

■ ARTICLES / ARTÍCULOS

The lexical organisation of love in heritage and non-heritage EFL learners: a cultural linguistics approach¹

La organización léxica de love en aprendices de inglés como lengua extranjera según su condición de hablantes de herencia o no herencia: un enfoque desde la lingüística cultural

 **MARÍA DANIELA CIFONE PONTE**

Doctora en Filología Inglesa
Universidad de La Rioja, España
m-daniela.cifone@unirioja.es

 **JAQUELINE MORA**

Doctora en Filología Inglesa
Universidad de La Rioja, España
Jaqueline.mora@unirioja.es

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ABSTRACT

The present study examines the semantic domain of 'love' in order to explore its internal organisation within the analytical framework of Cultural Linguistic. Data were obtained from a lexical availability task administered to 100 EFL learners: 50 heritage speakers, with L1 Arabic, L2 Spanish and L3 English and 50 non-heritage speakers, with L1 Spanish and L2 English. The study pursued three objectives: (i) to determine whether there were quantitative differences in lexical availability between the two learner groups in response to the cultural category LOVE, (ii) to establish convergences and divergences in categorisation and word prototypicality in the learners' most available responses, and (iii) to explore how heritage and non-heritage speakers as EFL learners organise the emotion schema LOVE. The results revealed evidence of universality in word prototypicality, given the substantial overlap in the most available lexicon of both groups. However, the analysis of LOVE as an emotion schema showed differences in the interpretation of the concept across both groups, strongly influenced by their L1 cultural conceptualisations and cultural scripts. In the case of heritage speakers, the findings indicate that these learners operate with a hybrid system combining their L1 and L2. Overall, the study highlights the influence of cultural and linguistic backgrounds on the organisation and access to the mental lexicon and on the learning process of a foreign language.

Keywords: cultural linguistics, lexical availability, heritage speakers, EFL learners, word prototypicality.

RESUMEN

El presente aborda el dominio semántico de 'love' con el fin de explorar su organización interna mediante el marco analítico de la Lingüística Cultural. Los datos se obtuvieron a partir de una prueba de disponibilidad léxica administrada a 100 aprendices de inglés como lengua extranjera (ILE): 50 hablantes de herencia, con árabe como L1, español como L2 e inglés como L3, y 50 aprendices hablantes de español como L1 y de inglés como L2. El estudio tuvo tres objetivos: (i) determinar si existían diferencias cuantitativas en la disponibilidad léxica entre ambos grupos en respuesta a la categoría cultural LOVE, (ii) establecer convergencias y divergencias en el proceso de categorización y prototipicidad léxica en las respuestas más disponibles de los aprendices, y (iii) explorar cómo los hablantes de herencia y hablantes locales como aprendices de ILE organizan el esquema de emoción LOVE. Los resultados evidenciaron universalidad en la prototipicidad léxica, dada la amplia coincidencia en las respuestas más disponibles de ambos grupos. Sin embargo, el análisis de LOVE como esquema de emoción reveló diferencias en la interpretación del concepto en ambos grupos, fuertemente influidas por las conceptualizaciones y guiones culturales de sus respectivas L1. En el caso de los hablantes de herencia, los resultados indicaron que estos aprendices operan con un sistema híbrido que combina las experiencias lingüísticas y culturales de sus L1 y L2. En conjunto, el presente estudio pone de

relieve la influencia de los antecedentes culturales y lingüísticos en la organización y el acceso al léxico mental y en el aprendizaje de una lengua extranjera.

Palabras clave: lingüística cultural, disponibilidad léxica, hablantes de herencia, ILE, prototipos.

1. INTRODUCTION

Previous research has shown that languages encode cultural experiences, with lexical items representing culturally constructed schemas, categories and metaphors (Sharifian, 2001; Sharifian & Palmer, 2007). These conceptualisations shape how speakers categorise experiences and influence the association of lexical items in the mental lexicon (Sharifian, 2009). In this regard, word association tasks have been previously used to analyse similarities and differences in the schematisation and categorisation processes embedded in the responses of Aboriginal Australians and Anglo-Australian speakers, providing evidence of overlapping conceptual systems among Aboriginal students (Sharifian, 2005).

Lexical availability research has also suggested that certain words are more easily accessed due to their centrality within a semantic category. This central membership can be understood in terms of semantic prototypicality, given that a prototype is considered the central case upon which the lexical meaning of a word is based (Kleiber, 1995). From a Cultural Linguistics perspective, such patterns of lexical accessibility may provide valuable insights into individuals' conceptual systems, thereby reflecting how cultural conceptualisations are distributed across speakers and languages.

Extensive research has been published in Cultural Linguistics circles on World Englishes (Sadeghpour & Sharifian, 2021), teaching English as an international language (Sharifian, 2013) and intercultural communication (Wang, & Liu, 2024). Nevertheless, to date, we are not aware of any study that explores differences and similarities in the cultural conceptualisations embedded in the available lexicon of heritage and non-heritage speakers as EFL learners. The present study seeks to address this gap by combining the methodological framework of Cultural Linguistics and lexical availability tasks to accomplish the following objectives: (i) to determine whether there were quantitative differences in lexical availability between the two learner groups in response to the cultural category LOVE, (ii) to establish convergences and divergences in categorisation and word prototypicality in the learners' most available responses, and (iii) to explore how heritage and non-heritage speakers as EFL learners organise the emotion schema LOVE through word associations.

