

## A PSYCHOLINGUISTIC STUDY ON METAPHOR COMPREHENSION IN A FOREIGN LANGUAGE

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**ABSTRACT:** The present study deals with the understanding of metaphors by foreign language learners. Ten novel linguistic metaphors were selected from online editions of English and American newspapers. After that, we identified the underlying conceptual metaphor based on the conceptual metaphor inventory presented by Lakoff and Johnson (1980, 1999) and the primary metaphor inventory proposed by Grady (1997). Considering the difficulties linguistic metaphors represent for text comprehension by non-native speakers, we seek to investigate what sort of knowledge foreign language learners use when trying to understand a linguistic metaphor. In this respect, we looked into the way foreign language learners comprehend (Littlemore, 2001, 2003) linguistic metaphors, firstly without using the context and then using the context. The sample comprised 221 Brazilian undergraduate students and 16 American undergraduate students at University of California, Santa Cruz. The results pointed out that conceptual metaphors related to the experiential domains of VISION, MOTION and ANGER received a higher score in the experiment carried out with the foreign language learners. The same metaphors have also been judged as the most common and the easiest to comprehend by the US-American native speakers who took part in the experiment. The comparison of the results of the studies carried out with Brazilian foreign language learners and US-American native speakers corroborate our hypothesis that there is a universal pattern in the structuring of abstract concepts which enhances the comprehension of metaphor in a foreign language in a similar way as it does in the mother tongue. In a nutshell, these results reveal that the comprehension process in both native and foreign language is strongly influenced by embodied cognition (Gibbs, 2006).

**KEY WORDS:** cognitive linguistics; foreign language comprehension; conceptual metaphor theory.

### INTRODUCTION

Lakoff and Johnson (1980) posit that comprehension occurs through a conceptual mapping across domains. They propose a systematic mapping from a

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concrete source-domain to a more abstract target domain of experience. For instance, we understand the conceptual metaphor LOVE IS A JOURNEY because we have a systematically organized knowledge about the concrete conceptual domain of JOURNEY, and we rely on this knowledge in order to understand the target domain of LOVE. We comprehend and experience love in terms of a journey due to the fact that we follow a certain routine and conceptualize love metaphorically in terms of a journey when we experience it. Therefore, we use our daily experience with journeys to conceptualize love in terms of departure and arrival as expressed in the following metaphorical expressions:

(1) We have decided to *go separate ways*

(2) Our relationship *is going nowhere*

Such examples illustrate how love is conceptualized in terms of a journey where the lovers correspond to the travelers and the relationship corresponds to the road traveled. Hence, according to the conceptual mapping view, metaphorical expressions derive from an underlying conceptual metaphor. Grady (1997) posits that primary metaphors link different concepts that arise from primary scenes and their correlations. The source concepts of primary metaphors have a content related to physical perception or sensation. For instance, when playing 'hide and seek', Brazilian kids give hints about the place they are hiding shouting 'you are *hot*'. This metaphorical utterance has as underlying conceptual metaphor PROXIMITY IS HEAT, which is a primary metaphor motivated by the basic perceptual experience of warmth, of being close to the mother's body when we are born.

For cognitive linguists, language reflects some important aspects of our conceptual system which is motivated by embodied cognition (Gibbs, 2006). Systematic patterns of structure and linguistic behavior are not arbitrary but motivated by recurrent patterns of embodied experience reflecting our perceptual interactions, bodily actions and the manipulation of objects. Those patterns are experiential *gestalts*, known as image schemas which derive from our interaction when we manipulate objects or orient ourselves in space and time (Johnson, 1987). Some examples of those schematic structures are CONTAINER, BALANCE, SOURCE-PATH-GOAL, PATH, CENTER-PERIPHERY and CORRELATION. Things we consider as being of physical nature are usually something we conceptualize in terms of our bodily experience (Lakoff e Turner,

1989). Concepts like departure, journeys or cold are conventionally and unconsciously understood because they are linked to our embodied and social experiences.

The main goal of the present study is to present empirical data in order to support the hypothesis that metaphor comprehension is based on the foreign language learners' embodied experience. From a Conceptual Metaphor perspective, our hypothesis is that there is a universal pattern in the structuring of abstract concepts which facilitates metaphor comprehension in a foreign language in a similar way as it occurs in the mother language (Gibbs, 1994). Therefore, a metaphorical expression in a sentence without a context would be sufficient for Brazilian learners of English as a Foreign Language (EFL) to derive the metaphorical meaning of those metaphorical concepts with a strong bodily basis. We have also tested the comprehension of the same metaphorical expressions by American-English native speakers. We seek to investigate the degree of conventionality of the metaphorical expressions used in this study. Another goal of the present study was to compare the comprehension of different metaphorical expressions by foreign language learners belonging to four different English proficiency levels (pre-intermediate, intermediate, upper-intermediate and advanced), aiming at gathering some evidence for an evolution in the semantic acquisition of a foreign language.

In following, we are going to review some important contributions of cognitive linguistics to second and foreign language acquisition research.

## **1. METAPHOR COMPREHENSION IN A FOREIGN LANGUAGE**

The study of figurative language has raised growing interest in the area of applied cognitive linguistics. This might be due to the fact that metaphor, metonymy and idioms are part of our daily language and posit a challenge for teachers in the foreign language classroom. The present study adopts a cognitive approach to foreign language learning and acknowledges the importance of learners' interaction with the environment, as well as the importance of the social context in learners' embodied cognition (Gibbs, 2006). Cognitive linguistics regards language as closely interacting with other mental faculties, such as perception, vision, memory and sensorimotor skills (Cienki, 2005), and not as an autonomous module (Fodor, 1983) in our minds. These

domain-general mechanisms are responsible for all learning, and not only language learning.

