Cognitive Semantics and Emotional Lexicon in L2 Spanish. Analysis of Derived and Parasynthetic Verbs

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Abstract

The study examines how Spanish native speakers (L1) and Italian learners of Spanish as a second language (L2) perceive the emotional intensity and morphological transparency of derived and parasynthetic emotional verbs. Based on cognitive semantics, we analyse whether verb structure influences comprehension and acquisition. Forty participants (20 L1 Spanish speakers, 20 L2 learners) completed two tasks: (1) rating the emotional intensity of verbs and (2) identifying their morphological bases. Regression analyses confirm a correlation between perceived transparency and semantic understanding, both for L1 and L2 speakers. These findings highlight the challenges of acquiring a morphologically complex emotional lexicon and underscore the role of cognitive transparency in L2 learning. The study has pedagogical implications, recommending an instructional approach that introduces transparent verbs first, followed by less transparent ones at advanced levels.

Keywords: Cognitive Semantics; Morphological Transparency; Mental Lexicon; Second Language Acquisition.

1. Introduction

Understanding the lexicon of emotions, particularly through the use of morphologically complex verbs, presents challenges for second language (L2) learners. Cognitive semantics argues that cultural and linguistic frameworks shape our interpretation and understanding of emotions, often leading to differences in how emotional meanings are perceived across languages (Wierzbicka, 1996; Goddard & Wierzbicka, 2014). Furthermore, as indicated in the literature (Ekman, 2007; Pavlenko, 2014), while certain basic emotions are similarly recognised across cultures and languages, the way they are lexically and structurally encoded differs, meaning that each language may favour specific morphosyntactic patterns, resulting in varying degrees of structural equivalence between them (Pérez García, 2019).

In this regard, studying emotions from a cognitive perspective provides a solid foundation for understanding how emotions are structured and expressed in the lexicon of different languages, particularly in the context of verbs (Muñoz Medrano, 2019). Spanish is rich in emotional expressions, making it a key element for social interaction (Soriano, 2016).

Emotional verbs, in particular, carry a significant semantic load, as they not only convey an action or state but also reflect the speaker's feelings and experiences. In this context, the perception and use of these verbs can vary significantly between native speakers (L1) and L2 learners, affecting their proficiency and fluency in the language (Dirven, Frank & Pütz, 2003). According to cognitive semantics theory, emotional meanings in Spanish, as in any language, are structured through conceptual metaphors, which can either facilitate or hinder the acquisition of these terms depending on the learner's familiarity with such structures (Lakoff & Johnson, 1986; García Jiménez, 2023).

Moreover, the literature (Blanco Canales & Pérez García, 2024; Muñetón-Ayala & Vásquez Arango, 2024; Pavlenko, 2008a, 2008b; Pérez García, 2019) suggests that the morphological structure and grammatical category of emotion-related words can influence how L2 learners process them. The emotional lexicon in Spanish exhibits morphological patterns that, while transparent for native speakers, tend to be complex for L2 Spanish learners (Ibarretxe-Antuñano, 2013). For this reason, the verbs selected in the present study are all morphologically complex, either derived (word formation through affixation) or parasynthetic (formation that involves the simultaneous addition of a verbalizing suffix and a prefix to a base, resulting in the ternary morphological structure [prefix-base-verbalizing suffix] and implying the non-existence of the intermediate forms [prefix-base] and [base-verbalizing suffix] (Sotelo & Pujol Payet, 2015)). L2 learners face specific difficulties when dealing with parasynthetic or derived structures, as their morphological components can affect the clarity with which emotional meanings are perceived (Del Barrio de la Rosa, 2022). Parasynthetic verbs, which are morphologically more complex than derived verbs, may, however, offer greater semantic transparency, that is, their meaning is more accessible due to their compositional structure (Trombetta, Albano de Vázquez & Gianmatteo, 2000, Sotelo & Pujol Payet, 2015).