The remainder of the paper is organised as follows. Following this introduction, the first section reviews relevant literature on cultural conceptualisations in Cultural Linguistics and word prototypicality in lexical availability. In the second section, the research methodology is addressed, including information on participants and analysis procedures. The third part presents the results of the study and describes key findings. The fourth section aims to offer an interpretation of the main results. The paper concludes by considering further research and the implications of the study for lexical availability research and EFL.

2. THEORETICAL BACKGROUND

Based on Palmer's seminal work (1996), Cultural Linguistics has emerged as a multidisciplinary field that explores the relationships between language, cognition and culture. It provides an analytical framework for broadening our understanding of human conceptualisations as a cultural phenomenon (Sharifian, 2011a). Cultural conceptualisations – including cultural categories, prototypes, schemas and metaphors – are understood as products of human cognition (Sharifian, 2011a). He adopts a macro-level view of cognition, proposing that conceptualisations are continuously negotiated and reshaped through the participation and interaction of individuals within their cultural group. To account for this, he draws on the notion of connectionism, a cognitive model that views human knowledge and conceptualisations as networks formed by interconnected units rather than isolated elements. However, Cultural Linguistics sees cultural conceptualisations as emergent properties of culture that operate at a collective rather than at an individual level. This discipline regards these conceptualisations as distributed representations across cultural groups (Sharifian, 2003, 2008, 2011a). This distribution, in a constant process of negotiation, is heterogeneous, being more cohesive in some groups than others. In fact, they do not depend on the group's size but on the uniformity of its lifestyles, values and belief systems.

Sharifian (2011a, 2017) offers detailed definitions and examples of each type of cultural conceptualisation. He explains that the notion of *cultural schema* draws from the concept of schema from cognitive psychology, where schemas are regarded as fundamental cognitive structures that support the organisation and interpretation of information. This interpretation is also reflected in connectionism, which defines schemas as patterns of activation. In this vein, Cultural Linguistics regards schemas as the foundation of shared knowledge and successful communication (Sharifian, 2017; Sharifian & Palmer, 2007). A community functions as a network where these schemas are partially shared among its members. They operate as units of encyclopaedic meaning, typically instantiated in lexical items. Consequently, speakers usually rely on their own schemas to make sense of the communicative interactions.

In Cultural Linguistics, several types of schemas have been identified: event schema, role schema, image schema, proposition schema and emotion schema (Sharifian, 2003; 2011a). Event schemas are defined as cognitive constructs derived from the experience of certain events. For instance, people hold schemas for celebrations such as weddings or funerals. Within event schemas, it is possible to distinguish categories and sub-schemas. Sub-schemas refer to other events within a broader schema – for instance, in the case of a wedding, some subschemas could be the reception or the church ceremony. A category within the WEDDING schema could be WEDDING GIFTS, with instances such as *money*, *kitchen gadgets*, among others. Role schemas represent knowledge of the roles and behaviours expected of individuals in particular events or circumstances (Sharifian, 2011a). Proposition schemas are abstractions of certain thoughts and behaviours that may vary across cultural groups. Image schemas, meanwhile, are abstractions grounded in physical experiences (Sharifian, 2011a). Lastly, emotion schemas can be “defined, explained and understood by references to events or situations in which they occur”, meaning that feelings become associated

with contexts or activities that evoke them (Lutz, 1987, p. 292). In this regard, Sharifian (2011b) argues that emotions constitute cultural conceptualisations characterised by high variability across cultures. Indeed, each culture constructs the meaning of emotions differently, but generally, there are strong interactions among language, the body and culture (Sharifian, 2011a; Shweder 1991).

The process of categorisation is regarded as one of the most fundamental aspects of human cognition. While Aristotle described categories as sets of members sharing equal status and necessary and sufficient features, categorisation has traditionally been understood as a universal cognitive process. Cultural Linguistics, however, distinguishes *cultural categories*, which are rooted in culturally shaped experiences. Cultural categories provide insight into how a cultural group understands the world, allowing differences and similarities across groups to be examined. Sharifian (2017) explains that cultural categories are embedded in lexical items, as these usually function as labels for both categories and their instances. He further notes that a single lexical item could operate as a cultural category or schema, depending on the words it instantiates. For example, WEDDING may function as a cultural category in opposition to ENGAGEMENT, but it may also be understood as a schema encompassing prototypical and less prototypical instances.

By contrast, Rosch's (1973) prototype theory offered a different perspective on categorisation. Rosch argued that categories are organised around a central, most representative member—the prototype. For instance, *apple* is typically considered a prototypical fruit, whereas *olive* is less representative. Prototypes are cognitively and semantically salient, encompassing features that facilitate communication and understanding (Martos, 2010). Prototype theory has since evolved into two main versions: standard and extended. Both position the prototype at the category's centre, but the standard version also organises categories hierarchically into superordinate, basic, and subordinate levels, with the basic level being the most salient and acquired earliest (Kleiber, 1995). The extended version, however, allows for gradience in membership, reflecting that not all members share a defining feature, consistent with Wittgenstein's (1953) notion of family resemblance (Lakoff, 1987). Cultural Linguistics also conceives the prototype as a cultural construct; consequently, it may vary across cultural groups (Sharifian, 2017).