Cognitive linguistics acknowledges certain language universals which result from general human cognitive processes, but it also emphasizes non-universal aspects related to the perception of language in its environment. Some of the major topics of research in cognitive linguistics are metaphor, categorization, polysemy, and prototypicality. These topics of language usage apply not only to lexis but also to grammar. They are regarded as belonging to the general organization principles related not to language alone but also to other areas of cognition (Niemeier, 2005). The investigation of linguistic phenomena relies on general organizing principles, and also relates language to culture (Kovecses, 2005). However, there might be other reasons (e.g. salience) which call learners' attention to a certain expression and which may not be culture related.

Applied cognitive linguistics major concern is to highlight for learners the motivation behind linguistic phenomena (Kovecses and Szabo, 1996; Charteris-Black, 2000), helping them to figure out how language functions. Niemeier's (2005) main interest in working with conceptual metaphors in the foreign language classroom has been to raise learner's awareness for intercultural differences, as well as to structure principles in language and thought. Working with metaphors, the author expects to lead learners to develop a new perspective on language. Niemeier argues that learners' awareness of the metonymic background of the meaning of expressions like 'red tape' or 'blue movie' will help them to comprehend those expressions. Certainly, knowing the metaphorical motivation for those expressions will help learners to remember the meaning due to its salience (Giora, 1997).

Littlemore (2001) focus on the role intelligence plays in language learning success. Departing from Gardner's (1983) theory of multiple intelligences, according to which people vary in terms of eight types of intelligence, that is visual, verbal, mathematical, kinesthetic, interpersonal, intrapersonal, naturalistic, and rhythmic intelligence, she argues that there is a ninth kind of intelligence which is also likely to have an effect on language learning, namely 'metaphoric intelligence'. One important contribution of her paper is to highlight the fact that individuals have differences in thinking style regarding the comprehension of figurative language. Whereas some people have a more 'literal' thinking style, others seem to be more able to make metaphorical analogies. Apparently, there is a relationship between building loose

analogies, which involve the comparison of disparate types of information and require more imagination for the similarities to be recognized, and the display of metaphoric intelligence.

Littlemore (*ibid*) also claims that divergent thinkers, that is people who are able to solve problems requiring many possible answers where the emphasis is on the quantity, variety and originality of responses, are more likely to display metaphoric intelligence. She also argues that metaphoric intelligence probably also affects a learner's use of communication strategies (Tarone, 1983), that is the speaker's attempt to overcome gaps in the language system in order to communicate meaningful content. This is the case, for instance, when students use the strategy of word coinage and paraphrase. Word coinage is a strategy related to metaphoric extension, that is *when speakers use the words available to them in original or innovative ways in order to express the concepts they want* (Littlemore, *ibid*: 5). What is more, the use of metaphoric processes by native speakers recurring to words which they know to describe concepts for which they do not know the words is known to be one of the main strategies used by young children when acquiring their first language. Littlemore points out that lexical innovations made by children in their first language are similar to the word coinage strategies which second language learners resort to when trying to find solutions for knowledge gaps in the second language. Paraphrase often involves metaphorical analogy which can result in striking images, as the description made by second language students \_\_they actually used a simile\_\_ of a seahorse as 'a sea animal with a chicken on its head' or 'a sea animal which head is like a punk'. Littlemore concludes that by using those strategies, metaphorically intelligent language learners can use their language resources to express many more concepts, being able to enhance fluency and communicative success. Her arguments basically highlight people's cognitive ability to comprehend metaphoric language.

In another study with English as a Second Language learners of business english, Littlemore (2003) investigated how the use of images related to the metaphor could help students understand the meaning of metaphorical expressions. Littlemore uses the expression 'metaphoric competence' to refer to the ability of ESL-learners to understand novel metaphorical expressions in the second language. Littlemore points out that mistaken interpretations of metaphorical expressions occur when learners attribute different meanings to the source-domain of the metaphor than those originally

intended by the speaker. According to the author, ESL-learners tend to perceive contextual clues which are closer to their cultural expectations.

Another author who pointed out pedagogical implications of conceptual metaphor research with second language learners is Charteris-Black (2000). Charteris-Black argues that *teaching the language is, at least in part, teaching the conceptual framework of the subject (ibid: 150)*. His research aims at revealing the implications of conceptual metaphor theory for a content-based approach to the teaching of lexis for English for Specific Purposes (ESP) learners from an Economics background. Charteris-Black used corpus-based analysis in order to compare the relative frequency of metaphorically motivated words, taken from a corpus of *The Economist* magazine, with some words in the general magazine section of the Bank of English. The author illustrates how the economist is shown in the corpus as a doctor who can take an active role in influencing economic events. He also demonstrates how the use of some animate metaphors in the corpus implies some potential for control, while the use of inanimate metaphors implies the absence of control.

Charteris-Black (*ibid*) claims that vocabulary lessons which teach these metaphors could enhance the understanding of central concepts for economics students. He suggests that knowing the metaphors through which impersonal concepts are conceptualized *seems a valuable addition to content-based ESP approaches (ibid: 164)*.