This research explores whether the Spanish emotional lexicon is perceived differently between Spanish native speakers and Italian learners of Spanish as an L2, focusing on derived and parasynthetic verbs such as *entristecer* ('to sadden') and *alegrar* ('to cheer up'). Specifically, the study investigates how subjects perceive the emotional intensity and transparency of these terms. Given the strong similarities between Spanish and Italian, the perception of these verbs could be influenced by factors such as morphological transparency and structural familiarity. The main hypothesis posits that L2 learners who perceive greater transparency in the emotional verbs presented to them also demonstrate a better understanding of their meanings (Geeraerts, 2010; Ibarretxe-Antuñano, 2013).

The conceptualization of emotional verbs, especially in the context of an L2, is influenced by cognitive semantics. Verbs may carry emotional and cultural nuances that differ between Spanish and other languages. It is essential to analyse how native speakers conceptualize these verbs compared to learners (Gómez Vicente, 2019) to gain a better understanding of how meanings are internalized and integrated into the mental lexicon.

2. Methodology

2.1. Participants

The study involved 51 participants, divided into three groups: 18 Spanish native speakers, 16 Italian learners of Spanish with C range[1] proficiency level and 17 with B range[2] proficiency level. Participants with learning or language disorders were excluded. Participants were all university students from Malaga, Padua and Verona Universities, aged 19 to 34, both native and non-native speakers of Spanish. The study compares data from the native group and the L2 groups to analyse how and to what extent perceptions of transparency and intensity differ between L1 and L2 Spanish speakers.

2.2. Materials

For the creation of the experimental materials, 52 emotional verbs from the Spanish lexicon were initially selected, evenly divided between parasynthetic and derived verbs. To ensure a valid comparison between the two verb types in the subsequent analysis, the selected verbs were controlled for both verb and base frequency, ensuring that the difference did not exceed one standard deviation. From this initial list, 36 verbs were selected and distributed across two tasks.

2.2.1. Semantic reflection task

The first task administered to participants was a semantic reflection task, consisting of 20 verbs divided into four groups, each containing five verbs. Within each group, the verbs were evenly distributed according to the following criteria: (I) each group alternated between parasynthetic and derived verbs; (II) each group included both positively connoted verbs (e.g., *desear* 'to desire') and negatively connoted verbs (e.g., *desamorar* 'to stop loving'); (III) each group contained pairs of parasynthetic and derived verbs whose logarithmic frequencies did not differ by more than two points (see Table 1).

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[1] It included both C1 and C2 proficiency level speakers

[2] It included both B1 and B2 proficiency level speakers

Table 1. Example of Semantic reflection task selected items

Verbs	Verb logarithmic frequency	Verb type	Base	PoS	Base logarithmic frequency	F.v/F.b.
decepcionar	9,983	D	decepción	noun	9,770	1,237
entristecer	8,119	P	triste	adj	9,967	0,158
deleitar	7,444	D	deleite	noun	8,555	0,329
encandilar	8,181	P	candil	noun	7,216	2,625
asustar	10,369	P	susto	noun	9,640	2,075

For this task, participants were asked to rate the emotional intensity conveyed by each verb using a five-point Likert scale scoring from "not at all intense" to "very much intense". Additionally, they were instructed that the same intensity rating could not be assigned to more than one verb within the same group.

2.2.2. Morphological decomposition task

The second task was a morphological decomposition task, consisting of 16 verbs. The selected verbs were evenly distributed by verb type (eight derived and eight parasynthetic verbs) and frequency ranges. (See Table 2)

Table 2. Example of Morphological decomposition task selected items

Verbs	Verb logarithmic frequency	Verb type	Base	PoS	Base logarithmic frequency	F.v/F.b.	Frequency range
atediar	1,945	P	tedio	noun	7,556	0,00314	low
emocionar	10,347	D	emoción	noun	11,251	0,40510	high
encariñar	6,632	P	cariño	noun	10,864	0,01450	mid
empatizar	6,733	D	empatía	noun	9,035	0,09993	low
enorgullecer	8,448	P	orgullo	noun	10,562	0,12069	high

Unlike the previous task, this one did not maintain an alternation between positive and negative meanings, as the primary goal was to analyse how verb frequency, base frequency, and their frequency ratio (F.v./F.b.) influence perceived transparency. Indeed, as outlined by Todaro (2017), the ratio between a verb's frequency and that of its base can be considered an indicator of the derivative transparency.

