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Special Issue
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The Social Impact of Metaphor:
Cross-Cultural and Linguistic Perspectives

Guest Editors:
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Contents

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Introduction to the Special Issue *The Social Impact of Metaphor: Cross-Cultural and Linguistic Perspectives* (STUDIES IN COGNITIVE LINGUISTICS 3)

The interdisciplinarity of metaphor studies proves how much there is to say about the pervasiveness of figurative language in everyday life. Studies spanning the humanities (and often beyond that, cf. metaphor in the healthcare context in Turner et al. 2022) include cognitive linguistics, which examines how metaphors shape our understanding and conceptualization of abstract concepts; psychology, with its investigation on the processing and understanding of metaphors; and social sciences, where researchers explore the societal and cultural influence of and on metaphor usage in communication. And communication can be understood cross-linguistically as well: the same conceptual metaphor can be realized differently across cultures and languages, evoking different images and understandings (cf. Yerznkyan & Movsisyan 2023/this volume on metaphors of understanding in English and Armenian). And not only that. Since metaphor has also been considered a rhetorical device meant to elicit certain feelings and influence beliefs, it is safe to assume that metaphors come with what Latané (1981) defines as *social impact*:

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> By social impact, I mean any of the great variety of changes in physiological states and subjective feelings, motives and emotions, cognitions and beliefs, values and behavior, that occur in an individual, human or animal, as a result of the real, implied, or imagined presence or actions of other individuals. (Latané 1981:343)

The social impact of metaphors is perhaps most apparent in the context of situations of extreme importance or evoking strong feelings, not only for global-scale crises like the COVID-19 pandemic or climate change, but also for more personal events like pregnancy loss or the death of a child. The choice of metaphors and the attitudes they represent have significant influence on the perception of the matter due to the transfer of connotations between the source of the metaphor and its target. For example, Reali and Avellaneda (2023/this issue) have shown an increase in the perception of one's agency in the context of war metaphors employed to talk about feminism. When global matters are considered, Semino (2021) discusses the active fire metaphor used to portray the pandemic as something that needed an urgent reaction from society. On the other hand, she observed the confusion that resulted from designating the severity of the situation in various areas of the UK according to traffic light colours. Elsewhere, Paliichuk examined the efficacy of metaphors like BLOCKAGE (Paliichuk 2022) or SPIDERWEB (Paliichuk 2023/this issue) in increasing awareness of the human trafficking crisis. The social impact in such cases is reflected in the public's response to the choice of figurative language; by studying the response to these metaphors, researchers can gain valuable insights into how to engage the public and achieve success in future campaigns tackling pressing social issues. But the social impact of metaphors extends beyond politics and into other spheres of everyday life, like education or law. Figurative language proves to be a tool for conveying meaning in instances such as foreign language learning (Dalpanagioti 2023/this volume) or the translation of legal documents (Järve & Kerremans 2023/this volume), where mutual understanding is not a given but nevertheless crucial. Metaphor scholarship, aware of the power figurative language wields, has a great potential to increase that awareness among other language users because, as Gibbs (2013: 1) puts it, "lovers of language adore metaphor".

This special issue comprises seven papers that examine the complex connection between metaphor, language, and cultural perception in the field of cognitive linguistics. Each paper explores the influence of metaphorical language on cultural and linguistic contexts, highlighting the complex and dynamic nature of language interpretation. These studies provide a comprehensive perspective on the influential role of metaphors in diverse languages and cultures, covering topics such as the translation of metaphorical terms in the EU's multilingual context, and the framing effects of metaphors in media and feminist movements. This issue emphasizes the significance of comprehending language beyond its literal interpretation, exposing its profound influence on thoughts, emotions, and societal attitudes.

The volume opens with **Kätlin Järve** and **Koen Kerremans'** study of the translation of metaphorical terms in the multilingual setting of the European Union. It examines the transfer of metaphorical English terms into Italian and Estonian, specifically focusing on the complexities and strategies involved in this interlingual process. The study employs a descriptive cognitive approach that integrates qualitative and quantitative analysis of data obtained from the IATE terminology database. It aims to provide practical guidelines for language professionals in the fields of term creation and translation, focusing on the substantial influence of metaphorical language in multilingual institutional communication.

Thomai Dalpanagioti's paper examines strategies for improving metaphoric competence in English as a Foreign Language (EFL) classrooms. This study integrates Frame Semantics and Task-Based Language Teaching methodologies to investigate the instruction of metaphor. This study investigates the utilization of metaphors by students in their writing, illustrating a development from unintentional, sporadic instances of figurative language to purposeful, extended metaphors. This paper presents evidence supporting the efficacy of an innovative teaching approach, offering valuable insights into the teaching of metaphors in English as a Foreign Language (EFL) contexts.

Caroline Girardi Ferrari and **Maity Siqueira** investigate the recognition of metaphorical and metonymic mappings in proverbs of Brazilian Portuguese. The study evaluates participants' capacity to recognize the conceptual mappings within the meanings of six proverbs. The research indicates that individuals are capable of recognizing and linking these mappings to proverbs when prompted, although their evaluations differ depending on the specific types of mappings. This study aims to enhance comprehension of the formation and perception of proverbial meanings across diverse cultural contexts.

Josie Helen Siman and **Thiago Oliveira da Motta Sampaio** reexamine metaphor processing, arguing that it is influenced by a dynamic interaction of various factors with shifting importance over time. Rejecting categorical approaches, it proposes a complex systems science perspective, emphasizing the context-dependent, multidimensional nature of metaphor interpretation. This approach considers individual, conceptual, linguistic, and environmental factors, highlighting the non-linear, probabilistic nature of metaphor processing. The paper challenges traditional views in cognitive linguistics, offering a novel framework for understanding metaphor interpretation.

Florencia Reali and **Lucien Avellaneda** investigate the impact of war metaphors on perceptions of feminist causes. Conducted with Spanish-speaking participants, the study uses an experimental design to explore the effects of war metaphors and gender-inclusive language on attitudes towards elective abortion. Results indicate that metaphorical framing influences perceptions of feminism and related issues, such as the right to decide and perceived coldness of the main character. This study contributes to understanding the role of language in shaping attitudes towards feminist movements.

Elina Paliichuk explores the effectiveness of the SPIDERWEB metaphor in media for raising awareness about human trafficking. It examines how different presentations of the metaphor in media texts impact readers' perceptions and reactions, particularly among Ukrainian youth. The study involves an experimental approach with various text manipulations to assess changes in students' perceptions, focusing on their emotional responses and awareness of human trafficking risks. The results suggest that metaphorical framing in media can significantly influence audience understanding and attitudes towards human trafficking.

Yelena Yerznkyan and **Diana Movsisyan** investigate how understanding and evaluation interrelate, focusing on English and Armenian verbs. The paper analyzes the evaluative meaning of collocates, revealing how understanding is emotionally and rationally assessed. The study employs a corpus-driven analysis, identifying patterns in how understanding is metaphorically expressed, and classifies three types of evaluations: emotional, rational, and orientational. This research provides insights into the metaphorical nature of understanding in both languages.