Lexical availability tasks (LAT) have become a valuable methodological tool for research on family and foreign languages to explore processes of categorisation and lexical activation and storage (Palapanidi & Agustín-Llach, 2025). This instrument allows quantitative and qualitative insight into those words that are “ready” to be activated in an individual's mind when a particular communicative situation requires them (López, 2014). In a qualitative fashion, LAT has helped understand that mental lexicon is not organised randomly, but it follows a thematic and structured organisation (Collins & Quillian, 1969; De Deyne, 2016). To better make sense of LAT results, graphic theory has emerged as a complementary analytic approach. A semantic network graph is constructed around nodes, which represent lexical units (lexical responses in LAT), and links (or edges) that connect those nodes and help visualise how they are associated in the LAT (Agustín-Llach & Rubio, 2024; Aitchison, 1987). Although semantic networks are not representations of the mental lexicon, they are considered to be approximations that allow for observing some characteristics of the mental

lexicon by enabling the identification of semantic relations, the determination of word prototypicality and universality (Mora & Šifrar, 2025), and the exploration of how newly acquired words are accessed and integrated into the foreign language lexicon (Agustín-Llach, 2023).

To our knowledge, this is the first study to combine the methodological framework of Cultural Linguistics and LAT to explore the organisation of the semantic domain 'love' in learners with different linguistic and cultural backgrounds. To this effect, the study at hand seeks to address the following two research questions:

RQ1: Are there quantitative differences in lexical availability between heritage and non-heritage speakers as EFL learners in response to the cultural category LOVE?

RQ2: What differences and similarities in categorisation and word prototypicality emerge from heritage and non-heritage speakers' most available responses?

RQ3: How do heritage and non-heritage speakers organise and access the emotion schema LOVE?

3. METHODOLOGY

3.1. Participants

This study is framed within a national project investigating productive vocabulary in English as an L2 and L3 in secondary education. Participants were recruited from secondary schools in La Rioja and Extremadura, enrolled in the 4th year of Compulsory Secondary Education. The Spanish national curriculum establishes that at this stage of formal education, EFL learners are expected to achieve a pre-intermediate level, the early stages of B1 as described in the CEFR (Council of Europe, 2020).

A total of 100 adolescent participants, aged 15 to 16, were selected from a broader pool of students and classified according to their linguistic background: 50 heritage speakers, with L1 Arabic, L2 Spanish and L3 English; and non-heritage speakers, with L1 Spanish and L2 English. Before data collection, informed consent was obtained from both the participants and their legal guardians. The Arabic group was selected since they constituted the largest heritage language group in the sample, which ensured greater consistency in the responses.

The study received ethical approval from the University of La Rioja Bioethics Committee, ensuring compliance with all standards.

3.2. Instruments

Learners' responses were collected using a LAT, in which they were asked to write as many words as possible related to the semantic category 'love' within a two-minute time limit. The task was administered during participants' regular EFL lessons under the supervision of their English teachers and researchers. Before data collection began, students received instructions in Spanish and questions were addressed.

The selection of the prompt was based on the fact that 'love', as previously noted, could be understood as an emotion schema; consequently, it enabled the analysis of

emergent properties of group-level cognition.

3.3. Data analysis and procedure

Responses were transcribed into an Excel file that contained anonymised data. Raw responses were independently edited and lemmatised by one member of the research team following the criteria described below. A second researcher reviewed the edited and lemmatised responses independently to verify the consistency of the procedure. Any discrepancies were resolved through discussion until consensus was reached. Lemmatisation process followed the criteria adopted in recent publications on lexical availability (Agustín-Llach, 2023; Canga & Cifone, 2025): (i) spelling errors were corrected, (ii) repetitions of the same word within the same prompt were counted once, (iii) regular plurals were lemmatised to the singular form, (iv) unintelligible responses were excluded, (v) verbs were lemmatised to the infinitive form unless the inflected form was listed as an independent entry (e.g., left, leave) in dictionaries such as Cambridge Online Dictionary (Cambridge University Press, n.d.) and WordReference (n.d.), in which case it was treated as a separate lexical item.

For this research, several methodological decisions were adopted. Within the framework of Cultural Linguistics, the semantic domain of 'love' is understood as an emotion and is therefore subject to cognitive processes such as categorisation and schematisation. Accordingly, LOVE was examined from two complementary perspectives: as a category, to examine its prototypical structure, and as an emotion schema, to explore how speakers from different cultural groups interpret and experience this emotion in relation to the world around them (Sharifian, 2011a, 2017).

To answer the second question, LOVE was approached as a category. As explained in the theoretical framework, categories are organised around a central or a representative member, referred to as the prototype (Sharifian, 2011a). Accordingly, word prototypicality in LOVE was examined by identifying the most central lexical items (i.e., the most available responses) produced by each group. This was achieved by calculating the Lexical Availability Index (LAI) for each word, a key measure for identifying the most available lexical items. The identification of prototypical words was the starting point for the semantic network analysis.

To answer the third question, LOVE was approached as an emotion schema. Considering LOVE as a schema allows for the examination of encyclopaedic knowledge embedded within the semantic domain and how it is distributed across the learner groups. In this regard, the semantic networks constructed from the most prototypical responses enabled us to examine the internal organisation of LOVE, visualising through word associations the different schematic relations that this semantic domain instantiates in each group.

SPSS was used to determine statistical differences in the number of answers produced. On the other hand, Lexpro (Hernández et al., 2023) was employed to calculate the LAI for each word. Semantic networks were then constructed using only the most prototypical responses identified through the LAI analysis. In these networks, lexical units constituted the nodes and their associations (*edges*) (Aitchison, 1987; Vitevitch, 2008). Word networks also enable the identification of both anchor words, the most important members of the graph that facilitate participants' access to their

lexicon (Agustín-Llach & Rubio, 2024), and communities (or hubs), defined as “groups of lexical items that are densely connected within each group” (Agustín-Llach & Palapanidi, 2024, p. 892).