Kecskes (2001) evaluated the validity of the 'graded salience hypothesis' (Giora, 1997) in second language acquisition based on a cross-sectional study conducted with 30 native speakers of English (NSs) and 51 non-native speakers of English (NNSs). The NNSs studied English as a foreign language in their home country for at least four years and have spent from six months to two years in an English speaking country. Goal of the study was to investigate the use of situation-bound utterances and implicatures (Grice, 1968) by non-native speakers of English. Kecskes posits that the proper use of situation-bound utterances and conversational implicatures in speech is a sign of conceptual fluency. Situation-bounded utterances are conventional pragmatic units whose occurrence is tied to standardized communicative situations. The acquisition of these units in an L2 requires the knowledge of the socio-cultural background of the target language. Kecskes claims that *the pragmatic functions are usually not encoded in these linguistic units, therefore situation-bounded utterances often receive their "charge" from the situation they are used in (ibid, 253)*. The most salient meaning is usually the figurative meaning. The hypothesis was that salience is a socio-cultural

phenomenon based on particular language- and culture-specific knowledge structures and depends on conceptual fluency in the target language.

Non-native speakers language is usually not idiomatic enough because (1) types of social situations are not cross-culturally invariant and (2) non-native speakers do not have access to “conventionalized conceptualizations”. When learning a second language, students have to learn the forms of that particular language, as well as the conceptual structures associated with those forms. Kecskes concluded that non-native speakers can hardly apply the principle of salience in the target language. The low level of conceptual fluency in the L2 leads learners to rely on linguistic signs rather than conceptualizations while processing L2. Non-native speakers mapped target language expressions on L1 conceptualizations, which often led to misinterpretation of expressions. While L1 speakers used the principle of salience to process figurative meanings directly without accessing the literal meaning, adult L2 speakers usually accessed the literal meaning first. The study revealed that contextual cues seem to have priority over salience in L2 processing. Non-native speakers rely on the linguistic context, and Kecskes claims that this is a direct consequence of the compositional interpretation of words and expressions in the target language. Those findings have implications for the present study.

In following we report both experiments.

## **2. EXPERIMENT 1: METAPHOR COMPREHENSION TESTS WITH BRAZILIAN EFL LEARNERS**

Ten novel metaphorical expressions were selected from online editions of American and English newspapers. After that, the underlying conceptual metaphors were identified based on the metaphor inventory presented by Lakoff and Johnson (1980, 1999) and Grady (1997). Regarding the difficulties that texts containing metaphorical expressions posit to foreign language learners, we seek to investigate what sort of knowledge do FL learners employ when trying to comprehend a metaphorical expression in a foreign language. Another goal was to examine if foreign language learners access conceptual knowledge when comprehending a metaphorical expression in a similar way as they do it when comprehending a metaphorical expression in the mother tongue (Gibbs, 1994). Our main hypothesis here is that there is a universal

pattern in the structuring of abstract concepts which facilitates metaphor comprehension in the foreign language. In order to investigate this, we examined how subjects comprehend metaphorical expressions with and without a context.

## **2.1 METHOD**

*Participants.* The sample comprised 221 Brazilian undergraduate students, Brazilian Portuguese native speakers and learners of English as a Foreign Language, aged 16 to 67 years-old.

*Materials.* We generated a lexis test of the metaphorical expressions, which aimed at investigating if subjects really understood the lexical item, that is in case they marked they knew its meaning, subjects were asked to write it down.

We have also formulated two multiple choice tests: one test containing only the ten selected metaphorical expressions and the other containing the same expressions in a short context. Each question had four answer options, the correct option corresponded to the underlying conceptual metaphor of the metaphorical expression in the question. The order of the questions, as well as the order of the options was randomized in both questionnaires.

The correct answer option in the questionnaire corresponds to the underlying conceptual metaphor of the metaphorical expression in the question.

*Procedure and design.* In the first sitting, subjects responded the reading part of a validated proficiency test (Test of English for International Communication – TOEIC), in order to classify them in four different proficiency levels (pre-intermediate, intermediate, upper-intermediate and advanced). We opted for discarding subjects with a basic level of English. Having answered the proficiency test, subjects received the lexis test.

In the second sitting, subjects responded to both metaphor comprehension tests. The data collection questionnaires were applied to groups of about 40 subjects each time in the two sittings.

## **2.2 EXPERIMENT 2: METAPHOR COMPREHENSION TESTS WITH AMERICAN ENGLISH NATIVE SPEAKERS**

Our goal here was to examine the degree of conventionality and the degree of familiarity of those ten metaphorical expressions according to the intuitions of American English native-speakers.

*Participants.* Sixteen American English native-speakers, undergraduate Psychology students at University of California, Santa Cruz took part in the experiment.

*Materials.* The experiment used the same ten novel metaphorical expressions in a sentence applied in Experiment 1. We formulated three questionnaires in order to ask subjects intuitions on how well they understood each metaphorical expression and how common those metaphorical expressions are.

*Procedure and design.* For the experiment, each participant was given a booklet which contained the instructions and the experimental materials. Participants were specifically instructed, “Please rate each item on a 1 to 7 scale to answer if you understand what those utterances mean from (1=not at all) well to (7= very) well. Write down the number reflecting this (1-7) in the column on the right of the sentences.” Subjects were encouraged to use all portions of the rating scale in making their judgments. The experiment took about 20 minutes to complete.

We analyzed the data by calculating participants’ mean ratings for each type of stimuli.

## **3. RESULTS AND DISCUSSION**

If we compare the means scores of the questionnaire containing the metaphors without a context, which is 7.4, to the means scores of the questionnaire containing the metaphor in a short context, which is 7.6, we can conclude that context did not play a significant role in metaphor comprehension, since the difference in the results of both questionnaires is only 0.2. Those data point out that participants in the study based their interpretation on other mechanisms, such as embodied experience, when trying to comprehend metaphorical expressions.