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Challenges and procedures in transferring fully metaphorical terms in the EU's multilingual institutional setting

Abstract. The use of figurative language in European political jargon can pose a significant translation challenge, particularly given the European Union's 24 official languages. This study examines fully metaphorical terms such as *whistleblower, gatekeeper,* and *greenwashing,* aiming to identify issues of interlingual transfer from English into Italian and Estonian – a rare language combination in multilingual terminology research. Following a descriptive, cognitive approach, the research combines qualitative and quantitative observations of terminological data taken from IATE, the terminology database of the European institutions. The objective is to propose a concrete set of procedures that can be put into practical use by language professionals in the processes of term creation and translation. As a result of analysing the way fully metaphorical English terms are rendered, our study identifies five main interlingual transfer procedures. The findings reveal that direct metaphor transfer, the most common method, is not applied when the transferred metaphor would have culture-specific connotations incompatible with the source language's unit of understanding. In such cases, the metaphor may be lost, adapted, changed, or the English term borrowed. The study highlights the importance of well-considered terminological choices in multilingual institutional settings where political decisions have a significant social impact.

Keywords: metaphorical terms, interlingual transfer, IATE, procedures of metaphor transfer, secondary term formation, EU terminology, clear communication.

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1. Introduction

Several authors have demonstrated that metaphor is an important element of term formation (e.g. Volanschi & Kübler 2011; Rossi 2017; Humbley & Grimaldi 2021). This can be explained by the need to denominate complicated, abstract, or novel concepts in an accessible manner, relying on analogy with a more common sphere of life or bodily experience. In other words, since "the essence of metaphor is understanding and experiencing one kind of thing in terms of another" (Lakoff & Johnson 1980: 5), it may be suited to conveying specialised concepts in a way that is understandable for a broad audience. Given the way in which metaphorical conceptualisations can model or even channel thought in a sometimes covert manner (Shuttleworth 2017: 55), this research is based on the assumption that not only metaphorical framing in general but also metaphorical terminology can play a significant role in specialised discourse.

Metaphorical terms are also present in European Union (EU) terminology. This can be observed in both legislative and non-legislative EU texts as well as in IATE[2], the main terminology database of the European institutions. This observation seems at odds with a prevailing claim in traditional terminology theory that advocates using literal terms to ensure clarity and efficiency. Contrary to this prescriptive view, Temmerman (2000: 228), for instance, demonstrated that figurative language, polysemy, and synonymy play an essential role in specialised discourse by improving understanding, perceived as a social construction in a constructivist view of cognition. Moreover, according to Temmerman's sociocognitive approach to terminology, there has been a shift from clearly delineated concepts in traditional terminology theory to prototypically-structured units of understanding. Our current research is likewise based on these premises, which is why we shall use the term 'unit of understanding' in this article instead of 'concept' to emphasise the dynamic nature of conceptual phenomena.

Having worked as a translator and terminologist for the European Parliament for nearly two decades, the first author of this article has closely witnessed the challenges posed by metaphorical terms in a multilingual setting. EU legal acts, policy documents, press releases, and a wide range of other procedural and non-procedural documents meant for in-house or public use need to be available and equally understandable in 24 official languages. As such, how to ensure the equal understandability of metaphorical terminology in all these languages, with their varying cultural backgrounds and structural differences, is a question that frequently arises in the work of translators, terminologists, lawyer-linguists, and other language professionals of European institutions.

This article is unique in that its focus lies on a specific type of terms that are often hard to render, and that is those terms that are fully metaphorical in the source language. According to Meyer et al. (1997: 526), in fully metaphorical terms all components are used

2 The IATE database is available to the public at `https://iate.europa.eu`

metaphorically. Examples include *whistleblower, glass ceiling,* or *greenwashing*. We aim to illustrate the challenges of interlingual transfer in the multilingual EU institutional setting wherein terminological decisions can have a high social and political impact. In doing so, we adopt a descriptive, cognitive approach and combine qualitative and quantitative observations of terminological data in IATE. Considering that nowadays English is the most common source language (SL) for terminology and translation in most European institutions, this study is based on a collection of 65 units of understanding that are lexicalised by means of fully metaphorical terms in English and their equivalents in two target languages (TL): Italian and Estonian. Italian is the fourth most-spoken official language of the EU, and Estonian is a small Finno-Ugric language with only about 1.1 million native speakers.

In Section 2, the research setting and related challenges are described. In Section 3, an overview of relevant previous research is given. Our research method is presented in Section 4. Section 5 is dedicated to the methods of interlingual transfer identified as a result of the study, along with concrete examples. In Section 6, we discuss the findings and delve into several factors affecting the choice of a transfer procedure, such as connotations, the socio-cultural background of the target language, and language policy. Finally, conclusions are drawn in Section 7.

2. Research setting

This research is set in the highly multilingual institutional environment of the European Union. To better understand the practical application of this research, it is necessary first to examine the most recent advancements in communication within the EU.

When Eurobarometer surveys and related studies[3] revealed that citizens' trust in the European institutions had fallen significantly between 2004 and 2015, adjustments to the communication policy were required. More emphasis was put on engagement with citizens, especially in the European Parliament.

Another aspect to consider is the growing attention paid to clear or plain language as it may be called in different countries and institutions. For example, the European Commission launched a *Clear Writing for Europe* campaign[4] in 2010 to promote better drafting. Ever since, several dedicated conferences have been held and numerous booklets have been published. Nevertheless, in a recent analysis of almost 45,000 press releases of the European Commission it was concluded that in the past 35 years the institution has used

3 Exploratory study. Major trends in European public opinion with regard to the European Union. Updated in November 2015. Available at https://www.europarl.europa.eu/pdf/eurobarometre/2015/major_change/eb_historical_deskresearch_en.pdf (accessed on 2.3.2023).

4 More information on the clear writing campaign and related conferences and booklets is available at https://commission.europa.eu/about-european-commission/departments-and-executive-agencies/translation/clear-writing-europe_en (accessed on 9.2.2023).

and continues to use highly complex language, specialised jargon, and a nominal style that obfuscates political action (Rauh 2022: 1).

Given that the texts of the European Union are extremely rich in terminology, clear language in the EU context depends heavily on well-considered use of terminology. Advice such as "Avoid jargon!" or "Keep it short and simple" does not suffice when translating, for example, the Digital Markets Act[5], where one of the key terms is *gatekeeper* (a provider of core platform services). Similarly, as described in the Discussion section below, both the Italian and Estonian language communities had trouble dealing with the term *whistleblower*, which appears in Directive (EU) 2019/1937 on the protection of persons who report breaches of Union law. What is more, these terms appeared in legal texts to which the principle of equal authenticity of language versions is applied, presuming that all authentic language versions are originals and render the same meaning. Even without considering the challenges posed by metaphorical terms, rendering the same meaning is difficult to achieve by multilingual legislative drafting (Doczekalska 2009: 280).

Due to the difficulties in transferring fully metaphorical terms into other languages, many such terms tend to have two, three, or even more term variants in target languages, including both literal and fully or partly metaphorical options. Choosing the term that works best for a certain type of text and target audience is a constant struggle for language professionals. Therefore, greater metaphor awareness might be highly beneficial for them. On the one hand, being aware of how metaphorical reasoning is reflected in specialised language (i.e. how terms can be motivated by analogical thinking) will enable translators to distinguish between metaphorical models that are specific to a language and culture and those that are not (Temmerman 2021: 211). On the other hand, having a general idea of the choice of procedures for metaphor rendering will help them select the strategy best adapted to each specific case, keeping in mind the intended audience. By raising awareness of the importance of well-grounded terminological decisions, EU communication could be improved. Conscious rendering and use of terminology, be it metaphorical or literal, would make it easier for European institutions to reach the citizens and spread their message in line with the clear language principles they advocate.