4. RESULTS

To answer the first research question, different lexical availability metrics were calculated (Table I). We can observe that L2 learners retrieved more tokens than L3 learners. The average number of responses per participant also gave advantage to L3 learners. However, no significant differences were found between the L2 and L3 learners in the number of words retrieved, $t(88.38) = -0.94$, $p = .35$.

Table I. Lexical availability metrics

Metric	L2 learners	L3 learners
<i>Tokens</i>	437	399
<i>Types</i>	144	146
<i>Avg. words</i>	8.74	7.98
<i>Cohesion index</i>	0.06	0.05
<i>SD</i>	4.67	3.31

Regarding the second research question, to determine the similarities and differences regarding word prototypicality, the 20 most available responses in each group of learners were determined. Table II displays these responses along with their LAI, overlapping responses are in bold. Results showed there was an overlap of 13 prototypical words across groups. In addition, L2 and L3 learners shared the same most accessible word *heart* with the highest LAI. The prototype *heart* is followed by three highly available words —*kiss*, *boyfriend*, *girlfriend*—also associated with romantic love. Word prototypicality also shows that within the 13 shared lexical items, relevant cultural celebrations (*valentinesday*), words learned early in life (*family*, *friend*), additional romantic love metaphors (*chocolate*, *flower*, *cupid*, *couple*), and words carrying strong emotional connotations (*friend*, *family*) were found.

Table II. Word Prototypicality and LAI by L2 and L3 Learners in Response to 'Love'

L2 Learners' 'Love' Responses	LAI	L3 Learners' 'Love' Responses	LAI
<i>heart</i>	0.42235	<i>heart</i>	0.556486
<i>boyfriend</i>	0.326866	<i>kiss</i>	0.344041
<i>kiss</i>	0.313736	<i>girlfriend</i>	0.335847
<i>girlfriend</i>	0.310774	<i>boyfriend</i>	0.324396
<i>hug</i>	0.286894	<i>valentinesday</i>	0.206526
<i>valentinesday</i>	0.192274	<i>friend</i>	0.192684
<i>red</i>	0.186748	<i>family</i>	0.177983
<i>relationship</i>	0.176194	<i>chocolate</i>	0.144637
<i>chocolate</i>	0.161519	<i>hug</i>	0.142957
<i>couple</i>	0.116652	<i>couple</i>	0.134412
<i>rose</i>	0.107415	<i>flower</i>	0.124183
<i>family</i>	0.074254	<i>sex</i>	0.118976
<i>happiness</i>	0.072269	<i>cupid</i>	0.114759
<i>flower</i>	0.068163	<i>relationship</i>	0.109076
<i>feeling</i>	0.065036	<i>married</i>	0.103872
<i>friend</i>	0.055102	<i>girl</i>	0.083725
<i>cupid</i>	0.054869	<i>pink</i>	0.067328
<i>present</i>	0.054123	<i>sister</i>	0.061882
<i>ring</i>	0.053923	<i>boy</i>	0.057867
<i>confidence</i>	0.05177	<i>gift</i>	0.054938

Within the non-shared most available words, allusions to colours are found (*red*, *pink*). Likewise, responses were also linked to developmentally early vocabulary (*boy*, *girl*, *pink*, *red*), emotionally loaded words (*sister*), romantic scenario (*present*, *gift*, *ring*, *rose*, *married*, *relationship*), intimacy (*sex*), and emotional stability (*confidence*). The semantic prototypes represented among the top 20 most available words reflect basic-level categorisation, with simple, short lexical items predominating over subordinate (more informative words) or superordinate (abstract utterances) terms.

To answer the third research question, semantic networks were built on the 20 most prototypical responses of each group. Figure 1 and 2 display the semantic networks of both groups of learners. All the hubs and members of each hub from the semantic networks were identified. The two graphs (Figure 1 and 2) display different coloured hubs (or communities) retrieved by the two groups of learners. Those hubs are the most salient words, also known as anchor words. These lexical items function as structuring nodes; they provide access to the rest of the words within the community.

Data from the most central and prototypical word (*heart*) and from the core clusters indicate that the L2 network contains a higher density of connections among

The graph illustrates a network of concepts related to Valentine's Day. The nodes and their approximate weights (outgoing edges) are as follows:

