Metaphorical Framing Influences How We Think about Emotions: Some Evidence from Spanish

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Abstract

Conceptual metaphor theory proposes that the conceptual structure of emotions emerges through metaphorization from concrete concepts such spatial orientation and physical containment. Primary metaphors for emotions have been described in a wide range of languages. Here we show the results of a corpus analysis revealing that certain metaphors such as EMOTIONS ARE FLUIDS IN CONTAINERS and EMOTIONS ARE BOUNDED SPACES are quite natural in Spanish. Moreover, the corpus data reveals that BOUNDED SPACE source domain is more frequently mapped onto negative emotions. Second, we consider the question of whether the instantiation of metaphorical framing influences the way we reason about emotions. A questionnaire experiment was conducted to explore this question focusing on the case of locura (madness). Our results show that when madness is framed as a fluid filling a container (the body) people tend to rate symptoms as less enduring and as more likely to be caused by social and environmental factors compared to when it is framed as an enclosed space.

Keywords: conceptual metaphor; cognitive linguistics; corpus analysis; emotion concepts; Spanish.

Introduction

In the last few decades *Conceptual Metaphor Theory* (CMT) (Kövecses, 2000; Lakoff, 1987; Lakoff & Johnson, 1980; 1999) has provided a new framework for conceiving the cognitive mechanisms involved in the structuring of conceptual systems. According to CMT, a few concrete concepts constitute basic domains that emerge directly from perceptual schemas such as spatial orientations or physical containment. In turn, abstract concepts emerge through metaphorization from concrete ones. Conceptual metaphors allow the mapping of inferential structure from source (more concrete) domains onto target (more abstract) domains (Casasanto, 2010; Kövecses, 2000; Lakoff, 1987).

Along these lines, basic emotions are not considered feelings separated from thought but concepts endowed with a complex conceptual structure. Emotions are thought to be grounded – embodied – in physiological or physical experiences, such as an increase in heart rate or a change in body posture associated with particular moods (e.g., ANGER IS HEAT or HAPPY IS UP) (Lakoff & Johnson,1980; Lakoff, 1987). Along these lines, primary metaphors might be universal because they emerge from physiological experiences or basic perceptual schemas (Kövecses, 2010; Lakoff, 1987).

One of the methodological approaches used to study the metaphorical structuring of concepts has been the analysis of linguistic expressions that are used in everyday discourse.

Such methodological decision is based on the fundamental assumption that metaphorical expressions are systematically tied to the conceptual system (Lakoff & Johnson, 1980; Sauciuc, 2013). In the case of emotions – such as anger, lust, happiness or hope – the cross-cultural ubiquity of certain linguistic expressions has been taken as evidence that certain schemas are embodied and provide grounding for emotion concepts.

Metaphors for emotions have been described in a wide range of languages including English, Spanish, Chinese, Hungarian, Zulu, Polish among others (see Kövecses, 2010 and Soriano, 2003, for a review). Although the same metaphor – that is, the same mapping between source and target domains– may be said to exist in many languages, the corresponding linguistic expressions of the metaphor may not be exactly the same (Barcelona, 2001). For example, contrasting studies of ANGER metaphors in Spanish and English have shown cross-linguistic differences at the level of conceptual elaboration, linguistic conventionalization and degree of linguistic exploitation (Soriano, 2003).

In the present study, we focus on the study of expressions of the following conceptual metaphors in Spanish: EMOTIONS ARE FLUIDS IN CONTAINERS and EMOTIONS ARE BOUNDED SPACES. We decided to concentrate on these two metaphors because of the following reasons. The metaphor EMOTIONS ARE FLUIDS IN CONTAINERS is one of the most studied examples cross-linguistically, especially in relation to the concept of ANGER (Kövecses, 2010). We were also interested in studying the metaphor EMOTIONS ARE BOUNDED SPACES because of previous work showing that it is extremely frequent in Spanish, at least in the case of some negative emotions (Reali et al., 2013). Lakoff (1987) described these two conceptual metaphors in an analysis of the case study ANGER. He proposed that the metaphor ANGER IS THE HEAT OF A FLUID IN A CONTAINER emerges from the combination of two embodied metaphors: ANGER IS HEAT, and THE BODY IS A CONTAINER FOR THE EMOTIONS (Lakoff, 1987:383). In the same work he proposes that the metaphor EMOTIONS ARE BOUNDED SPACES is a general metaphor that applies to anger as well as to other emotions (Lakoff, 1987: 396-397). Figure 1 depicts a possible sketch of conceptual schemas associated to these metaphors.