3. Previous related research

This section provides a summary of related research, which has laid the foundation of the current study in some respects. Due to space constraints, we restrict ourselves

5 Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022, available at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022R1925 (accessed on 9.2.2023).

to studies concerning interlingual transfer[6] and secondary term formation. The latter refers to the process of generating a new term for an established unit of understanding through knowledge transfer to a distinct linguistic community (Sager 1990: 80, cited in Humbley 2000: 1). In the context of our study, this means transposing terms from one language into the other official languages of the European Union, though it should be noted that Sager does not equate secondary term formation with translation. However, there are some parallels in the process (Humbley 2000: 1). In the three main EU institutions, secondary term formation is the task of terminologists, who are typically also involved in translation, while translators and intercultural language professionals also need to transfer terms but are not necessarily trained for such terminology work. Thus, knowledge about metaphor transfer can serve both professions.

Schäffner (2004: 1254–1255) provides a thorough overview of different approaches to the treatment of metaphor as a translation problem, making a distinction between normative models (what a target text should look like) and descriptive models (what target texts look like). Analysing metaphors from the perspective of cognitive linguistics and using examples of metaphorical expressions (e.g. *der Freundschaftsbrücke über den Atlantik*, *Haus Europa*) translated from German into English in political texts, Schäffner refers to cultural differences between the source language and target language as problems for the translation of metaphors (ibid: 1264) and observes that once a metaphor has been brought into the international (political) discussion, it can change when transferred from one language and culture into another (ibid: 1267).

Humbley (2006: 198) uses the example of the fully metaphorical IT term *bootstrap* and its French and German equivalents (resp. *boot/booter* and *Boot/booten*) to demonstrate that secondary term formation by metaphor (i.e. transferring the SL metaphor into the TL) can only be successful on the condition that the source metaphor is shared by the two language communities involved. In this case, the metaphor is lost because no metaphor similar to the underlying expression "to lift/hoist yourself up by your own bootstraps" exists in popular speech in French or German. Humbley also refers to the computer term *Trojan horse* (in German *Trojanisches Pferd* and in French *cheval de Troie*), which could be directly transferred since the original unit of understanding of the Trojan horse belongs to shared European history (ibid: 207). In the current article, the idea that a shared cultural space facilitates metaphor transfer will be illustrated in section 5.1 by the term *Iron Curtain*.

Oliveira (2009) published a thought-provoking study on the nature and functions of metaphor in French and Portuguese medical terminology. The study included a quantitative

6 Although we cannot avoid speaking about translation in this article, we prefer the term 'interlingual transfer' in the context of term formation, given that terms are not translated, but rather equivalents are found in the target language.

comparison of 300 French metaphorical terms (mostly partly metaphorical) and their Portuguese equivalents, which revealed that, in total, three out of four terms made use of the same metaphorical references (Oliveira 2009: 169). Based on an analysis of possible equivalences between these terms, the researcher concludes that the variety of metaphorical references contributes to better understanding (ibid: 184).

A recent major contribution to the subject of metaphors in translation and an inspiration for this study is the work by Shuttleworth (2017). His study is centred on scientific discourse and includes the following six languages besides English: Chinese, French, German, Italian, Polish, and Russian. The study sets out four broad translation approaches (ibid: 67), depending on whether the metaphorical expression has been retained, removed, omitted, or added. In addition to this, and with a deliberate focus on more theoretical concepts from metaphor research, it presents a new list of eleven procedures for translating metaphorical expressions. Worded in a manner that requires in-depth knowledge of underlying theories and related terminology, the list holds more value for theorists than practicians. Besides this, the procedures are intended for translating metaphorical expressions, and not specifically metaphorical terms. A focus on metaphorical terminology and the influence the cultural setting of a particular language community has on translation have been recommended by Shuttleworth as areas for further research (ibid: 191). In what follows, both points will be addressed.

In summary, the current study differs from previous work in that its focus is narrowed down to metaphorical terminology and, more specifically, the relatively rare fully metaphorical terms. The starting point is a collection of fully metaphorical terms gleaned from IATE, one of the largest multilingual termbases in the world, with the aim being to devise a list of procedures geared towards practical application by language professionals, especially translators and terminologists. Another original aspect of the research lies in a novel combination of languages — Estonian has only rarely been included in multilingual terminology-related or metaphor research.

4. Research method

To collect the research data, selected fields of about 10,000 terminological records were exported from IATE and analysed, resulting in approximately 700 metaphorical English terms of which 65 were fully metaphorical. The IATE export targeted English terms belonging to domains of high social relevance, such as the environment, economics, social affairs, employment, politics, IT, and communication. However, since many terms belong to several domains, the list of domains cannot be considered exhaustive. The exported data files featuring several hundred terms and their definitions were inspected one by one.

In the first round of inspection, candidate figurative terms were highlighted, including both fully and partly metaphorical terms, as the latter will be used for further research. In the second round, the main elements of existing metaphor identification procedures

(MIP, developed by the Pragglejaz Group (2007), and MIPVU (Steen et al. 2010)) were used, albeit in a manner adapted to terminology. In short, our method involved the following steps:

1. Split the term into lexical units.
2. Identify the contextual meaning of the lexical units by examining the domain and definition.
3. Determine if there is a more basic meaning of the lexical unit (more concrete, older, precise, or human-oriented). If not, consider the lexical unit to be used in the literal sense. If so,
4. Decide whether the contextual meaning contrasts with the basic meaning but can be understood in comparison with it. If so,
5. Consider the lexical unit metaphorical.

The first phase of analysis resulted in about 700 metaphorical terms. In the next round, fully metaphorical terms were identified. Determining whether a word is being used metaphorically is not a straightforward task, even when considering one's mother tongue, as the process entails a certain degree of subjectivity and presents numerous ambiguous cases (which has also been reported by Hendrikson 2018: 56). To minimise such uncertainties, three native speakers of English were consulted for their insights into the candidate metaphorical terms in question.

Once the collection of fully metaphorical English terms was established, their Estonian and Italian equivalents (all term variants recorded in their respective entries) were added to the table. Next, all the equivalents were marked, based on whether they were fully or partly metaphorical, literal, or borrowed from English.

5. Results

As a result of analysing the collection of fully metaphorical terms, five main procedures for interlingual transfer can be distinguished, some of which substantially coincide with the translation approaches proposed by Shuttleworth (2017) and the translation procedures described by Newmark (1980), though the focus of their research differed.

Table 1 presents a qualitative and quantitative overview of the main interlingual transfer procedures that were applied to render the 65 units of understanding lexicalised by fully metaphorical English terms in IATE[7]. All term variants existing in IATE in the target languages (except for those marked as obsolete, deprecated, or having the lowest level of reliability) have been included in the analysis. Since each unit of understanding can be expressed by several terms in the target languages, the total number of terms in each language varies: for 65 units of understanding lexicalised by means of 74 fully

7 It should be kept in mind that terminology evolves over time, and the examples provided in this study are based on information that was available in IATE and other resources at the time of writing (Spring 2023).

metaphorical terms in English, we identified 85 unique interlingual transfer procedures in Italian and 78 in Estonian, leading to a total of 108 Italian and 91 Estonian term equivalents. The procedures are ranked in the table based on their frequencies (mentioned next to each procedure).

Table 1. Interlingual transfer procedures and their frequencies of appearance

Italian (total 85)	**Estonian (total 78)**
Borrowing the English term (41.2%)	Direct transfer (48.7%)
Direct transfer (28.2%)	Losing the metaphor (28.2%)
Losing the metaphor (20%)	Adapting the metaphor (14.1%)
Adapting the metaphor (5.8%)	Changing the metaphor (5.1%)
Changing the metaphor (4.7%)	Borrowing the English term (3.8%)

In the five subsections that follow, each procedure is described in detail.