- heart** (large blue circle):
 - to **feeling**: 1/0
 - to **hug**: 0/4
 - to **happiness**: 1/0
 - to **boyfriend**: 1/0
 - to **girlfriend**: 1/0
 - to **relationship**: 1/0
 - to **valentinesday**: 1/0
 - to **family**: 1/0
 - to **present**: 1/0
 - to **ring**: 1/0
 - to **friend**: 1/0
- feeling** (medium blue circle):
 - to **confidence**: 1/0
 - to **hug**: 1/0
 - to **happiness**: 1/0
- hug** (small green circle):
 - to **heart**: 0/4
 - to **kiss**: 1/0
- happiness** (medium blue circle):
 - to **heart**: 1/0
 - to **boyfriend**: 1/0
 - to **girlfriend**: 1/0
 - to **relationship**: 1/0
 - to **valentinesday**: 1/0
 - to **family**: 1/0
 - to **present**: 1/0
 - to **ring**: 1/0
 - to **friend**: 1/0
- confidence** (small blue circle):
 - to **feeling**: 1/0
- red** (small blue circle):
 - to **heart**: 1/0
 - to **kiss**: 1/0
 - to **relationship**: 1/0
 - to **valentinesday**: 1/0
 - to **family**: 1/0
 - to **present**: 1/0
 - to **ring**: 1/0
 - to **friend**: 1/0
- kiss** (small green circle):
 - to **heart**: 1/0
 - to **hug**: 1/0
 - to **relationship**: 1/0
 - to **valentinesday**: 1/0
 - to **family**: 1/0
 - to **present**: 1/0
 - to **ring**: 1/0
 - to **friend**: 1/0
- boyfriend** (medium pink circle):
 - to **heart**: 1/0
 - to **hug**: 1/0
 - to **happiness**: 1/0
 - to **girlfriend**: 1/0
 - to **relationship**: 1/0
 - to **valentinesday**: 1/0
 - to **family**: 1/0
 - to **present**: 1/0
 - to **ring**: 1/0
 - to **friend**: 1/0
- girlfriend** (medium pink circle):
 - to **heart**: 1/0
 - to **hug**: 1/0
 - to **happiness**: 1/0
 - to **boyfriend**: 1/0
 - to **relationship**: 1/0
 - to **valentinesday**: 1/0
 - to **family**: 1/0
 - to **present**: 1/0
 - to **ring**: 1/0
 - to **friend**: 1/0
- relationship** (small orange circle):
 - to **heart**: 1/0
 - to **hug**: 1/0
 - to **happiness**: 1/0
 - to **boyfriend**: 1/0
 - to **girlfriend**: 1/0
 - to **valentinesday**: 1/0
 - to **family**: 1/0
 - to **present**: 1/0
 - to **ring**: 1/0
 - to **friend**: 1/0
- valentinesday** (small orange circle):
 - to **heart**: 1/0
 - to **hug**: 1/0
 - to **happiness**: 1/0
 - to **boyfriend**: 1/0
 - to **girlfriend**: 1/0
 - to **relationship**: 1/0
 - to **family**: 1/0
 - to **present**: 1/0
 - to **ring**: 1/0
 - to **friend**: 1/0
- family** (small orange circle):
 - to **heart**: 1/0
 - to **hug**: 1/0
 - to **happiness**: 1/0
 - to **boyfriend**: 1/0
 - to **girlfriend**: 1/0
 - to **relationship**: 1/0
 - to **valentinesday**: 1/0
 - to **present**: 1/0
 - to **ring**: 1/0
 - to **friend**: 1/0
- present** (small yellow circle):
 - to **heart**: 1/0
 - to **hug**: 1/0
 - to **happiness**: 1/0
 - to **boyfriend**: 1/0
 - to **girlfriend**: 1/0
 - to **relationship**: 1/0
 - to **valentinesday**: 1/0
 - to **family**: 1/0
 - to **ring**: 1/0
 - to **friend**: 1/0
- ring** (small yellow circle):
 - to **heart**: 1/0
 - to **hug**: 1/0
 - to **happiness**: 1/0
 - to **boyfriend**: 1/0
 - to **girlfriend**: 1/0
 - to **relationship**: 1/0
 - to **valentinesday**: 1/0
 - to **family**: 1/0
 - to **present**: 1/0
 - to **friend**: 1/0
- friend** (small orange circle):
 - to **heart**: 1/0
 - to **hug**: 1/0
 - to **happiness**: 1/0
 - to **boyfriend**: 1/0
 - to **girlfriend**: 1/0
 - to **relationship**: 1/0
 - to **valentinesday**: 1/0
 - to **family**: 1/0
 - to **present**: 1/0
 - to **ring**: 1/0
- rose** (small yellow circle):
 - to **heart**: 1/0
 - to **hug**: 1/0
 - to **happiness**: 1/0
 - to **boyfriend**: 1/0
 - to **girlfriend**: 1/0
 - to **relationship**: 1/0
 - to **valentinesday**: 1/0
 - to **family**: 1/0
 - to **present**: 1/0
 - to **ring**: 1/0
 - to **friend**: 1/0
- couple** (small blue circle):
 - to **heart**: 1/0
 - to **hug**: 1/0
 - to **happiness**: 1/0
 - to **boyfriend**: 1/0
 - to **girlfriend**: 1/0
 - to **relationship**: 1/0
 - to **valentinesday**: 1/0
 - to **family**: 1/0
 - to **present**: 1/0
 - to **ring**: 1/0
 - to **friend**: 1/0
- chocolate** (small yellow circle):
 - to **heart**: 1/0
 - to **hug**: 1/0
 - to **happiness**: 1/0
 - to **boyfriend**: 1/0
 - to **girlfriend**: 1/0
 - to **relationship**: 1/0
 - to **valentinesday**: 1/0
 - to **family**: 1/0
 - to **present**: 1/0
 - to **ring**: 1/0
 - to **friend**: 1/0
- flower** (small yellow circle):
 - to **heart**: 1/0
 - to **hug**: 1/0
 - to **happiness**: 1/0
 - to **boyfriend**: 1/0
 - to **girlfriend**: 1/0
 - to **relationship**: 1/0
 - to **valentinesday**: 1/0
 - to **family**: 1/0
 - to **present**: 1/0
 - to **ring**: 1/0
 - to **friend**: 1/0
- cupid** (small orange circle):
 - to **heart**: 1/0
 - to **hug**: 1/0
 - to **happiness**: 1/0
 - to **boyfriend**: 1/0
 - to **girlfriend**: 1/0
 - to **relationship**: 1/0
 - to **valentinesday**: 1/0
 - to **family**: 1/0
 - to **present**: 1/0
 - to **ring**: 1/0
 - to **friend**: 1/0