The results of both tests were verified through variance analysis (ANOVA). We considered a significance level of  $p < 0.05$  in the analysis. The difference between the

different levels of proficiency (pre-intermediate, intermediate, upper-intermediate and advanced) is significant only between the pre-intermediate and the intermediate level, as it appears below:

Reading proficiency level	Subjects (N)	Test with metaphors out of context (1)	Test with metaphors in context (2)
PI	60	6,6	
I	79		7,6
U	62		7,7
A	20		8,4

**Fig. 1:** Comparison scores in the metaphor test according to the reading proficiency level

There is a significant correlation ( $p < 0.05$ ) between the previous knowledge of the lexis which is part of the metaphors and the scores of the reading proficiency test (TOEIC) answered by the participants. This data corresponds to our expectations since the previous knowledge of the lexis seems to facilitate reading.

There is also a significant correlation between the variable lexis and the scores of the questionnaire containing the metaphors without a context. Hence, we can assume that the FL-learner knows the vocabulary which is part of the metaphorical expressions in the questionnaire without accessing contextual information, but using conceptual knowledge and embodied experience (Gibbs, 2006) in order to understand the metaphorical meaning since the answer option related to the underlying conceptual metaphor obtained a high score received.

In order to analyze the scores per metaphor separately, we chose a population of 50% of the sample of 221 subjects and carried out a planned t-test. The t-test pointed out that there was no difference between this sample ( $N = 118$ ) and the total sample ( $N = 221$ ), since the results did not reveal a significant difference ( $p > 0.05$ ). We chose at random 118 participants among the four proficiency levels (pre-intermediate, intermediate, upper-intermediate and advanced) in order to examine the distribution of the scores per metaphor, comparing the results of the questionnaire containing the metaphors without and with a context.

According to this analysis, there was a high score in the questionnaire without a context for the metaphors (1) *It is all about getting a pound of flesh from them*, which correct option had a score of 93 ( $T=118$ ), compared to a score of 71 in the questionnaire containing the metaphors in context; (3) *Somebody was trading the keys to the kingdom*, which right option had a score of 91 ( $T=118$ ), compared to a score of 54 in the

questionnaire containing the metaphors in context; (4) *You are in the middle of a dark forest*, which right option had a score of 116 (T=118), compared to a score of 75 in the questionnaire containing the metaphors in context; (6) *The temperature went from boiling to subzero*, which right option had a score of 103 (T=118), compared to a score of 98 in the questionnaire containing the metaphors in context; e (7) *I was at the edge of my limit*, which right option had a score of 115 (T=118), compared to a score of 68 in the questionnaire containing the metaphors in context. In case of the metaphorical expressions (4) *You are in the middle of a dark forest*, (7) *I was at the edge of my limit* and (10) *It disappeared two months later in quick rotation*, which right option had a score of 109 (T=118), compared to a score of 101 in the questionnaire containing the metaphors in context, certainly the fact that the metaphorical expression in Portuguese was the literal translation of the metaphorical expression in English biased the results. However, further research is needed here in order to confirm it.

We would like to focus the discussion on the results of items (6) and (8) of the questionnaire which raises interesting questions from a methodological point of view concerning Conceptual Metaphor Theory. In question (6), *The temperature went from boiling to subzero*, the right option ‘the situation changed quickly’ has as underlying primary metaphor CHANGE IS MOTION (Grady, 1997: 286). In the analysis of score per metaphor, the right option was rated with 103 (T=118), compared to a score of 98 in the questionnaire containing the metaphors in context. In question (8) *Somebody has managed to sneak into their hearts* of the questionnaire, the correct option ‘to find an important spot’ had as underlying primary metaphor IMPORTANT IS CENTRAL.

Our hypothesis is that the same pattern at work in the comprehension of metaphorical expressions in the mother tongue (Gibbs, 1994) is also at work when the language learner reads a metaphorical expression in the foreign language. Such hypothesis suggests the existence of a universal pattern in the structuring of abstract concepts which facilitates metaphor comprehension also in the foreign language. This universal pattern allows learners even at pre-intermediate proficiency level to comprehend metaphorical language based on their embodied cognition, that is it enables learners to understand metaphorical expressions without relying on contextual information. For instance, in case of the expression *the temperature went from boiling to subzero*, the option corresponding to the underlying conceptual metaphor CHANGE IS MOTION (Grady, 1997: 286), which is ‘the situation changed quickly’, obtained a high score in the questionnaire without context. However, only a throughout study of

the inferences related to each conceptual metaphor tested in the study will gather more evidence on the comprehension of those metaphorical expressions.

In the present study we deal with a methodological issue of Conceptual Metaphor Theory, which is the fact that sometimes there is more than one possible conceptual metaphor for the same metaphorical expression (Semino, Heywood and Short, 2004). The utterance *The temperature went from boiling to subzero* refers to a sudden change. It is a sudden change in temperature. Hence, the underlying primary metaphor which motivated this utterance could be CHANGE IS MOTION, but this utterance could also have been motivated by the primary metaphor INTENSIONS OF EMOTION IS HEAT (Grady, 1997: 295). According to Grady, CHANGE IS MOTION establishes “the correlation between the perception of movement and being aware of a change in the world-state around us” (p.286), whereas INTENSITY OF EMOTION IS HEAT correlates “skin temperature to agitation” (p.295). We chose to include only the source-domain of MOTION in the correct option (the situation changed quickly) of question 6 and decided to leave the source-domain HEAT out. We would like to draw attention to the fact that respondents identified the linguistic expression ‘the situation changed quickly’ with the underlying primary metaphor since 103 (N=118) scored this option in the multiple choice test.