5.1. Directly transferring the metaphor

Table 1 shows that direct transfer of the metaphor — whereby the original image is reproduced in the TL — was a common procedure in the Italian and Estonian data. A precondition for this kind of transfer to work is that the SL term is not culture-specific, that the SL and TL share the same cultural space, or that their cultures are close enough to conceptualise it in the same manner.

This procedure is considered the first in order of preference by Newmark who, albeit not strictly talking about metaphorical terms but rather poetic stock metaphors, referred to this as "reproducing the same image in the TL, provided the image has comparable frequency and currency in the appropriate register" (Newmark 1980: 95).

Some examples of direct metaphor transfer can be seen below. Henceforth, asterisks are used to mark terms that have other synonyms available in the termbase, created by the same or other transfer procedures.

Table 2. Examples of direct metaphor transfer into Italian and Estonian

EN term and domain	**IT term**	**ET term**
glass ceiling (SOCIAL)	*soffitto di vetro**	*klaaslagi*
brain drain (SOCIAL)	*fuga di cervelli*	*ajude äravool*
*Trojan horse** (ITECH)	*cavallo di Troia**	*Trooja hobune*

EN term and domain	IT term	ET term
Iron Curtain (POLITICS)	*Cortina di ferro*	*raudne eesriie*
echo chamber (COMM)	*camera dell'eco**	*kajakamber*
greening (ENVI)	*inverdimento**	*rohestamine**

As already noted by Humbley in the context of the French (FR) and German (DE) languages, the computer term Trojan horse (DE: Trojanisches Pferd, FR: cheval de Troie) can be directly transferred since the Greek myth of the Trojan horse belongs to shared European history (Humbley 2006: 207). The same can be said about the term Iron Curtain, used to denote the political boundary dividing Europe into two separate areas from the end of World War II in 1945 until the end of the Cold War in 1991. In this sense, the metaphor rose to prominence in Winston Churchill's Iron Curtain Speech given on March 5, 1946. As the historical reference is well known to many Europeans, the metaphor can be transferred directly into most, if not all, European languages.

5.2 Adapting the metaphor

If the SL metaphor cannot be directly transferred, it may need to be adapted to suit the TL better. The image conveyed by the metaphor thus remains close to the original. This procedure is quite rare in the Italian and Estonian data (cf. Table 1 above).

Some examples of metaphor adaptation have been provided in Table 3 below. Empty spaces mean that another transfer procedure was used for the term and language in question.

Table 3. Examples of terms involving metaphor adaptation

EN term and domain	IT term	ET term
from farm to fork (ENVI) *from farm to table* *from stable to table* *from plough to plate*	*dai **campi** alla tavola** *('from **fields** to table')*	*talust taldrikule (preferred)* *('from farm to plate')* *talust toidulauale* *('from farm to dining table')*
***cherry** picking* (ECON)		***parimate palade** väljanoppimine** *('picking **the best pieces of food**')*
footprint (ENVI)	*impronta ('imprint')* *impronta* **negativa** *('*negative *imprint')*	

EN term and domain	IT term	ET term
handprint (ENVI)	*impronta* ('imprint') *impronta* **positiva** *('*positive *imprint')*	
dumpster diving (ITECH)		***prügisorimine** ('**rummaging in trash**')*

The first example involves a group of terms that in recent years have been used mostly in the context of the European Green Deal and, more precisely, the Farm to Fork strategy for a fair, healthy, and environmentally friendly food system. The English term variants owe their catchiness to assonance, consonance, and alliteration. This has required some creativity from TL terminologists. In the Italian equivalent, the word *fields* has been introduced and *table* has been taken over from English, resulting in a rhythmic repetition of the 'a' sound. The preferred Estonian term combines the words *farm* and *plate*, which form a nice assonance and consonance in the target language.

The term *cherry picking*, which has several figurative meanings in different domains, has been recorded in IATE as belonging to the domains of Economics and Finance, and denoting the practice of selecting only the most favourable items or opportunities. According to Wikipedia[8], cherry picking refers to the childish habit of picking out only the cherries (or other favoured tidbits) from a cake, leaving the rest of it behind. However, cherries do not seem to be the most obvious choice among all things one might be tempted to pick, at least in Estonia. Therefore, in the equivalent Estonian term, the metaphor has been adapted to leave the choice open (*picking the best pieces of food*). In the German term *Rosinenpicken* and in the Swedish term *plocka russinen ur kakan*, cherries have been replaced by raisins. Thus, the image conveyed by the metaphor has been adapted yet remains close to the original. Another popular procedure for transferring this term into other languages is losing the metaphor and rendering the sense by literal means, along the lines of *choice of convenience* or *selective implementation*.

In the example of the terms *footprint* and *handprint*, an adaptation of the metaphor is necessary due to the inherent lexical and structural differences between languages. Namely, Italian and French speakers would more commonly use the general word *imprint*, without specifying the *hand* or *foot* (see Augé 2021: 15–16 for an analysis of the word *empreinte* in French). While a more specific word for footprint exists in Italian (*orma*), and a prepositional group could be used in French to specify the origin of the imprint (e.g. *empreinte de pas*), these options have not been deemed suitable, possibly due to their lower frequency in the target languages.

8 https://en.wikipedia.org/wiki/Cherry_picking_(disambiguation), accessed on 3.2.2023.

5.3 Changing the metaphor

Changing the metaphor was not often observed in the Italian and Estonian data. Let us consider the following examples in Table 4.

Table 4. Examples of terms involving metaphor change

EN term and domain	IT term	ET term
think tank (RESEARCH)	***fabbrica*** *di idee* (*'**factory** of ideas'*) ***serbatoio*** *di pensiero* (*'**reservoir** of thought'*) ***laboratorio*** *di idee* (*'**laboratory** of ideas'*)	*mõtte**koda**** (*'thought **chamber**'*)
gatekeeper (ITECH)		*pääsu**valitseja** (*'access **governor/ruler**'*)
gatekeeping (SOCIAL)	funzione di ***filtro*** (*'**filter** function'*)	

To illustrate the procedure, let us analyse the term *think tank*. Until the 1960s, this term was used to colloquially refer to a person's head or brain. Thereafter, a semantic shift from brain to research organisation occurred, as a research centre based in Stanford University acquired the nickname "the Think Tank" for its high concentration of brainpower (Medvetz 2012: 26). In the EU context, the term denotes a group of people with experience or knowledge of a particular subject who collaborate to produce ideas and give advice. In Italian, three equivalents have been provided in IATE, each featuring a different metaphor: a *factory,* a *reservoir,* and a *laboratory* of thought or ideas. In Estonian, two of the recorded terms are non-metaphorical, back-translated as *expert group* and *expert organisation,* while the third is metaphorical and roughly corresponds to *thought chamber.* Hence, the metaphor that has its origin deeply rooted in American society had to be changed in the European context. The same creative procedure has been employed by other European languages, such as Finnish (ajatus*hautomo* ('thought *hatchery*')), Spanish (*vivero* de ideas ('*nursery* of ideas')), Hungarian (szellemi *műhely* ('intellectual *workshop*')) and Polish (*kuźnia* idei ('a *forge* of ideas')).

This procedure requires the highest degree of creativity from language professionals dealing with secondary term creation. For neologisms, linguists and experts of the domain should work together to propose options, and if possible, term variants could be tested on a few target group members to check for undesirable connotations and misunderstandings.