Figure 1. L2 Learners' Semantic Network of 'Love'

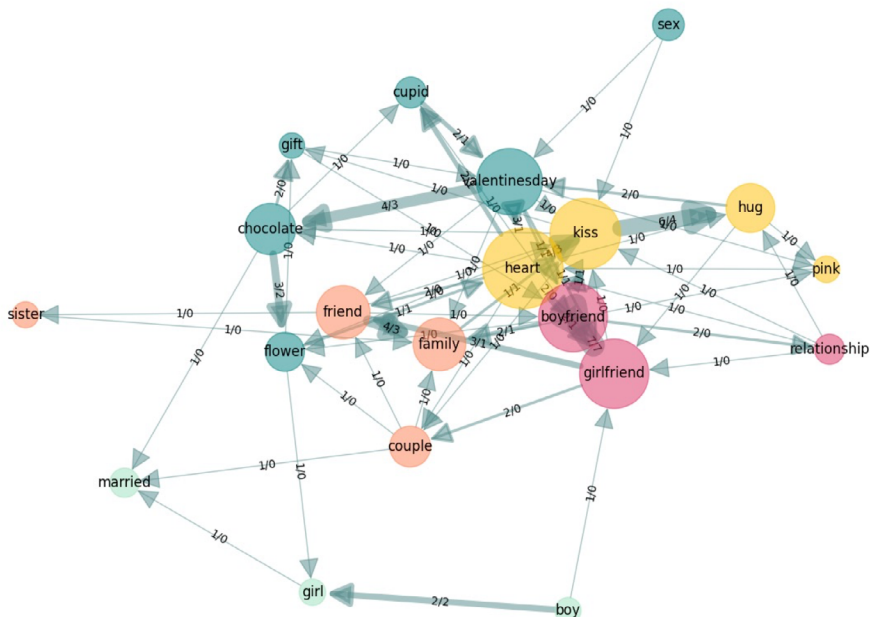


Figure 2. L3 Learners' Semantic Network of 'Love'

Table III shows the hubs emerging in the semantic networks of L2 and L3 learners and lists all members of each hub. These hubs and the associated responses instantiate a variety of cultural conceptualisations (i.e., cultural categories, schemas and metaphors) linked to the emotion schema LOVE. From Table III, it can be observed that L2 and L3 learners showed differences and similarities in the way they access and organise this schema. In both groups, the schema was organised into five hubs. Although three hubs are activated in the network of both groups: *Heart*, *boyfriend* and *Valentine's Day*, their organisation differed.

Table III. Hubs and their members in the semantic networks of L2 and L3 learners

L2 learners		L3 learners	
Hub	Members of the hub	Hub	Members of the hub
Heart	Red, couple, feeling, happiness, confidence	Heart	kiss, hug, pink
Boyfriend	Girlfriend	Boyfriend	Girlfriend, relationship
Kiss	hug	Valentine's Day	chocolate, cupid, flower, sex, gift
Valentine's Day	relationship, family, cupid, friend	Friend	family, couple, sister

The most salient hub was organised around the most prototypical word, *heart*, which represents on its own a metaphorical response. However, when we examined the members of the hubs, differences between each group were observed, revealing different patterns in the organisation of most central prototypes. In both groups, the word *heart* activated lexical items that embodied schematic rather than categorical relations, including cultural metaphors through different colour references (*red* in L2 learners and *pink* in L3 learners). In L2 learners, we found associations that instantiated role schemas (e.g., *couple*), and positive emotion schemas (e.g., *feeling*, *happiness* and *confidence*). On the other hand, in L3 learners, *heart* was associated with actions of affection (e.g., *kiss*). *Heart* served as an anchor word for accessing different schematic dimensions of the cultural category of LOVE, with positive emotion-schemas playing a prominent role in the L2 group and as an anchor word for prototypical actions in the L3 group.

A second hub was structured around the word *boyfriend* in both groups. This hub and one of its members (*girlfriend*) instantiated a role schema, defining relationship roles within the category. L3 learners' hub added another dimension by also including the word *relationship*. *Valentine's Day* also emerged as an anchor word in both groups, being more salient in L3 learners. This hub is built around the event schema VALENTINE'S DAY. However, its members evoked different cultural conceptualisations in each learner group. In L2 learners, the hub was mainly dominated by relational associations. Hub members suggest that these learners conceptualised VALENTINE'S DAY as a social event shared with family and friends and as a festivity related to romantic relationships. These words instantiated both role and event schemas. By

contrast, in L3 learners, this anchor word activated more complex conceptualisations. It included categorical relations (i.e., *chocolate*, *flower*, *gift*), all of them instances of romantic gifts within the celebration. Moreover, these learners also activated words such as *sex*, examples of romantic actions, highlighting a stronger focus on intimate dimensions of the event schema.

Both groups diverged in two hubs. In L2 learners, we found *kiss* and *chocolate* as hubs, while in L3 learners, *friend* and *married* appeared as the other two anchor words. In the case of L2 learners, a third hub was constructed around the word *kiss*, with *hug* as its only member. This hub may be instances of a cultural category (PHYSICAL EXPRESSIONS OF AFFECTION) or may be activating actions or behaviours within an event schema. Lastly, the hub *chocolate* evoked another categorical hub (ROMANTIC GIFTS), as all the associated members represented a form of gift related to romantic relationships. This hub also activated metonymic associations related to the cultural schema LOVE IS GIVING.