In the case of question (8) *Somebody has managed to sneak into their hearts*, we intentionally did not include among the distractors any word relating to emotions, in order to avoid that the respondent would relate it to *hearts*. The rating per metaphor in the tests pointed out a slight difference between the scores of both tests, where 75 subjects chose the answer option related to the conceptual metaphor in the questionnaire without a context and 74 scored the same option in the questionnaire with a context. This question has also raised a methodological issue regarding the definition of the underlying conceptual metaphor. At first, we defined the target-domain of the conceptual metaphor related to the metaphorical expression (8) *Somebody has managed to sneak into their hearts* as being IMPORTANCE. Kovecses<sup>2</sup> suggested that its target-domain is LOVE, in the sense of ‘for Y to love X is for X to be in Y’s heart’. However, in the metaphorical expression *Somebody has managed to sneak into their hearts*, *heart* seems to refer an important place \_\_ and not to an emotion. *Heart* might be here a metonymy for emotions. Nevertheless, *heart* could also be referring to a container, and

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<sup>2</sup> Personal communication.

then it could be considered a place, and IMPORTANT IS CENTRAL would be a conceptual metaphor which motivates the metaphorical expression. To sum up, the experiential domain referred in the correct answer option of the test was PLACE, and this option was rated with 75 in the questionnaire without a context and 74 in the questionnaire with a context.

We could state that the foreign language learners who participated in the experiment have a ‘metaphoric competence’ (Littlemore, 2003) which enables them to derive metaphorical meaning in a foreign language. Some of the mistaken metaphorical interpretations by the foreign language learners in the present study occurred, as suggested by Littlemore, when the FL-learner attributed another meaning than the one originally intended by the author, to the source-domain of the metaphor.

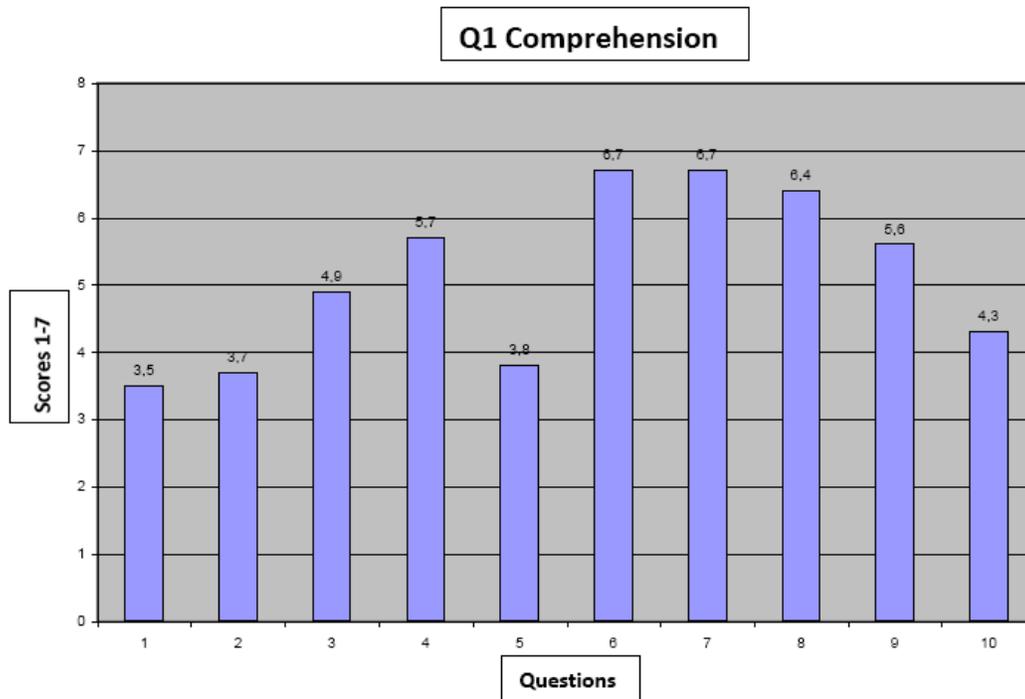
As Gibbs, Lima and Françoso (2004) pointed out, not every conceptual metaphor has the same type of experiential correlation, and if we look at questions (1), (3), (4), (6) and (7), we will be able to identify different experiential correlations between the conceptual metaphors of the present study. This is due to the different nature of those metaphors, that is their different source and target-domains. For instance, in the case of (4), the source-domain DARK, in the case of (6), the source-domain of MOTION, and in the case of (7), the source-domain CONTAINER have influenced the results of the comprehension tests with the foreign language learners.

In case of the metaphorical expressions (4) *You are in the middle of a dark forest*, (7) *I was at the edge of my limit*, (9) *It doesn't often explode onto the radar* and (10) *It disappeared two months later in quick rotation*, it is also possible that the literal translation of the metaphorical expression into Portuguese has biased the results because it is similar to the metaphorical expression in English. Nevertheless, the underlying conceptual metaphors in (4), (7), (9) and (10) relate to bodily experiences which can be easily perceived by our senses, such as vision and the feeling of anger. Therefore, the high score of the questions related to those metaphors in the questionnaire without a context may also be an evidence of embodiment. Those conclusions about the scores of the questions (4), (6), (7), (9) and (10) are in line with Charteris-Black's (2003) findings that metaphorical language which has a similar linguistic form and conceptual basis in the mother (L1) and foreign language (LE) are more easily understood by foreign language learners.