5.4 Borrowing the foreign term

It is beyond doubt that English can be considered the lingua franca of scientific communication. Terminologists inserting terms into the IATE database witness this first-hand, as these days it is rare to come across a term that has a language other than English as the source language (or anchor language as it is called in IATE). Some examples of term borrowing are given in Table 5 below.

Table 5. Examples of term borrowing from English

EN term and domain	IT term	ET term
bootstrapping (ECON)	*bootstrapping*	*bootstrap*-meetod ('bootstrap method')
*over-the-top** (ITECH)	*over-the-top*	*OTT*-teenused ('OTT services')
*safe harbour** (FINANCE)		*safe harbour*-põhimõte ('safe harbour principle')
catfishing (SOCIAL, ITECH)	*catfishing*	
gaslighting (SOCIAL)	*gaslighting*	
*troll farm** (ITECH)	*troll farm*	
backdoor (ITECH)	*backdoor*	
*greenwashing** (ENVI, TRADE)	*greenwashing*	
painting the tape (ECON)	*painting the tape*	

A large share of terms borrowed from English into Italian belongs to the domain of Information Technology. On the one hand, this could be explained by the total dominance of English in this entire sector. On the other hand, the initial data reveal that the domain of Information Technology and Data Processing (which in IATE belongs to the broader domain of Education and Communications) yields the most significant percentage of fully and partly metaphorical terms compared to the other domains included in the research.

An interesting case is the term *gaslighting*. According to the current records of IATE, most EU languages (except for Estonian, Finnish, Lithuanian, and Spanish) have rendered it by borrowing the English term. However, interlinguistic transfer of this unit of understanding is complicated because it originates from a British play dating back to 1938[9] and refers to the dimming of gas lights, which most people alive today have never experienced.

9 More information on the meaning and etymology is available in Wikipedia at `https://en.wikipedia.org/wiki/Gaslighting` (accessed on 17.3.2023).

5.5 Losing the metaphor

In quite many cases the metaphor cannot be retained, and thus the unit of understanding needs to be conveyed through literal rendering. Let us consider the examples below.

Table 6. Examples of losing the metaphor

EN term and domain	IT term	ET term
level playing-field (ECON)	condizioni di parità* ('equal conditions')	võrdsed tingimused* ('equal conditions')
*red tape** (POLITICS)	burocrazia* ('bureaucracy')	bürokraatia* ('bureaucracy')
gold-plating (EU)	sovraregolamentazione* ('overregulation')	ülereguleerimine ('overregulation')
whistleblowing (EMPL)	denuncia di irregolarità* ('reporting of irregularities')	rikkumisest teatamine ('reporting of a breach')
painting the tape (ECON)		kauplemisaktiivsuse moonutamine ('distorting the trading activity')
greening (ENVI)		kliimat ja keskkonda säästvate põllumajandustavade kasutamine ('using agricultural practices that spare the climate and the environment')

An example of a metaphor that cannot be transferred to other European languages due to cultural differences is *red tape*. According to the Online Etymology Dictionary[10], the term came into figurative use in 1736 in reference to the red tape formerly used in Great Britain for binding up legal and other official documents. Since no such practice seems to have existed in other countries, the metaphor would remain opaque in other languages. Indeed, none of the official EU languages has opted for direct transfer of the metaphor, nor have they found a way to adapt it. The most common solution across the 23 target languages is losing the metaphor entirely and instead rendering the unit of understanding non-figuratively, using words such as *(excessive/unnecessary) bureaucracy* and *administrative formalities*.

Sometimes, the loss of metaphor can result in rather lengthy explicative terms. The environmental term *greening* in Estonian (see Table 6) is an example where the six-word-long, non-metaphorical term was introduced in the context of EU agricultural policy in 2013 and is still considered preferable in official texts, although the one-word-long

10 Online Etymology Dictionary, available at `https://www.etymonline.com/search?q=red+tape` (accessed on 9.2.2023).

directly transferred term (rohestamine – 'greening') has been available since about 2015 and is now recorded as a neologism in the Estonian language portal[11]. Considering the general tendency towards shortening and the catchiness of metaphorical terms, it can be assumed that the shorter metaphorical term will take precedence in coming years.

6. Discussion

The study once again confirms what has been pointed out and exemplified by Temmerman (2011: 115–117): the interlingual transfer of metaphorically motivated terminology is complicated by the asymmetry or anisomorphism between languages due to their inherent lexical and structural limitations. As a result, full equivalence between an original text and its translation is impossible to achieve, even though it may be highly desirable in some processes such as European multilingual legislative drafting.

In this study, we have identified five main procedures for the interlingual transfer of fully metaphorical terms. What distinguishes these procedures from certain broadly similar ones that can be found scattered in previous research is that they apply specifically to fully metaphorical terms. Owing to this research, term creation based on intuition and/or procedures that were not quite intended for metaphorical terminology can be replaced by consciously appraising and weighing the pros and cons of the five methods. What is more, they are easily applicable in practical terminological work in at least two (but presumably many more) target languages without requiring thorough theoretical knowledge from language professionals, whose educational background — in the context of multilingual institutions — inevitably varies.

Admittedly, some compound terms represent a combination of two procedures or a partial application of a procedure. So, for instance, the equivalent of *green shoots* (signs of economic recovery) in Italian is *germogli di ripresa* (*'shoots of recovery'*), which involves a partial loss of metaphor (green) and an addition of a non-metaphorical complement (ripresa – recovery). In total, adding a non-metaphorical component could be observed in seven instances in Italian and thirteen instances in Estonian. Some examples are given in Table 7 below:

11 Sõnaveeb, language portal of the Institute of the Estonian Language, available at `https://sonaveeb.ee/search/unif/dlall/dsall/rohestama/1` (accessed on 9.2.2023).

Table 7. Examples of metaphor transfer with the addition of a literal component

EN term and domain	Transfer procedure	IT or ET term
*revolving door** (EMPL)	directly transferring the metaphor	ET: *pöördukse* **efekt** (‘*revolving door* **effect**’)
cloud (ITECH)	directly transferring the metaphor	IT: *nuvola* **informatica*** (‘**computing** *cloud*’)
gatekeeping (SOCIAL)	adapting the metaphor changing the metaphor	ET: väravavahi**süsteem** (‘*goalkeeper* **system**’) IT: **funzione** di *filtro* (‘*filter* **function**’)
gatekeeper (ITECH)	changing the metaphor	ET: **pääsu**valitseja* (‘**access** *governor/ruler*’)
bootstrapping (ECON)	borrowing the EN term	ET: *bootstrap*-**meetod** (‘bootstrap-**method**’)

The fact that directly transferring the metaphor is by far the most frequently used procedure in Estonian and the second most frequent procedure in Italian is in line with Oliveira’s observation that about 73% of metaphorical cardiology terms have the same metaphorical references in French and Portuguese (Oliveira 2009: 169). The leading position of direct transfer in Estonian also coincides with Newmark’s order of preference, as the first among his seven translation procedures for stock metaphors is “reproducing the same image in the TL” (Newmark 1980: 95). Schäffner (2004: 1256) explains that in equivalence-based approaches, the underlying assumption is that once identified, a metaphor should ideally be transferred intact from SL to TL. She admits, however, that cultural differences between SL and TL can often prevent such an intact transfer (ibid: 1256).