The semantic network of L3 learners revealed two last hubs organised around the words *friend* and *married*. Both hubs were built on schematic associations that instantiated role schemas within the cultural category LOVE. On the one hand, *friends* hub depicted the importance of interpersonal relationships in the category, including hub members related to romantic love and familial relations. Finally, the hub *married* activated the lexical items *boy* and *girl* that reveal a strong role schema.

5. DISCUSSION

The first research question aimed to determine quantitative differences in the participants' lexical availability within the semantic domain of 'love'. To address this question, the number of tokens, types, and cohesion indices were analysed. In this regard, it was observed that non-heritage speakers produced more words than the heritage group. Nevertheless, this difference was not statistically significant.

This finding is consistent with previous studies on L2 and L3 learners (Mora & Geoghegan, 2026; Agustín-Llach & Geoghegan, 2025), which reported differences in the number of responses but none when statistical analyses were applied. This result may be explained by the fact that multilingual speakers – in this case, L3 learners – are usually slower in lexical retrieval tasks. Some theorists argue that this type of speaker operates across several linguistic systems; even in monolingual LAT, their languages are activated simultaneously and compete with one another. Consequently, these speakers typically require more time to select lexical items (Sullivan et al., 2018). Due to the fact that the LAT implemented in this study allowed two minutes for each prompt, it may be argued that this time limit may disadvantage the L3 group.

The second research question addressed differences and similarities in categorisation and word prototypicality in the most available responses of L2 and L3 learners. To answer this question, the 20 most prototypical responses in each group were analysed. The results indicate that, despite differences in linguistic profiles and cultural backgrounds, prototypes seem to remain largely universal across heritage and non-heritage speakers. This finding supports the view that semantic prototypes may exhibit universal characteristics, in line with Šifrar (2016). Moreover, the semantic

prototypes identified among the most lexically available responses in both groups suggest a shared tendency to structure categories based on human experience, regardless of language, as proposed by Aitchison (1994) and Kleiber (1995). Consistent with prototype theory (Rosch, 1975), the prototypical word associations observed in response to 'love' correspond to the most central and representative exemplars within a category. These results align with previous research employing LATs, which has shown that prototypes typically emerge as the most central members of a category or centre of interest (Šifrar, 2014a, 2016). Additionally, the results demonstrate that higher lexical availability indices are associated with increased word prototypicality, reinforcing the notion that lexical availability is a key determinant in identifying central category members. This relationship corroborates earlier studies indicating that more lexically available words are accessed more readily and are more representative of a shared semantic field, as predicted by prototype theory (Ávila & Sánchez, 2014; Šifrar, 2014a, 2014b).

Analysis of the top 20 most prototypical words within the semantic category of 'love' revealed a clear predominance of basic-level terms over superordinate and subordinate levels. This pattern is consistent with the theoretical framework proposed by Rosch et al. (1976), Kleiber (1995), and Xia & Wolf (2010), as all lexical items produced by both L2 and L3 learners corresponded to the basic level of categorisation. These findings further support the notion that the basic level represents the preferred level of lexical access in language use, as it is the level at which speakers most spontaneously and efficiently name objects and concepts (Anglin, 1977; Mervis & Crisafi, 1982; Rosch et al., 1976). These results are consistent with those reported by Agustín-Llach (2025), as *heart* emerged as the most accessible and lexically available prototype. Although Agustín Llach's (2025) study focused on L1/L2 learners, whereas the present study examined a different participant profile, the convergence of findings suggests that the identification of *heart* as a prototypical exemplar reflects a universal organising principle. This consistency across studies indicates that prototypical representations of 'love' remain stable across linguistic profiles and cultural contexts.

The third research question sought to determine how L2 and L3 learners construct the emotion schema LOVE. To explore this question, semantic network analysis was employed to identify anchor words and their associations in the most prototypical responses, which, in turn, represent the mental lexicon (Agustín-Llach & Rubio, 2024). The results showed that although some hubs overlapped across groups (i.e., *heart*, *boyfriend*, *Valentine's Day*), their associations varied considerably.

On the one hand, *heart* emerged as the most prototypical response and the most salient hub in both learner groups. Although both groups conceptualised *heart* metaphorically, several differences were observed at the associative level. For L2 learners, *heart* functioned as the locus of positive emotions (i.e., *happiness*, *confidence*), whereas L3 learners conceptualised it as a seat of affectionate actions (i.e., *kiss*, *hug*). This finding aligns with previous studies on cultural conceptualisations and with what Sharifian refers to as "embodied cultural metaphors" (Sharifian, 2011a). Such studies have shown that body parts play an essential role in the conceptualisation of abstract experiences such as emotions, serving as cognitive anchors that vary considerably across cultures. For instance, some studies showed that the heart is considered the seat of love in several cultures, including Persian and

European cultures such as English and French (Afreh, 2015; Gutiérrez, 2008; Sharifian, 2011a). This may, in turn, be applied to the present data, in which the heart can also be interpreted as an image schema, functioning as a container of emotions and as a locus for actions of affections.