Each metaphor of the present study is related to a different experiential domain, such as vision (DARK), sense of touch (HEAT), time (MOVING TIME), sensory-

motor functioning (CONTAINER). This fact highlights a difficulty in quantifying and establishing comparisons between such varied experiences.

According to our predictions, the absence of a context should have been a problem for comprehending the expressions (3) *To trade the keys to the kingdom*, (4) *You are in the middle of a dark forest* and (5) *...the most recent season of corporate financial manipulations has as its latests storms*, since this had been pointed out in a previous interview with English native-speakers carried out in Brazil to validate the questionnaire. In fact, participants experienced expression (5) *...the most recent season of corporate financial manipulations has as its latests storms* (rated with 3,8 out of 7) as more difficult to understand than expressions (3) *To trade the keys to the kingdom* (rated with 4,9 out of 7) and (4) *You are in the middle of a dark forest* (rated with 5,7 out of 7). It is possible that the literal meaning of (4) *You are in the middle of a dark forest* and (6) *The temperature went from boiling to subzero* has influenced the comprehension of those expressions since participants scored higher in the comprehension task for those expressions, which was questionnaire 1 asking participants on how well they understood those expressions. They rated question (4) *You are in the middle of a dark forest* with a score of 5,7, and question (6) *The temperature went from boiling to subzero* with 6,7, although they probably meant that they could understand the literal meaning of that expression. This fact highlights a problem of the questionnaire. However, its is also possible that the close relationship of both primary metaphors to more basic bodily experiences, as it is the case for the experiential domains of vision (the perception of darkness) and the perception of heat have positively influenced the results. See below the results of the comprehension questionnaire answered by American English native-speakers.



**Fig. 2:** Subjects' judgement about their comprehension level for each expression.

In the study carried out with American English native speakers, the ten metaphorical expressions were presented in a sentence to respondents, that is the expressions were not embedded in a large discursive context. This questionnaire was similar to the first questionnaire applied to the foreign language learners. The results pointed out that the judgment of the American native speakers was similar to the ratings of the English as a Foreign Language learners for the metaphorical expressions (4), (5) and (6). Expression (4) *You are in the middle of a dark forest* received a high score in the empirical study with the EFL-learners (116 out of 118 respondents scored 'danger' in the questionnaire without a context), relating danger to darkness. The same expression was considered easy to comprehend by American English native speakers. However, expression (5) *...the most recent season of corporate financial manipulations has as its latest storms*, which comprehension was rated as average by the American English native-speakers (rated with 3,8 out of 7). Many EFL-learners did not relate this expression to the underlying conceptual metaphor in the multiple choice task (79 of 118 respondents scored the option related to the conceptual metaphor in the questionnaire without a context). English native speakers rated expression (6) *The temperature went from boiling to subzero* as easy to understand (6, 7 of 7). EFL-learners scored 102 (in a 118 sample) for the same question containing the metaphorical expression in a sentence.

The fact that there are expressions with a technical meaning, such as (2) *To bump its premium subscribers up to a virtually unlimited capacity*, which was rated with 3,7, and (5) *...the most recent season of corporate financial manipulations has as its latests storms*, which was rated with 3,8 in the same questionnaire on comprehension, may have represented a barrier to comprehension. We had expected that respondents would rate expressions like (3) *To trade the keys to the kingdom*, (9) *It exploded onto the radar*, and (10) *It disappeared later in quick rotation* as being less common. However, respondents rated only expression (10) as being less common according to their intuitions.

The American English native speakers judged expression (8) as easy to understand (rated with 6,4 out of 7) and common (also rated with 6,4 out of 7). For expressions (9) and (10), the difference between the results of the tests with and without a context is not significant. The score results per metaphor pointed out that expression (10) was easy to understand since 109 EFL-learners chose the option related to the primary metaphor *MOMENTS IN TIME ARE OBJECTS MOVING ALONG A PATH* in the questionnaire without a context and 101 EFL-learners chose the same option in the questionnaire with a context. This might be due to the fact that this metaphorical expression contains Latin words like ‘disappear’ and ‘rotation’, and the literal translation of the expression is similar in Portuguese. The word ‘rotation’ already triggers the notion of *MOVEMENT* of the source-domain. This finding is in line with Kecskes’ (2001) conclusion that non-native speakers map expressions from the target-language, that is the foreign language, into concepts of their first-language (L1), although such strategy could lead them to a mistaken interpretation of the metaphorical expression.

The English native-speakers rated the comprehension of expression (10) with 4,3 and considered it as not very common (3,6). The fact that expression (9) presents the Latin expression ‘explode’ has probably biased the results of the tests with EFL-learners, although we could not confirm that possibility through our findings. 70 informants chose the option related to the conceptual metaphor in the questionnaire without a context and 69 in the questionnaire with a context. However, the English native-speakers judged that they understand well that expression (5,6 of 7), and that this expressions is of common use (this expression was rated as the most common of the ten expressions with a score of 6,8).

## FINAL REMARKS

The results of the two empirical studies present strong evidence which corroborate the hypothesis of the universality of metaphor and the role of embodiment in the comprehension of metaphorical expressions from a crosslinguistic perspective. An analysis of the answers of the group of Foreign Language learners for the questionnaire presenting the metaphorical expressions without a context pointed out high scores for the following metaphorical expressions: (1) *To get a pound of flesh from human beings*, (3) *To trade the keys to the kingdom*, (4) *You are in the middle of a dark forest*, (6) *The temperature went from boiling to subzero* and (7) *I was at the edge of my limit*. This result is similar to the result of the ratings of the same metaphorical expressions obtained with the American English native speakers, which on a rating scale from 1 to 7, in which 7 corresponds to an excellent understanding of the expression, rated expression (4) *You are in the middle of a dark forest* with 5,7; (6) *The temperature went from boiling to subzero* with 6,7 and (7) *I was at the edge of my limit* also with 6,7.