Although it may seem to be the easiest procedure to apply, direct transfer is not free of perils. If chosen without carefully analysing the suitability of the metaphor in the TL, the result will be perceived as an unsuccessful word-for-word translation. In the worst case, when socio-cultural connotations are not considered, a directly transferred TL term can evoke associations totally incompatible with the SL unit of understanding. To exemplify, rendering the term *whistleblower* into Estonian by a direct transfer (vilepuhuja – ‘whistle+blower’) has been considered problematic due to its undesirable negative connotations, whereas the English term was meant to be positive[12]. According to the Estonian branch of Transparency International[13], Estonia’s historical burden (the Soviet occupation) is responsible for the fact that 25% of Estonians refrain from

12 Source: `https://en.wikipedia.org/wiki/Whistleblower` (accessed on 2.3.2023).

13 For more information, see `https://transparency.ee/tohus-vihjeandjate-kaitse` (accessed on 4.3.2023).

reporting wrongdoings for "not wanting to betray others" (compared to an EU average of 19%). What is more, whistling often features in Estonian idiomatic expressions bearing a negative connotation: a crook *whistles on the law* (= ignores the law) or *blows into somebody's beard* (= lies blatantly); one can *see water and whistle* (= have a hard time) or be *met with a choir of whistlers* (= booed)[14]. Since 2022, however, the language authority's opposition to the directly transferred term has decreased due to its wide spread[15]. This demonstrates that metaphorical terms, even if semantically faulty, can gain ground easily with the help of the media. If possible, a thorough analysis should be performed before release to the public.

Heated debates on the term *whistleblower* have also been held in Italy. In 2014, the Italian language authority Accademia della Crusca[16] admitted that there was no word in the Italian lexicon semantically equivalent to the Anglo-American term. For historical, socio-political, and cultural reasons, what the word *whistleblower* designated had not been the subject of specific attention, theoretical reflection, or public debate. Italians, too, were puzzled by the connotative aspect: the translated equivalents proposed on the pages of Italian newspapers as an alternative to the full loan were considered inadequate since they did not guarantee either the denotative or connotative equivalence with *whistleblower*. Having also considered certain non-metaphorical options, the language authority wisely concluded: words do not enter the lexicon of a language and a community's use via imposition from above; only the progress of the debate on the subject and the intensification of public interest in the designated 'thing' will make it possible for a shared linguistic designation to take root. In 2016, Italian terminologist Licia Corbolante commented in her terminology blog[17] on the use of the term in an Italian legal act, stating that occurrences of the anglicisms were found in the draft law yet they disappeared from the final text, in which the term *autore di segnalazioni di reati o irregolarità (author of reports of crimes or irregularities)* was adopted. According to Corbolante, the local media still extensively used both *whistleblower* and *whistleblowing*, often assuming that the reader already knew the meaning. Thus, the example of *whistleblower* in both Estonian and Italian serves to

14 Toomla, S. Tartu Postimees, 5.9.2019, https://tartu.postimees.ee/6769968/keele-terita-ja-vile-voi-lokulaud (accessed on 4.3.2023).

15 According to the Estonian language portal, the directly transferred term was more widely used than its synonyms in the Estonian National Corpus 2021. https://sonaveeb.ee/search/unif/dlall/dsall/vilepuhuja/1 (accessed on 2.3.2023).

16 Torchia, M. C. (Accademia della Crusca). 28.10.2014. Che cosa indica e come si traduce la parola inglese whistleblower? https://accademiadellacrusca.it/it/consulenza/che-cosa-indica-e-come-si-traduce-la-parola-inglese-whistleblower/918 (accessed on 2.3.2023).

17 The blog article is available at https://www.terminologiaetc.it/2013/06/12/significato-traduzione-whistleblower/ (accessed on 2.3.2023).

illustrate the importance of connotations and socio-cultural differences in secondary term formation.

The procedure that results in the loss of metaphor occupies second place in our Estonian data and third place in the Italian data. Van den Broeck (1981: 77, cited in Schäffner 2004: 1256) refers to this as paraphrase (rendering an SL metaphor by a non-metaphorical expression in the TL). A parallel can also be drawn with Shuttleworth's four broad translation approaches, in which "removed" (i.e., removing the metaphorical expression) ranks second after retaining the metaphor (Shuttleworth 2017: 67).

The loss of metaphor substantively corresponds to what Newmark (1980: 97) refers to as "conversion of metaphor to sense" when discussing the translation of stock metaphors. In his view, the procedure is to be preferred to any replacement of an SL image by a TL image which is too wide of the sense or the register (including current frequency as well as the degrees of formality, emotiveness, and generality, etc.). Provided that a parallel can be drawn between the literary metaphors Newmark discussed and the terminological metaphors analysed in this study, it could be deduced that losing the metaphor is better than changing it for another, unsuitable one.

The use of this procedure accounts for the observation that translations are less metaphorical than original texts (Shuttleworth 2017: 187). While in literary texts the loss of a metaphor could at least theoretically and to some extent be compensated by introducing another metaphor at another point in the text, this is not feasible in terminology-rich EU texts.

It can be observed that in Italian, losing the metaphor and borrowing the foreign term often go hand in hand, meaning that both a non-metaphorical and a borrowed term are available and either of these can be used in a text, with the other one in brackets at first occurrence. The fact that in Italian a large number of the analysed terms have two variants recorded in IATE (the anglicism and its non-metaphorical Italian equivalent) may also explain the slightly greater term variation in this language compared to Estonian. In Estonian, the non-metaphorical term is either the only term provided, or it has a directly transferred, adapted, or altered metaphorical alternative, which may be rather new in the language but is likely to gain ground easily with the help of the press. Given that journalists seem to prefer figurative language, and especially if the non-metaphorical term is long and complicated, there is the threat of developing double terminology: "official" non-metaphorical terms for specialists (Eurocrats) and borrowed foreign terms or directly transferred metaphorical terms for citizens. This kind of linguistic divide could further alienate the citizens from political institutions who do not "speak their language", even if it is the same language.

Adapting and changing the metaphor are quite rare procedures in both languages, possibly due to the greater degree of effort and time required. Changing the metaphor bears resemblance to Newmark's second procedure in his order of preference: replacing

the image in the SL with a standard TL image (Newmark 1980: 96). This research demonstrates that in secondary term formation, the SL image can also be replaced by a novel, non-standard TL image, resulting in a neologism. Namely, during the research, the first author had the chance to put the freshly gained insights into practice and test the procedures in an actual term creation process involving the transfer of the term *gatekeeper* into Estonian. *Gatekeeper* is an example of a metaphor that is quite overloaded with meaning and used in several domains, such as healthcare, education, and communication. In 2021, it acquired yet another meaning in the proposal for a Digital Markets Act, adopted in 2022. The preamble of this act explains that a small number of large undertakings providing core platform services have emerged with considerable economic power that could qualify them to be designated as gatekeepers. Some of those undertakings exercise control over whole platform ecosystems in the digital economy. The Estonian equivalent of the term (*pääsu**valitseja*** – *'access **governor/ruler**'*) is a result of lengthy discussions between the lawyer-linguists, terminologists, and translators of the EU institutions, also involving Estonian experts. All five metaphor transfer procedures described in this study were tried out and considered, and a survey was conducted among twelve people participating in the discussion to analyse the positive and negative aspects of each possible term variant, gather information about connotations, and collect suggestions. In the end, it was decided to alter the metaphor in a way that reflects the dominant role of gatekeepers. In doing so, having this debate before the adoption of the legal act helped to avoid disseminating the directly transferred calque *väravahoidja* ('gateholder'), although it had been seriously considered in the initial phases of the legislative procedure.