How commonly are emotions described in terms of bounded spaces or fluids filling containers in Spanish? The first goal of this study is to compare the patterns and frequency of use of these metaphorical expressions in

naturally occurring Spanish discourse. The next section presents the results of a corpus analysis conducted to address this issue.
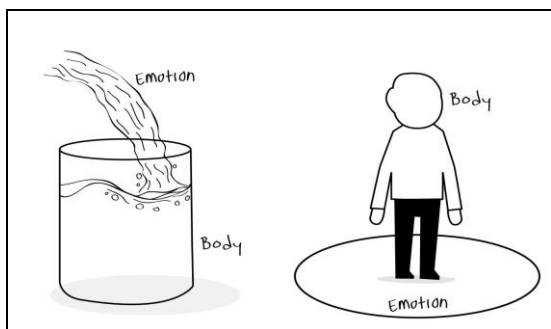

Figure 1: The left diagram represents the conceptual metaphor EMOTIONS ARE FLUIDS IN CONTAINERS while the right diagram represents the conceptual metaphor EMOTIONS ARE BOUNDED SPACES.

The second goal of the paper is to explore whether the metaphors we use in reference to emotions work as a structuring principle for conceptual reasoning, affecting the way we perceive situations and events. A basic assumption of CMT is that metaphorical representations are automatic and become a structuring principle for one´s conceptual system. Source to target domain mapping might be built into the knowledge retrieval function of the brain (Sauciuc, 2013). A consequence of this is that the metaphors we use in everyday language highlight the cues we pay attention to and hide those we ignore, affecting our perception of people, situations and events (Lakoff & Johnson, 1980; 1999). In other words, the inferential structure of our conceptual system might be constrained by the metaphors we use.

Over the last few decades, a growing bulk of empirical work has demonstrated that metaphorical framing influences a range of cognitive domains – other than emotions – such as time perception (Casasanto, 2010), social cognition (Landau, Meier & Keefer, 2010), memory (Faucey & Boroditsky, 2010; Faucey & Boroditsky, 2011), problem solving (Thibodeau & Boroditsky, 2011) and political attitudes (Landau, Sullivan & Greenberg, 2010; Matlock, 2012; Matlock et al., 2012). For example, a recent study by Thibodeau and Boroditsky (2011) has shown that even very subtle variations in the metaphorical framing used to describe *crime* as a social matter influence participants´ opinions about effective strategies to solve the problem. Another example is the work by Faucey and Matlock (2012) showing that the wording of political messages affects political attitudes, including judgments about whether or not candidates will be elected. A thorough revision of metaphor related behavior can be found in Bergen (2012).

Along these lines, the second goal of this study is to explore whether the instantiation of subtle metaphorical framing in the description of emotions influences how people reason about them. In the third section of this paper we show results of an experiment designed to explore this

issue. For this purpose we focus on the case study of the concept of *locura* (madness). Our results show that the simple instantiation of metaphorical expressions in reference to a fake case of madness influences the way people tend to conceptualize its different aspects and, crucially, its outcome.

Corpus Analysis

The current analysis was aimed to measure how often certain metaphorical expressions of emotion occur in Spanish. In recent years, identification of metaphor and metonymy in corpora has benefited from the development of criteria and methods for direct search and extraction (Stefanowitsch & Gries, 2006). One way in which metaphors can be studied is through the identification of occurrences of lexical items from the source domains (Stefanowitsch, 2006). The researcher identifies the instantiations of a source domain of interest by searching for specific lexical items from it. In a second step, the researcher identifies the metaphorical mapping in place including the target domain (see Stefanowitsch, 2006, for examples). The goal of our analysis was to determine whether certain source domains of interest – namely *bounded space* and *fluid filling a containe*r – are typically mapped onto emotions (target domains), and second, the relative frequency with which these domains map onto negative emotions, positive emotions or both.

Method

We used the *Corpus del Español* (Davies, 2002), an online resource that contains over 100 million words in more than 20,000 Spanish texts from the 1200s to the 1900s. For the purpose of this study we restricted the search to sources dating from 1900 and on.