However, the alternation between derived and parasynthetic verbs was maintained in this task, as a secondary objective was to determine whether the morphological structure of the verb, along with frequency effects, influences perceived transparency.

In this second task, participants were asked to identify the base word from which each verb was derived. Subsequently, they rated the ease with which they identified the base word on a five-point Likert scale, where 1 correspond to "very difficult" and 5 to "very easy".

2.3. Data Collection

Data were collected through an online questionnaire in which participants evaluated the emotional transparency and perceived intensity of several derived (D) and parasynthetic (P) verbs in European Spanish.

3. Results

Data analysis was conducted using R (R Studio). Mixed linear regression was used to analyse perceived transparency (PT), while multinomial logistic regression was run to assess the accuracy of participants' responses. Furthermore, Mixed linear regression was run to explore correlations between verb and base frequency and the semantic perception provided in the first task by native and L2 speakers.

3.1. Morphological Decomposition Task

3.1.1. Transparency

To analyse PT, we transformed the Likert-scale values in an ordinal, numerical variable. The predictive variable considered to select the model for the analysis were verb frequency (FV), base frequency (FB), the ratio between the derivative's frequency and the one of its base (Fv/Fb), the type of verb (TYPE) and the proficiency level of participants[3]. Through the stepwise method we selected a model of linear regression that includes only the main effects; random effects were calculated both for participants and tokens.

From the analysis, it results that FB has a positive effect on PT (estimate= 0.4402, p= 0.035), as expected by the evidence presents in previous literature. Furthermore, the analysis revealed proficiency level to have a significant effect too (level C estimate= 0.35, p= 0.020 – level B estimate= -0,51, p= 0.001): as expected, a lower proficiency influences negatively PT, while a
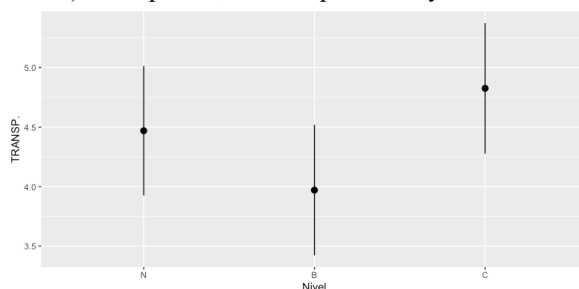

Figure 1. Mean PT values for proficiency levels

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[3] We coded them as follows: N for native Spanish speakers, C for Italian learners of Spanish with C range proficiency level, B for Italian learners of Spanish with B range proficiency level.

higher level influences it positively. However, the most surprising results stands in that for C level speakers PT was even higher than those rated by native speakers (See Figure 1).

3.1.2. Accuracy

To consider an answer accurate, participants needed to write exactly the base form listed on Real Academia Española dictionary; we did not accept inflectional variations. Similarly to PT analysis, through the stepwise method we selected a model of logistic regression that, besides the main effects, includes second order interactions; random effects were calculated both for participants and tokens.

The analysis confirmed what the previous data on PT showed, that is, FB has a facilitative effect (p= 0.008), with more accurate responses for verbs with higher FB values. In addition, it was also confirmed the effect related to proficiency levels (level C p= 0.012 – level B p= 0.144): we observed less accurate responses for speakers with B range proficiency level, while more accurate ones for those belonging to C range proficiency level (see Figure 2).
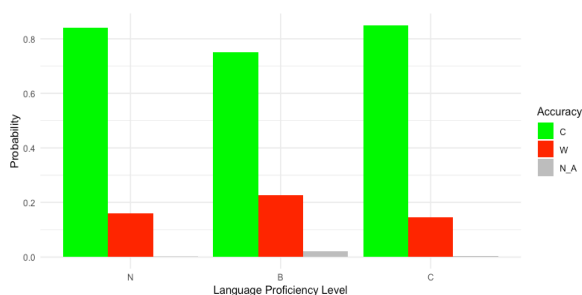