Quantitatively, the most striking observation of this study is that term borrowing from English is much more common in Italian than in Estonian: in Italian, 35 terms denoting the 65 units of understanding (ca 54% of the terms analysed) have the anglicism as one of the term variants recorded in IATE, while the respective numbers for Estonian are 3 out 65 (ca 5%). Moreover, in almost half of the borrowing cases (17/35), the anglicism was the only term recorded in the respective Italian entry of the termbase.

It is natural that there is always a struggle between the domesticating and foreignising strategies in the process of interlingual transfer. What prevails is possibly determined by language policy and the situation of the language in question. As for Estonian translation policy, it can be considered simultaneously pragmatic and cautious (van Doorslaer & Loogus 2020: 74). Nevertheless, serious concern has been expressed about possible domain loss and the growing pressure to use English in Estonian universities (Nemvalts et al. 2020: 8–15). Unlike Estonians, Italians, with about 85 million native speakers around the world, might not need to worry about the survival of their language in the digital era.

Practice shows that language professionals working in different languages often opt for different procedures when transferring the same unit of understanding. Consider the example of *greenwashing*[18] in Figure 1.

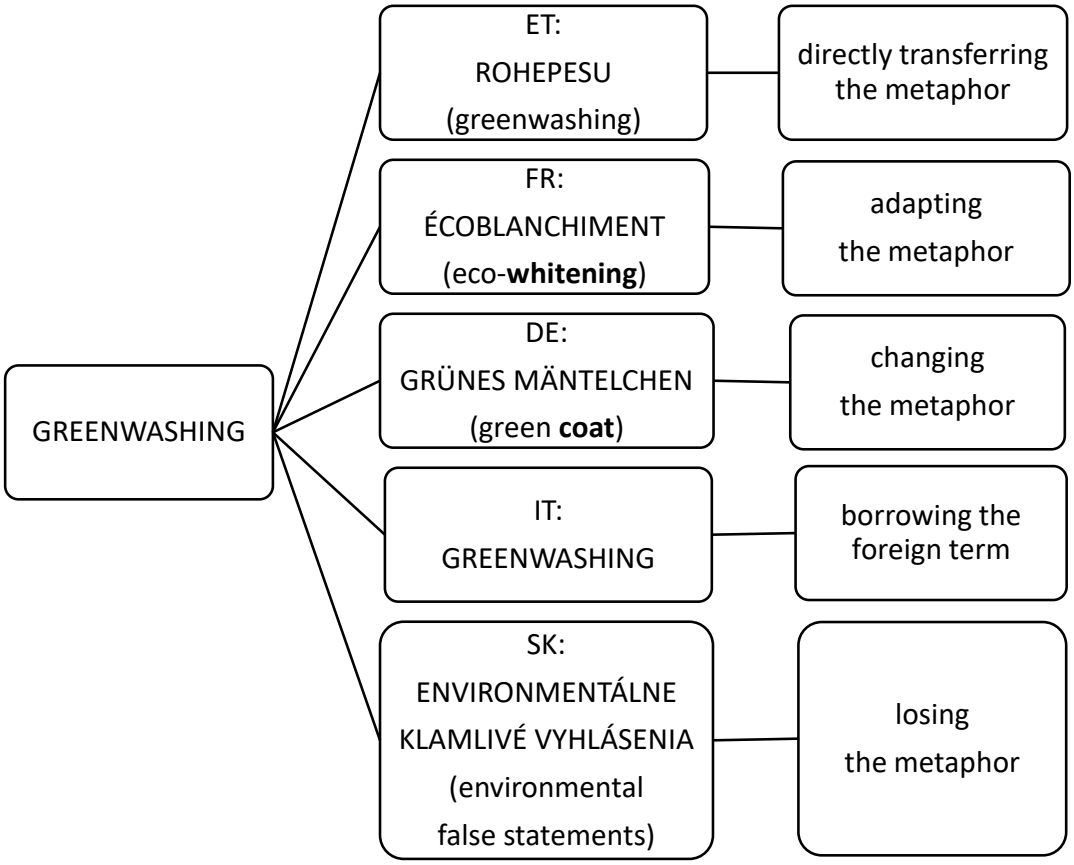

Figure 1. Use of different transfer procedures by different languages

Here, the terminologists of the five languages have all opted for a different procedure. At the same time, it must be noted that often the term has several synonyms in the TL, created by up to three different procedures, as could be observed in our collection of terms. Theoretically, there could even be five term variants in one language, created through all five procedures.

The example of *greenwashing* resonates with Shuttleworth's observation that there appears to be no clear consistency in how individual metaphorical expressions are translated into different languages. According to him, the choices are rather unpredictable: not only do the translators working in the different target languages frequently use different procedures, but individual translators are not always consistent in the way in which they repeatedly translate particular metaphorical items (Shuttleworth 2017: 187).

18 In the Cambridge Dictionary, greenwashing is defined as behaviour or activities that make people believe that a company is doing more to protect the environment than it really is.

7. Conclusions

The study aimed to identify the challenges and procedures of transferring fully metaphorical terms in the EU multilingual setting. Given the setting and the aim of facilitating the work of translators and terminologists, the research was designed to be multilingual. Having witnessed the difficulties encountered by language professionals in transferring terms such as *whistleblower* or *gatekeeper* into the 23 target languages, the authors' objective was to devise a concrete list of procedures that can be used intentionally in the process of secondary term creation or translation.

65 fully metaphorical English terms were collected from the IATE termbase along with their equivalents in Italian and Estonian. Having analysed the transfer mechanisms, five interlingual transfer procedures were identified:

1. Directly transferring the metaphor
2. Adapting the metaphor
3. Changing the metaphor
4. Borrowing the English term
5. Losing the metaphor

It can be concluded that direct transfer of the metaphor, which is the most prevalent procedure for interlingual transfer, cannot be used in cases where the transferred metaphor would have culture-specific connotations incompatible with the source language's unit of understanding. In these cases, the metaphor is either lost, adapted, or changed, or the English term is borrowed. The latter option is much more common in Italian than in Estonian, possibly for reasons related to language policy.

The results were tested in practical terminological work when the term *gatekeeper* had to be transposed into the other official EU languages for the Digital Markets Act. All procedures were knowingly considered in the process of finding a suitable Estonian equivalent to this politically sensitive term. National experts were consulted, and the connotations of term candidates were tested among a small group of language professionals to arrive at a carefully considered decision.

Throughout the study, parallels were drawn with procedures and approaches identified by earlier research, none of which had focused specifically on fully metaphorical terms. Only practical use by terminologists and further research can attest to the robustness of the procedures, which can certainly be described in greater detail, including specifying their subtypes. In addition to this, the results of the study could be consolidated by increasing the number of analysed terms and involving more languages. The next step could be to perform a similar analysis on a collection of partly metaphorical terms.

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Developing productive metaphoric competence through a frame-inspired task-based teaching model

Abstract. The paper reports preliminary findings from applying a frame-inspired task-based approach to metaphor teaching in an EFL classroom. The teaching model used combines Frame Semantics, a cognitive linguistic theory that takes a usage-based view of meaning, with Task-Based Language Teaching, which emphasizes second/foreign language learning through interactionally authentic language use. In this paper we examine students' productions in terms of the amount, type and function of metaphor use with a view to identifying the stages the students went through in developing their metaphoric competence in L2 writing. We illustrate how their metaphor awareness skills seem to develop along a continuum from non-deliberate isolated figurative instances to deliberate extended metaphor used as a conceptual and discursive framework for their writing. We thus provide preliminary evidence for the effectiveness of the proposed frame-inspired task-based approach to metaphor teaching.

Keywords: metaphor production, learner discourse, MIPVU, deliberate metaphor, Frame Semantics, Task-Based Language Teaching.