We were interested in identifying expressions from the source domains *bounded spaces* and *fluid filling containers*. Because there are potentially dozens of lexical items semantically related to these conceptual domains, we opted for searching for a priori chosen idiomatic expressions that are commonly used in Spanish to refer to emotions. Crucially, the chosen expressions contain lexical items from the source domains of interest. Specifically, we searched for the following formulas:

(source domain: FLUID)
  a. (Y) se *llena(o) de* X [Y *filled of* X]
  b. (Y) se *inunda de* X [X *inundates* Y]
  c. (Y) se *rebosa de* X [Y *overflowed with* X]

(source domain: BOUNDED SPACE)
  a. *caer en* X [to *fall in* X]
  b. *al borde de* X [*at the edge* of X]
  c. *salir de* X [*get out* of X]

Cases of interest were those in which X is an emotion (and, in the case of source domain *fluid filling a container*, Y corresponds to the body). The analysis was designed to

determine: 1. the proportion of sentences containing these lexical formulas that happen to be metaphorical, 2. among these, the proportion of instances in which the target domain corresponds to an emotion, and 3. whether target emotions are positive or negative in valence. We extracted all sentences containing the a priori chosen lexical items – from source domain FLUID we identified phrases containing the expressions *llena(o) de, inunda* and *rebosa,* and from BOUNDED SPACES we extracted cases containing the expressions *caer en, al borde de* and *salir de*. If the total number of hits surpassed a hundred, we randomly selected a hundred sentences for analysis using the online interface resource of the corpus. Each sentence was subsequently analyzed to determine whether the expressions were metaphoric and whether the target domain was a (positive or negative) emotion.

For the purpose of metaphor identification we used the following criterion. An individual expression was considered a metaphor if: a. one or more of the *lexical items* from the source domain were mentioned in reference to *a target domain* that is not to do with the source domain sense per se and, b. the target domain sense can be said to be related to the more concrete source domain sense via a cross-domain mapping instantiated by the lexical items from the latter. For example, the sentence "No has de *caer en* la desesperación" (tr. you shall not fall into despair) would be classified as metaphorical – source domain: *bounded space*; target domain: *despair;* lexical items from the source domain: *caer en* (fall into). If the target was an emotion, then the expression was considered an *emotion metaphor*.

Results and Discussion

We extracted a hundred randomly selected sentences containing the expressions of interest with the exception of *inunda* and *rebosa* that elicited only a total of 25 and 75 sentence hits respectively. Then, we counted the number of metaphorical expressions. Among these, emotion metaphors were identified and classified according to whether the emotion was positive or negative. Results are displayed in Figure 2. The expressions from the source domain BOUNDED SPACES were classified as follows: 47.7% were tagged as literal expressions, 0.3% as positive emotion metaphors, 13.5% as negative emotion metaphors, and 38.5% as other (emotion unrelated) metaphors. The range of negative emotions identified as target domains included: despair, rage, hate, guilt, madness, loneliness, depression, melancholy and anxiety, among others. There was only one expression tagged as positive emotion metaphor (see example 1.d below). The difference in the relative frequency of negative and positive emotion metaphors was highly significant (X^2=37.1; p<.0001). The following are examples taken from the corpus:

(1)
Negative emotion metaphor examples
- a. No vamos a caer en la desesperación. [We will not *fall in* despair.]

b. Estamos *al borde de* la locura. [We are *at the edge* of madness]
c. Lo que me interesa es *salir de* esta horrible ansiedad en que me hallo. [I am interested in *getting out from* this horrible anxiety where I am at.]

Positive emotion metaphor examples
- d. Estar despierto implicaba *salir de* tan maravilloso estado de ánimo. [Being awake implied *getting out from* such a marvelous mood.]

Second, expressions containing lexical items from the source FLUID were analyzed. Among sentences containing *lleno(a) de, inunda* or *rebosa*, 36.5% were tagged as literal expressions, 24% as positive emotion metaphors, 9.5% as negative emotion metaphors, and 30% as other (emotion unrelated) metaphors. The range of negative emotions identified as target domains included: despair, rage, hate, guilt, sadness, melancholy, anxiety, rage and hate, among others. The range of positive emotions identified included joy, hope, love, faith, affection, passion and satisfaction, among others. The difference between negative and positive emotion metaphors was significant (X^2=5.8; *p*=.016). The following are examples taken from the corpus:

(2)
Negative emotion metaphor examples
- a. Gracián corrió hacia la iglesia totalmente enloquecido *lleno de* odio. [Gracián ran towards the church totally insane, *full of* hate.]
- b. No quiero proseguir porque *me rebosa* la amargura. [I don´t want to go on because sadness *overflows* me].