Colours were also present in the *heart* hub. L2 learners associated *heart* with *red* while L3 learners linked it to *pink*. The election of colours appears to be culturally driven rather than arbitrary. The semiotic connotations of each colour differ across cultures: in Western contexts, red is usually associated with the heart, passion and love, whereas in some Arabic-speaking contexts it can convey more negative associations (Alharbi, 2023; Alotaibi, 2020). *Pink*, by contrast, is frequently associated with love, health and optimism. In a comparative study of colour idioms in English and Arabic, Alotaibi (2020) exemplifies this association with the Arabic idiom meaning “having a pink life”, translated as *being in love*. This finding may indicate that L2 and L3 learners draw on the systems of their L1 cultural conceptualisations. More specifically, our data suggests that heritage speakers’ conceptualisations become hybridised through contact with additional linguistic and cultural systems. This phenomenon aligns with what Xu & Sharifian (2017) define as *cultural blends*, where cultural concepts become hybrids shaped through interaction with different speech communities and cultures. Our data suggest that heritage speakers seem to conceptualise LOVE through their L1 cultural conceptualisations, despite performing the task in their L3.

Each learner group also activated different conceptualisations regarding the emotion schema LOVE. Both groups produced responses such as *chocolate* and *flower*, as instances of romantic gifts. However, these lexical items appear to encode different underlying cultural conceptualisations. In the network of L2 learners, *chocolate* emerged as an anchor word associated with other lexical items instantiating romantic gifts (e.g., *present*, *ring*), organising a community that belongs to the same cultural category. This hub may be interpreted as a cultural metaphor (LOVE IS GIVING), where the anchor word exclusively evokes lexical items related to the act of giving. Conversely, in the L3 learners’ network, *chocolate* and other gifts (e.g., *flower*) were instantiated within the Valentine’s Day hub. This suggests that, for L3 learners, such items are embedded in a cultural script within the VALENTINE’S DAY event schema. Although the event schema VALENTINE’S DAY was present in both groups as an anchor word, we observed that the concept was understood differently in each of them. L3 learners seem to interpret the schema guided by cultural scripts (e.g., romantic gifts, actions and symbols), whereas L2 learners seem to build the schema around social roles (e.g., *relationship*, *friend* and *family*).

Different role schemas were also observed in each learner group. The L3 learners’ conceptualisation of love appears to rely heavily on fixed role schemas dictated by their own values and social norms, and, more speculatively, by their religious background. They conceptualise the cultural schema LOVE not only through romantic relationships (*boyfriend-girlfriend*; *girl-boy*), but also through the notion of marriage. Their word network also revealed *friend* as a hub, indicating that interpersonal relationships, particularly those involving family and friends, are central to their understanding of LOVE. In contrast, L2 learners conceptualised LOVE primarily as a romantic relationship, with no anchor words pointing to additional role schemas or practices such as marriage.

These findings seem to indicate that the cultural schema LOVE varies according to EFL learners' cultural experiences and L1, which may influence how these learners perceive love as a cultural schema. This interpretation aligns with Bak & Altarriba (2024), who studied basic emotions in English and Polish to determine whether they were equally understood across cultures. Their study showed that emotions share some basic aspects, but they are profoundly influenced by participants' language and culture, suggesting that emotions are not universal. In this respect, as discussed in relation to the second research question, semantic prototypes in the responses of the two learner groups may display a degree of universality, given a great overlap across L2 and L3 learners' most available lexicon. However, once the word associations are analysed through the lens of Cultural Linguistics, this overlap seems to remain exclusively in the retrieval of lexical items, while clear differences emerge in the conceptualisation of the cultural schema LOVE across groups.

6. CONCLUSIONS

This study sought to examine the semantic category 'love' as a cultural category and an emotion schema through the responses of heritage and non-heritage speakers as EFL learners in a LAT. For this purpose, this study combined the analytical framework of Cultural Linguistics with LAT to establish whether there were quantitative and qualitative differences across the two learner groups. Taken together, the findings suggest that the cultural schema LOVE varies according to EFL learners' cultural experiences and L1, which may influence how these learners perceive the emotion. In this respect, as discussed in relation to the second research question, semantic prototypes in the responses of both learner groups displayed certain degrees of universality, given the substantial overlap in the most available lexicon of L2 and L3 learner groups. However, when the word associations are analysed through the lens of Cultural Linguistics, these shared responses appear to be restricted to lexical retrieval, whereas clear differences emerge in the conceptualisation of the emotion schema LOVE across groups.

Overall, this study contributes to research on lexical availability by integrating word prototypicality and word networks to explore cultural conceptualisations in heritage and non-heritage speakers as EFL learners. This approach opens new venues for examining cultural conceptualisations embedded in EFL learners' available lexicon. The findings highlight the possibilities of LAT and word networks as methodological approaches within Cultural Linguistics for exploring cultural conceptualisations in EFL learners' available lexicon and for identifying different characteristics underlying the mental lexicon, as well as the role of culture in lexical access. However, several limitations should be acknowledged. The analysis focused only on the 20 most available responses and a single semantic prompt ('love'), which may limit the generalizability of the findings and overlook less frequent lexical associations. Moreover, LAT captures spontaneous retrieval rather than deeper conceptual knowledge or actual language use, and contextual factors such as cultural background, language exposure, and proficiency were not examined in depth.

Pedagogically, the findings highlight the importance for EFL instructors and

materials developers to understand that EFL learners rely on their L1 conceptualisations to make sense of the foreign language. This means that, if differences are not explicitly addressed in lessons and materials, they could potentially lead to misunderstandings in communication. This becomes especially relevant in today's context, where classrooms are characterised by the diversity of cultural and linguistic backgrounds.

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