment extension of ANGER IS A (HOT) FLUID IN A CONTAINER. The following are examples borrowed from Lakoff and Kövecses[16] of the different special-case elaborations of the EXPLOSION mapping in American English:

(26) Pistons: *he* blew a gasket
(27) Volcanos: *she* erupted
(28) Electricity: *I* blew a fuse
(29) Explosives: *she's on a* short fuse
(30) Bombs: *that really* set me off

But peninsular Spanish does not elaborate on the EXPLOSION metaphor so much. It only has two special-case submappings: explosives and bombs:

(31) *Estoy a punto de* estallar
I-am at point of bursting
'I am about to explode.'
(32) *Pedro tiene poca* mecha
Peter has little fuse
'Peter is a hothead.'

3.6. Differences due to the degree of linguistic exploitation

The productivity of a mapping in the language is a fourth parameter of comparison. A rigorous account of this type of differences would involve statistical calculations, but even without them some coarse-grained differences can also be pointed out. This is the case of the entailment submapping THE INCREASE IN THE INTENSITY OF ANGER IS THE RISE OF THE FLUID, an extremely productive projection in English, as the following examples evidence ((33-5) borrowed from Lakoff and Kövecses[17]):

[15] See Antonio Barcelona, 'On the systematic contrastive analysis of conceptual metaphors: case studies and proposed methodology', p. 137.
[16] George Lakoff, *Women, Fire and Dangerous Things* (Chicago: University of Chicago Press, 1987), 380-415, p. 385.
[17] Lakoff, ibid, p. 384.

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(33) *We got a* rise *out of him*
(34) *She could feel her gorge* rising
(35) *His pent-up anger* welled up *inside him*
(36) *I am so* fed up

However, in our data this mapping is only realized in one construction:

(37) *Estoy* hasta *las narices/ la coronilla / los pelos / el moño / el gorro*
I-am up-to the noses / the crowntop / the hair / the hairbun/ the hat of the head
'I am fed up.'

In these expressions the speaker refers to the metaphorical level that the anger-fluid has reached in the body-container. This level corresponds to the upper parts of the body, which are either mentioned (nose, crown, hair), or metonymically referred to via more salient elements located in the head, like a hat or a bun.

Furthermore, the RISING mapping is only *implicitly* instantiated in Spanish. Typical explicit English realizations of it like (38) are not acceptable. Other metaphors should be used to render an idiomatic translation of it, because in Spanish anger does not 'rise' (39).

(38) *My anger* rose
(39) *Mi ira* aumentó/ creció/ *subió
'My anger increased/ grew/ rose'.

Another example of contrasting linguistic exploitation is the comparatively greater number of conventional realizations of the DIABOLIC POSSESSION metaphor in Spanish. Both languages have the mapping ANGER IS A DEVIL (a special case of ANGER IS AN OPPONENT/ CONTROLLER), by virtue of which the emotion is conceptualized as a demon that possesses the person (40-1).

(40) *He was* possessed *by his anger*
(41) *Actuó* poseído *de una rabia incontrolable*
he-behaved possessed of a fury uncontrollable
'He behaved as if possessed by an uncontrollable fury.'

But Spanish has many more realizations of this metaphor. Expressions like (42-5) univocally refer to anger in Spanish, and they are fully conventionalized and frequently used in colloquial style.

(42) *Se lo llevaron los* demonios
for-themselves him took-away the devils
'he got very mad.'
(43) Endemoniar *a alguien*
to-make-possessed-by-the-devil to somebody
'to annoy somebody.'

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(44) *Tener un genio / carácter* endemoniado
to-have a character possessed-by-the-devils
'to have a ferocious temper'.
(45) *Ponerse hecho un* demonio
to-put-oneself made a devil
'to throw a tantrum.

3.7. Summary of results of case study 2

The cognitive model of anger in English and Spanish is very similar. This is not surprising because our conceptual systems are based on embodied experiences and cultural constraints, and Spain and the United Kingdom or the United States are not so culturally and linguistically apart as other cultures and languages where striking similarities have already been attested (e.g. Japanese, Hungarian, Zulu).

However, some significant differences can be identified, a few of which have been discussed here. At least some of these language-specific metaphorical entailments and special-case submetaphors seem to be motivated by cultural preferences.

For example, both languages conceptualize the effects of anger on the person as 'boiling' or 'burning'. However, when those mappings are elaborated as cooking experiences, English and Spanish produce language-specific projections. In Spanish peninsular people 'get fried', but they don't 'stew', and it happens the other way round in English. This may be motivated by cultural preferences in the realm of cooking.

Cultural aspects are fundamental in the characterization of metaphorical systems. This perspective, together with psycholinguistic approaches (which are briefly discussed below) and non-linguistic converging evidence, will help us improve our understanding of metaphor as a form of thought.