Positive emotion metaphor examples
- c. Se acomodó con dos almohadas, *lleno de* ilusión como quien compra un billete de lotería. [He got comfortable between two pillows, *full of* hope as someone who buys a lottery bill.]
- d. Y ese convencimiento *me inunda* de esperanza y alegría. [Such conviction *inundates me* with hope and joy.]
- e. El gozo le rebosa. [Joy *overflows* her (or him)]

The data reveals that emotion metaphors represent a significant proportion of the expressions in Spanish containing the a priori chosen lexical formulas, suggesting that the metaphorical mapping between the source domains of interest and emotion is quite natural in Spanish. Our data also reveals that BOUNDED SPACE source domain is more frequently mapped onto negative emotions, while FLUID source domain is more frequently mapped onto positive emotions. Why are negative emotions associated to BOUNDED SPACE schemas?
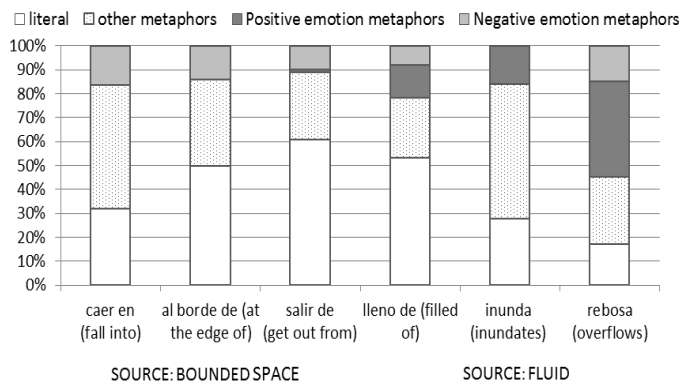
Figure 2: Results from the corpus analysis. Frequency patterns (emotion metaphors, other metaphors and literal meaning) of expressions containing lexical items associated to BOUNDED SPACES and FLUID source domains.

Analysis of linguistic expressions show that people talk about many concepts implying positive/negative valence metaphorically in terms of high/low vertical positions respectively (see Landau et al., 2010 for a review), providing evidence for the psychological reality of the conceptual metaphors GOOD IS UP and BAD IS DOWN. Moreover, Lakoff and Johnson (1980) proposed that the fundamental metaphor SAD IS DOWN might be grounded in physical experiences, as they put it "drooping posture typically goes along with sadness and depression, erect posture with a positive emotional state" (Lakoff & Johnson, 1980:15). Along these lines, the source domain BOUNDED SPACES is frequently instantiated in the form of *spaces located down in the vertical axis* (as in *fall into* despair). It is therefore possible that when emotions are framed this way, negative inferences might be automatically elicited through the activation of spatial schemas in which emotions are located down, or the body is moving downwards.

We now turn to the question of whether the instantiation of different metaphorical framings of emotions influence the way we reason about them. Given the observed frequency patterns, we can draw specific predictions. For example, framing emotions as bounded spaces might elicit more negative conceptual inferences, such as more pessimistic prognosis about the outcome of the symptoms.

In order to address this issue we focus on the case study of *locura* (madness) in Spanish. We chose madness as a case study because the semantic spectrum of the term *locura* in Spanish is quite wide and its signification depends on discourse factors to a great extent. The concept of *locura* is associated to a range of emotional states broadly related to delusion, anxiety and rage. Moreover, it is used in various thematic contexts including psychiatric discourse and colloquial conversation. The experiment described below was designed to explore whether the metaphorical framing of *locura* has any measurable effect on how people conceptualize and reason about different aspects of it.

Survey Experiment: Metaphorical Framing of *Locura*

We focused on the question of whether subtle instantiations of metaphors influence people´s conceptualization of madness. This study used a paradigm similar to the one developed by Thibodeau and Boroditsky (2011). In their study, subtle differences in metaphorical framing were manipulated in a description about a hypothetical case of local *crime* – crime as a *virus* vs. crime as a *beast*. Participants in Thibodeau and Boroditsky´s study were provided with a fake report about increasing crime rates in a certain city and asked to propose a solution. Their results showed that the use of metaphors influenced peoples´ opinions about the strategies to solve the problem.