Figure 2. Response accuracy based on proficiency levels

However, the interaction between proficiency levels and FV (p= 0.010) seems to indicate that, when a verb is highly frequent, this seems to influence negatively response accuracy, especially for L2 speakers. High FV values seem also to have a negative effect on accuracy when correlated with verb typology (p= 0.024): parasynthetic verbs receive less accurate responses when they are very frequent, while otherwise they were decoded more accurately. Thus, FV seems to have a negative effect on decoding. Finally, data seems to confirm Todaro's (2017) proposal on Fv/Fb (p= 0.018): to a high value of Fv/Fb corresponds less accurate answers, even across all proficiency levels. Even if it was not significant, it is still worth commenting that the negative effect of Fv/Fb seems to affect less L2 speakers.

3.2. Semantic reflection task

To analyse the semantic intensity rated by participants, we transformed the Likert-scale values in an ordinal, numerical variable. The predictive variable considered to select the model for the analysis were verb frequency (FV), base frequency (FB), the ratio between the

derivative's frequency and the one of its base (Fv/Fb), the type of verb (TYPE), the proficiency level of participants and the semantic value of each verb (positive or negative, e.g. *decepcionar*, 'to disappoint': negative, *deleitar,* 'to delight'*:* positive). Through the stepwise method we selected a model of linear regression that includes only the main effects; random effects were calculated both for participants and tokens. During the selection, we excluded from the model the semantic value, Fv/Fb and TYPE variables, as they did not contributed significantly to the analysis.

Contrary from what was observed in the previous analysis, even if not significant, high FB values correlated to a lower intensity of the verb (estimate= -0.053, p= 0.54), while high FV values correlate higher intensity rates (estimate= 0.156, p= 0.028) (see Figure 3).

No significant effect was found for proficiency levels; however, it is worth to comment that it seems that L2 speakers tend to perceive verbs slightly more intensely than native speakers.
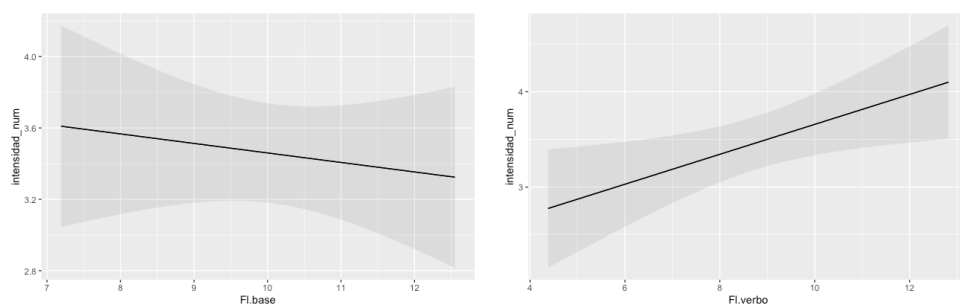

Figure 3. Semantic intensity related to FB and FV

4. Conclusions

The present study aimed to explore the relationship between morphological transparency and semantic understanding in L2 learners on Spanish emotional verbs. In line with our hypothesis, learners with the higher proficiency level (C) demonstrated higher accuracy in identifying base forms and rated them as more transparent (PT), especially when the base frequency (FB) was high. Interestingly, C-level learners even outperformed native speakers in perceived transparency and accuracy, suggesting that morphological awareness may be heightened in advanced L2 learners due to formal instruction. Accuracy data further confirmed the positive role of FB, but revealed a negative effect of verb frequency (FV). Although semantic ratings did not show a significant effect of proficiency, the trend of L2 learners attributing higher intensity to verbs aligns with the idea that whole form frequency may enhance semantic salience. These findings highlight the intricate relationship between morphological awareness and lexical comprehension in L2 acquisition and suggest that targeted instruction on morphological structure may serve as a valuable tool for enhancing learners' semantic processing of complex verbs.

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