The data resulting of both empirical studies present some evidence which corroborate the hypothesis that there is a universal pattern in the structuring of abstract concepts which facilitates metaphor comprehension in a foreign language. This universal pattern enables foreign language learners to comprehend linguistic metaphors without using contextual information, since the variable context did not play a significant role in metaphor comprehension in the present study. Such conclusion goes against Kecskes (2001) findings that contextual clues seem to have priority over salience in L2 processing, i.e. according to Kecskes, non-native speakers, such as the foreign language learners in the present study, use the linguistic context when comprehending metaphors in a second language. Our results pointed out that conceptual metaphors related to the experiential domains of VISION, MOTION and ANGER received a higher score in the experiment carried out with foreign language learners.

The comparison of the results of both experimental studies, in which the metaphors (4) *You are in the middle of a dark forest*, (6) *The temperature went from boiling to subzero*, (7) *I was at the edge of my limit*, (8) *Somebody has managed to sneak into their hearts* and (9) *It doesn't often explode onto the radar* obtained high ratings, allows us to confirm the hypothesis that there is a universal pattern in the

conceptualization of concepts related to the experiential domains of MOTION (6), CONTAINER (7), PLACE (8), and VISION for both (4) and (9), related to the linguistic metaphors of the study. This fact seems to be strongly related to a high rating of those metaphorical expressions in the questionnaire without a context. This findings also support the hypothesis that there is a universal pattern in the conceptualization of the abstract concepts ‘danger’, ‘motion’ and ‘anger’, related to the linguistic metaphors in questions (4), (6) and (7).

Considering the results of the first experiment for the four different proficiency levels from a foreign language acquisition perspective, there is not a significant difference among the different proficiency levels in order to suggest a development in metaphor comprehension with exception of the significant improvement in metaphor comprehension up the intermediate proficiency level. As suggestion for further research, it would be interesting to investigate why this difference is only significant between the pre-intermediate and the intermediate levels, as well as its pedagogical implications for the foreign language classroom.

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## APPENDIX 1

- 1) To get a pound of flesh from human beings.
- 2) To bump its premium subscribers up to a virtually unlimited capacity.
- 3) To trade the keys to the kingdom.
- 4) You are in the middle of a dark forest.
- 5) ...the most recent season of corporate financial manipulations has as its latests storms.
- 6) The temperature went from boiling to subzero.
- 7) I was at the edge of my limit.
- 8) It has managed to sneak into their hearts.
- 9) It exploded onto the radar.
- 10) It disappeared later in quick rotation.

## APPENDIX 2

1. Linguistic metaphor: “It is all about *getting a pound of flesh from human beings*. Businesses are all about profit and people feel much more stressed because of that.”

Primary metaphor: HARM IS PHYSICAL INJURY

2. Linguistic metaphor: “Yahoo says that it plans to dramatically raise the storage limit given to its free e-mail users while at the same time *bumping* its premium subscribers *up to* a "virtually unlimited" capacity.”

Conceptual metaphor: MORE IS UP

3. Linguistic metaphor: “The career of Druyun, once the most powerful woman in the U.S. Air Force, of course, is over. Last week, she was sentenced to nine months in prison for having steered billions of dollars in air force contracts for four critical weapons systems to Boeing and for having overpaid the company as well. [...] “This is just awful,” said Richard Aboullafia, [...]”She was trading *the keys to the kingdom*.”

PM: MEANS ARE PATHS

4. Linguistic metaphor: “You are in the middle of a *dark forest*, night closing in, with a pack of vicious, hungry wolves wandering back and forth in front of you, taking your measure”.

PM: GOOD IS LIGHT/ BAD IS DARK

5. Linguistic metaphor: “Likewise, the most recent *season* of corporate financial manipulations, which by some measures blew in with Enron back in 2001, has as its latests *storms* the likes of Hollinger and Fannie Mae in North America and Hynix in South Korea.”

PM: CIRCUNSTANCES ARE WEATHER

6. Linguistic metaphor: "When Mr. McAllister went to a casting call for a commercial for the left-leaning group MoveOn.org and got a part, his girlfriend was dismayed. "Having a spirited debate is one thing, but being part of a political machine that opposes her candidate is another," he said. She broke their next date, and soon the relationship ended. *'The temperature went from boiling to subzero after I did something to get people to support my candidate,'* Mr. McAllister said.”

PM: CHANGE IS MOTION

7. Linguistic metaphor: "A hundred megabytes is absolutely fantastic because I was bumping *at the edge of my limit* ”.

CM: THE BODY IS A CONTAINER

8. Linguistic metaphor: “[...], the Café de Flore, is another example of a well-frequented location that has managed to *sneak into the hearts* of the Paris fashion elite and stay there”.

PM: IMPORTANT IS CENTRAL

9. Linguistic metaphor: “Unlike cities like New York and London, hot new places in Paris don’t often *explode onto the radar* and disappear two months later in quick rotation”.