In our study, participants were exposed to descriptions of a fake case of a woman suffering from symptoms that are commonly associated with mental insanity. The concept of *locura* (madness) was metaphorically described either as a *fluid filling a container* or as a *bounded space*. Crucially, the symptoms described were the same across conditions.

Method

Participants Sixty-four students from Universidad de Andes (Bogotá, Colombia) participated in the study voluntarily or in exchange for extra course credits. All participants were 18 or older and declared that their native language was Spanish.

Materials Each participant was presented with one of two versions of a description of a fake case of a woman suffering symptoms of mental insanity. Each version of the paragraph differed only in the choice of metaphorical framing. In one condition, madness was framed as a *fluid filling a container* (the body), while in the second condition it was metaphorically described as a *bounded space*. The rest of the paragraph consisted in the listing of four typical symptoms of schizophrenia taken from the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM IV; American Psychiatric Association, 2000). The symptoms were the same in the two conditions. The paragraph read as follows (the translation is provided afterwards): *Laura es una empresaria exitosa de 38 años que se la lleva bien con sus compañeros y familiares. Hace un mes Laura {**entró en la**/se llenó de} locura. Al principio, sus amigos y familiares notaron comportamientos extraños en ella, pero asumieron que estaba {**tropezando con**/saturada por} una etapa difícil. Ahora, los familiares y amigos de Laura han acudido a un psiquiatra pues ella ha empezado a {**caer en**/inundarse de} alucinaciones e ideas delirantes. Su psiquiatra y familia están haciendo lo posible para que Laura {**salga de**/expulse} la locura {**donde se ha adentrado**/que contiene}. Específicamente, Laura ha descuidado su higiene, pierde el hilo de la conversación cuando habla, se ha apartado de sus amigos, ha empezado a creer que hay personas que la espían y oye voces cuando no hay nadie alrededor.* [Translation: Laura is a successful 38-year-old business woman who gets along well with her

mates and family. A month ago Laura {**entered in**/<u>was filled by</u>} madness. At first, her friends and family noticed she was behaving strangely, and assumed that she was {**tripping over**/ <u>overwhelmed by</u>} difficult circumstances. Recently, Laura´s friends and family have consulted a psychiatrist since she started {**to fall into**/<u>get inundated with</u>} hallucinations and delusional ideas. Her psychiatrist, together with her family, are doing all they can to help Laura {**getting out from**/<u>draining</u>} the madness she {**has entered in**/<u>contains</u>}. Specifically, Laura has overlooked her personal hygiene, loses the thread of the conversation, started avoiding her friends, thinks there are people spying her and hears voices when there is nobody around.]

Lexical items in bold correspond to the bounded-space metaphor and underlined lexical items correspond to the fluid-in-a-container metaphor condition.

Procedure Questionnaires corresponding to the two conditions were evenly distributed across subjects. Participants were instructed to read the paragraph, then turn the page and not go back once the page had been turned. The paragraph was followed up with Likert-like questions listed in the second page of the survey. Specifically, participants were asked to rate ten statements that were preceded by the following instruction: "In a scale from 1 to 7, where 1 = "completely disagree" and 7 = "completely agree", please indicate how much you agree with the following statements". The statements were the following (text in parenthesis below has been added here for systematization purposes): 1. *Laura will recover* (perception of recovery likelihood); 2. *I would allow Laura to take care of my children* (perception of reliability); 3. *What happens to Laura was caused by her near environment* (perception of likelihood of environmental causes). 4. *Laura is a danger to society* (perception of dangerousness). 5. *Laura should be under the care of a caregiver* (perception of disability). 6. *Laura will be able to recoup with the help of her friends and family* (perception of importance of social support for recovery). 7. *Laura is a danger to herself* (perception of dangerousness to herself). 8. *Her recovery will take a long time* (perception of symptoms persistence). 9. *Laura has control over what happens to her* (perception of self-control). 10. *The only possible treatment for Laura is a medical treatment* (perception of the role of organic causes).

Results and Discussion

Each participant was exposed to one of the two conditions. Participants´ mean ratings per question item were compared across conditions. Rating scores correspond to levels of participants´ agreement with statements described above.