4. Conclusions

The two case studies have uncovered some subtle contrasts, both on the conceptual and lexicogrammatical planes, in the way English and Spanish conceptualize metaphorically a given domain of experience. These contrasts are not obvious at first sight, if the analyst simply points out the existence of the same metaphor in two different languages, just by looking at the lexicon or the phraseology that seem to manifest the metaphor. Only a careful comparison of the conceptual elaboration and the lexicogrammatical manifestations of the metaphor in the two languages, brings out

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those contrasts. An obvious conclusion is that, as in other areas of cognition and language, it is quite uncommon for a conceptual metaphor to have exactly the same conceptual structure and to be manifested by exactly the same type of linguistic structures. However, as we claim below, even this careful linguistic comparison on both the conceptual and lexicogrammatical planes may still be insufficient.

The Contemporary Theory of Metaphor and Metonymy relies most of all on linguistic analyses to support its claims on what metaphors exist in a given language. We believe that linguistic observations are powerful tools to generate hypotheses on mental representation, but we agree with Lera Boroditsky that 'strictly linguistic evidence can have only limited import for theories of mental representation as it would be scientifically imprudent to assume that patterns in language are necessarily a reflection of patterns in thought'.[18] For this reason we have designed a number of additional studies to complement the linguistic observations in case study 2. We would like to comment on one of them here.

Gibbs has demonstrated in a number of experiments[19] that the existence of anger metaphors can be observed in the way people make sense of idiomatic expressions. The scholar has challenged the traditional assumption that idioms are non-compositional, and has showed how in many cases their parts can invoke conceptual metaphors that motivate the general meaning of the idiom. A problem remains, though. According to Gibbs,

> proponents of the traditional view might argue that speakers can assign meanings to the parts of idioms *after* they have learned the figurative meaning of each expression. ... In this way, people's understanding of the internal parts of many idioms does not motivate their understanding of what idioms mean.[20]

This hypothesis can be investigated testing informants with foreign idiomatic expressions – i.e. expressions whose meaning they *do not know in advance* – and seeing if the meaning of the parts plays any role in their construal of the general meaning of the idiom.

Soriano[21] carried out a study along these lines on the role of conceptual metaphor in emotion and idiom matching tasks. A total number of eighteen

[18] Lera Boroditsky, 'Metaphoric structuring: Understanding time through spatial metaphors', *Cognition* 17 (2000), 1-28, p.2.

[19] Raymond Gibbs, *The Poetics of Mind. Figurative Thought, Language and Understanding* (Cambridge: Cambridge University Press, 1994).

[20] Gibbs, ibid, pp. 279-80.

[21] Cristina Soriano, 'The influence of conceptual metaphor in foreign idiom and emotion matching tasks' (Unpublished manuscript, University of Murcia, 2003).

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native speakers of peninsular Spanish with no or very little knowledge of English were asked to identify the emotion implicit in a number of English idiomatic expressions literally translated into Spanish. These expressions did not exist in the informants's mother tongue, but they were linguistic manifestations of conceptual metaphors shared by Spanish and English. A choice of three emotions was given (anger, happiness and sadness) and informants had to assign one emotion to each expression and give reasons for their choices. Expressions were generally correctly identified, which suggests the activation of conceptual metaphor in the process of meaning construction. For example, if ANGER IS A (HOT) FLUID IN A CONTAINER did not exist in Spanish too, Spaniards would not have been able to establish any connections between anger and an unknown (and otherwise unintelligible) expression like 'to be all steamed up'. The results of this study are still tentative, though. The methodology would certainly benefit from some changes, such as providing more emotion options to choose. However, we believe these results are already fairly significant.

Cognitive linguistics needs non-linguistic and psycholinguistic evidence to support its claims. This, however, does not mean that psycholinguistics is all cognitive science needs to figure out how the human mind works. We would like to conclude with a cautionary word by Gibbs and Matlock on the importance of empirical evidence. According to these researchers 'both cognitive psychologists and linguists often mistakenly assume that the empirical evidence obtained from psychological experiments transparently reflects the nature of linguistic and conceptual representations. Our aim here is to alert cognitive linguists to the fact that experimental data, not unlike linguists' intuitions, often greatly underdetermine theories about mental representation'.[22] In the light of Gibbs and Matlock's words it becomes even more apparent that the only possible successful approach to the study of language and cognition nowadays will be a multidisciplinary and integrative one in which at least cultural, neural, psychological and linguistic accounts of how we think and speak are taken into consideration.

[22] Raymond Gibbs and Teenie Matlock, 'Psycholinguistic and Mental Representations'. *Cognitive Linguistics* 10-3 (1999), 263-269, p. 263.

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