PM: EXISTENCE IS VISIBILITY

10. Linguistic metaphor: “Unlike cities like New York and London, hot new places in Paris don’t often explode onto the radar and disappear two months later *in quick rotation*”

PM: MOMENTS IN TIME ARE OBJECTS IN MOTION ALONG A PATH (“*Moving-time*”)

**ABSTRACT:** The present study deals with the understanding of metaphors by foreign language learners. Ten novel linguistic metaphors were selected from online editions of English and American newspapers. After that, we identified the underlying conceptual metaphor based on the conceptual metaphor inventory presented by Lakoff and Johnson (1980, 1999) and the primary metaphor inventory proposed by Grady (1997). Considering the difficulties linguistic metaphors represent for text comprehension by non-native speakers, we seek to investigate what sort of knowledge foreign language learners use when trying to understand a linguistic metaphor. In this respect, we looked into the way foreign language learners comprehend (Littlemore, 2001, 2003) linguistic metaphors, firstly without using the context and then using the context. The sample comprised 221 Brazilian undergraduate students and 16 American undergraduate students at University of California, Santa Cruz. The results pointed out that conceptual metaphors related to the experiential domains of VISION, MOTION and ANGER received a higher score in the experiment carried out with the foreign language learners. The same metaphors have also been judged as the most common and the easiest to comprehend by the US-American native speakers who took part in the experiment. The comparison of the results of the studies carried out with Brazilian foreign language learners and US-American native speakers corroborate our hypothesis that there is a universal pattern in the structuring of abstract concepts which enhances the comprehension of metaphor in a foreign language in a similar way as it does in the mother tongue. In a nutshell, these results reveal that the comprehension process in both native and foreign language is strongly influenced by embodied cognition (Gibbs, 2006).

**KEY WORDS:** cognitive linguistics; foreign language comprehension; conceptual metaphor theory.

**RESUMO:** O presente estudo investiga a compreensão da metáfora por aprendizes de língua estrangeira. Selecionou-se dez metáforas lingüísticas novas em edições online de jornais ingleses e norte-americanos. Depois, identificou-se a metáfora conceptual subjacente com base no inventário de metáforas conceptuais apresentado por Lakoff e Johnson (1980, 1999) e no inventário de metáforas primárias de Grady (1997). Considerando as dificuldades que as metáforas lingüísticas representam para a compreensão de textos por falantes não-nativos, buscou-se investigar que tipo de conhecimento os aprendizes de LE empregam ao tentar compreender metáforas lingüísticas. Para isso, foi analisada a maneira como os aprendizes de LE compreendem (LITTLEMORE, 2001, 2003) metáforas lingüísticas, primeiramente sem usar o contexto e, depois, utilizando o contexto. A amostra incluiu 221 estudantes brasileiros de graduação e 16 estudantes norte-americanos de graduação da Universidade da Califórnia, Santa Cruz. Os resultados apontam que metáforas conceptuais relacionadas com os domínios experienciais VISÃO, MOVIMENTO e RAIVA foram avaliados com uma maior pontuação no experimento realizado com falantes não-nativos. As mesmas metáforas foram julgadas como mais comuns e mais fáceis de serem compreendidas pelos 16 falantes nativos de inglês norte-americano. A comparação dos resultados dos dois experimentos corrobora a nossa hipótese de que existe um padrão universal na estruturação de conceitos abstratos que aumenta a compreensão da metáfora em uma língua estrangeira de maneira semelhante ao que ocorre com

a compreensão da metáfora na língua materna. Enfim, tais resultados revelam que o processo de compreensão tanto na LM como na LE é fortemente influenciado pela corporeidade (GIBBS, 2006).

**PALAVRAS-CHAVE:** lingüística cognitiva; compreensão em língua estrangeira; teoria da metáfora conceptual.

**RESUMEN:** El presente estudio investiga la comprensión de la metáfora por aprendientes de lengua extranjera (LE). Se seleccionaron diez metáforas lingüísticas nuevas en ediciones electrónicas de periódicos ingleses y norteamericanos. Después, se identificó la metáfora conceptual subyacente basada en el inventario de metáforas conceptuales presentado por Lakoff y Johnson (1980, 1999) y en el inventario de metáforas primarias de Grady (1997). Considerando las dificultades que las metáforas lingüísticas representan en la comprensión de textos por parte de hablantes no nativos, se buscó investigar qué tipo de conocimiento los aprendientes de LE emplean al intentar comprender metáforas lingüísticas. Para ello, fue analizada la manera como los aprendientes de LE comprenden (LITTLEMORE, 2001, 2003) metáforas lingüísticas, primeramente sin usar el contexto y, después, utilizando el contexto. La muestra incluyó 221 estudiantes brasileños de graduación y 16 estudiantes norte-americanos de graduación de la Universidad de California, Santa Cruz. Los resultados indican que metáforas conceptuales relacionadas a los dominios de experiencias de VISIÓN, MOVIMIENTO y RABIA fueron evaluadas con una mayor puntuación en el experimento realizado con hablantes no nativos. Las mismas metáforas fueron juzgadas como más comunes y más fáciles de ser comprendidas por los 16 hablantes nativos de inglés norteamericano. La comparación de los resultados de los dos experimentos corrobora nuestra hipótesis de que existe un padrón universal en la estructuración de conceptos abstractos, lo cual aumenta la comprensión de la metáfora en una lengua extranjera de manera semejante a lo que ocurre con la comprensión de la metáfora en la lengua materna (LM). En conclusión, tales resultados revelan que el proceso de comprensión tanto en la LM como en la LE es fuertemente influido por la corporeidad (GIBBS, 2006).

**PALAVRAS CLAVE:** lingüística cognitiva; comprensión en lengua extranjera; teoría de la metáfora conceptual.

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