The effect of metaphor condition on participants´ responses was evaluated using multivariate analysis of variance (MANOVA), showing a significant multivariate effect for responses as a group (Roy's largest root =.462; $F_{(10,53)}= 2,45$; $p<.017$). Results of univariate analyses are shown in Table 1. The effect of metaphor condition reached

significance for three of the question items and approached significance for another one. People judged recovery from madness to be more likely in the fluid-in-a-container framing condition (p=.008). Moreover, they judged environmental causes to be more plausible and social support more likely to influence recovery in the fluid-in-a-container framing condition compared to the bounded-space framing condition (p=.002 and p=.002, respectively). In addition, there was a marginally significant difference across conditions in the ratings of the fifth statement (p=.063), suggesting that the bounded-space framing condition was associated to a greater perception of disability. There was no other significant difference across conditions in the rest of the questionnaire items (all p>0.1).

Taken together these results suggest that when madness is framed as a bounded space people have lower – more pessimistic – expectations regarding the likelihood of recovery. Also, participants exposed to this metaphor assigned less importance to environmental causes and social support, compared to participants in the fluid-in-a-container framing condition.

Table 1: Participants´ mean ratings across conditions

Question item Perception of…	Mean ratings		F(1,62)	p-value
	BS-met	FC-met		
Likelihood of recovery	4.7(1.5)	5.7(1.1)	13.14	**.008****
Laura´s reliability	1.3(0.6)	1.7(1.3)	2.64	.11
Role of environmental causes	3.2(1.2)	4.2(1.4)	17.01	**.002****
Laura´s dangerousness	3.5(1.5)	3.0(1.4)	3.06	.24
Laura´s disability	5.9(1.1)	5.3(1.3)	5.06	.063[†]
Role of social support in recovery	5.1(1.8)	6.2(1.0)	21.39	**.002****
Laura´s dangerousness to herself	4.8(1.5)	4.8(1.6)	<1	.93
Symptoms´ persistence	4.7(1.4)	5.0(1.4)	1.23	.43
Laura´s self-control	2.2(1.2)	2.7(1.7)	5.06	.12
Role of organic causes	5.2(1.7)	4.8(1.6)	2.25	.37

Note: BS-met = *bounded space* metaphor; FC-met= *fluid in container* metaphor. Standard deviations (SDs) are displayed between brackets.

In sum, the bounded space metaphor seems to elicit a more negative, pessimistic view of the situation described in the passage. This is somehow consistent with the corpus data, which shows that the BOUNDED SPACE source domain is most frequently mapped onto negative emotions.

Why is that the case? One possible explanation is that the metaphor EMOTIONS ARE BOUNDED SPACES is frequently instantiated in the form of its special case "emotions are low bounded spaces" (as in *fall into* X or *at the edge of* X). Previous work in social cognition and cognitive linguistics has examined metaphors involving the source concept of verticality, in particularly high and low vertical position. For example, conceptual metaphors such as SAD IS DOWN has been proposed to be grounded in physiological or physical factors associated to feeling sad, such as a drooping posture or lying down. More recently, the primary metaphors BAD IS DOWN and GOOD IS UP have been shown to transfer to attitudes: Meier and

Robinson (2004) found that evaluations of positive/negative words were faster when presented on a high/low position in the computer screen respectively (see Landau et al., 2010 for a review on related results). Similarly, the mapping of spatial schemas onto emotions might be often instantiated in the form of the body moving along the vertical axis, as in *falling into* emotion or *getting up* from it. Actually, some of the metaphorical expressions used in the materials of our study belong to this kind. It is therefore possible that negative inferences might be elicited though the automatic activation of spatial schemas in which emotions are represented low in the vertical axis or the body moving downwards. As a result, framing emotion as a bounded space might elicit more pessimistic prognosis or less encouraging expectations regarding the role of environmental and social factors in recovery.

Taken together, the results are consistent with the view that metaphorical representation is automatic and becomes a working structuring principle for conceptual systems, affecting our perception of people, situations and events.

Conclusion

In sum, the results suggest that the way we talk about emotions affects the way we reason about them. Choosing the appropriate words to describe moods and attitudes might not be just a matter of style. Rather, linguistic framing could shape the way we conceptualize and draw inferences about different aspects of how people feel and behave.

Acknowledgments

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