1. Introduction

Metaphor is a pervasive conceptual, linguistic and discursive phenomenon, and its use and role in education has been explored from various perspectives over the past decades. The importance of metaphor acquisition is emphasized in recent overviews of the relevant literature (e.g., Nacey 2017; O'Reilly & Marsden 2021; Ahlgren, Golden & Magnusson 2021). General statements about metaphorical reasoning being "inherent in human nature" (Nacey 2017: 503) and metaphor "play[ing] a central role in human language" (O'Reilly & Marsden 2021: 25) are supported by more specific references to the

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function of metaphor as mediator when introducing new — often abstract — knowledge, its importance for foreign language learners trying to understand and produce idiomatic language, and its role as a communication strategy at all stages of language learning (Ahlgren, Golden & Magnusson 2021: 196–7). It is thus reasonable to expect that "metaphoric competence" is given a fairly important role in language learning and teaching.

Metaphoric competence generally refers to "the comprehension, awareness, and retention of metaphor in speaking, writing, reading and/or listening" (O'Reilly & Marsen 2021: 26). As Nacey (2017: 504–505) observes, researchers have highlighted different aspects of this general concept by defining it in terms of "a number of skills" for competent L2 users (Low 1988: 129) or in terms of four components "(a) originality of metaphor production, (b) fluency of metaphor interpretation, (c) ability to find meaning in metaphor, and (d) speed in finding meaning in metaphor" (Littlemore 2001: 461), or by focusing on its conceptual aspect (Danesi 1994) or its linguistic (collocational) aspect (Philip 2006). Metaphoric competence has been demonstrated to contribute to all areas of communicative competence, including grammatical, textual, illocutionary, sociolinguistic, and strategic competence, and is a core ability for L2 learners (Littlemore & Low 2006).

Nevertheless, metaphor is still not well represented in the Common European Framework of References for Languages (CEFR) or in textbooks, which is a major obstacle to incorporating figurative language in instructional programmes (MacArthur 2017: 418; Nacey 2017: 510; Ahlgren, Golden & Magnusson 2021: 197). Finding ways to develop metaphoric competence is still an open question and stimulated the classroom intervention reported in this paper. Another gap addressed in this study concerns L2 metaphor production. As Nacey (2019, 2022) points out, "snapshot" views of productive metaphoric competence are usually offered, while how it develops as L2 learners' proficiency grows is so far poorly investigated.

In this context the present paper takes the EFL teacher's perspective in implementing a special approach designed to teach metaphor use in discourse and explores its effect on L2 learner texts as the course of study progresses. The texts under study belong to the descriptive-narrative genre, which has not been examined in terms of learners' productive metaphoric competence as much as the argumentative genre (e.g., Nacey 2013; Lu 2021). The frame-inspired task-based approach to metaphor teaching and learning, which constitutes the background of the study, is outlined in the next section. What follows is the report on the study, which consists of three parts: we first present the teaching context where five specially designed lesson plans were implemented to develop EFL learners' metaphoric competence; we then explain the method used for analyzing learners' written productions in terms of metaphor; lastly, we provide an overview of metaphor use in learners' productions by discussing the extent, type and function of metaphor use, and illustrating the different stages of its development. By way of conclusion, we link this paper to a wider project investigating the effectiveness of the proposed frame-inspired task-based approach to metaphor teaching and learning.

2. Background

This study is situated within the context of implementing a frame-inspired task-based approach to metaphor teaching in EFL instruction. This approach brings together Frame Semantics and Task-Based Language Teaching (TBLT), both of which offer usage-based perspectives on language and language learning, respectively.

On the one hand, the main assumption of Frame Semantics is that words must be grouped and explained in relation to "(semantic) frames". Fillmore (1982: 111) has defined "frame" as "any system of concepts related in such a way that to understand any one of them you have to understand the whole structure in which it fits". A frame is a structured body of encyclopaedic knowledge and consists of specific "frame elements" (FEs), i.e., the "various participants, props, and other conceptual roles" involved in the schematic representation of a situation (Fillmore & Petruck 2003: 359). Frame Semantics links these situation-specific semantic roles to their syntactic realizations, thus explicitly linking the semantic and combinatorial features of words. The appeal of Frame Semantics is that it amalgamates the conceptual and contextual levels of knowledge representation. Two projects are relevant in this respect for English, the Berkeley FrameNet project (`https://framenet.icsi.berkeley.edu/fndrupal`), which describes frames and shows how FEs are realized in corpus-derived sentences, and the MetaNet project (`https://metanet.arts.ubc.ca`), which views metaphors as mappings between semantic frames.

On the other hand, TBLT is an approach to second/foreign language teaching that relies on authentic language use in meaning-based, communicative tasks. It is considered a strong form of Communicative Language Teaching and has various versions determined by the focus on incidental or intentional learning and the teacher's/students' role (East 2021). A TBLT framework that incorporates both incidental and explicit learning processes has been proposed by Willis (1996). In this framework a "task" is defined as "a goal-oriented activity in which learners use language to achieve a real outcome" and a lesson is organized in three phases, i.e., pre-task, task cycle and language focus (Willis 1996: 38). More precisely, in the pre-task phase learners take part in a short preliminary activity that prepares them for the main task by making them think about a topic (a situation, a context), recall related language and develop expectations about the objectives of the lesson. The main part of the lesson is the task cycle, which consists of three stages, i.e., task (learners work on a meaning-focused task in small groups), planning (learners prepare to report on the task to the whole class), and report (each group presents its report to the whole class). Lastly, the language focus phase has two components: analysis (i.e., consciousness-raising activities) and practice on the language forms noticed in the analysis stage.

Presenting details about each of the two frameworks lies outside the scope of this paper, as this has been done in previous studies (Dalpanagioti 2021, 2022a, 2022b), which justify the compatibility of the two models, point out what each model can gain from

this integration, and provide illustrative lesson plans. To sum up, what lies at the core of this integrated approach is meaningful, contextualized language use, since both models capture both situational and linguistic contexts, thus maximizing opportunities for highlighting conceptual and lexico-grammatical patterns in a communicative setting. In theory, such an approach is expected to raise learners' awareness of not only the form and meaning of metaphors, but also, most importantly, their use in discourse. What the present study aims to do is examine whether this expectation is met in practice by considering learners' actual production. To this end, we take account of Steen's (2008) three-dimensional model of metaphor, which captures the linguistic, conceptual and communicative properties of metaphor and its basic functions of "naming" (linguistic function), "framing" (conceptual function) and "perspective changing" (communicative function). This three-dimensional model has become known as Deliberate Metaphor Theory (DMT), which sees metaphor not only "as the linguistic expression of an underlying metaphorical structure in thought, but also as a matter of communication between language users" (Reijnierse 2017: 22).

DMT draws attention to "the intentional use of metaphors *as* metaphors between sender and addressee" (Steen 2017: 1) and has triggered much discussion about the concept of "deliberateness" and its implications (Di Biase-Dyson & Egg 2020). The central feature of deliberate metaphor is the prominence of the source domain in the interpretation of the metaphor, with the consequent creation of a new perspective on the target domain. Taking a semiotic perspective, Reijnierse et al. (2018) define a metaphor as "potentially deliberate when the source domain of the metaphor is part of the referential meaning of the utterance in which it is used" (p. 136). In practice, the identification of deliberate metaphors is not straightforward, since they do not constitute a uniform class and there is no exhaustive checklist of deliberateness markers (Di Biase-Dyson & Egg 2020: 7). The examples discussed in the relevant literature show cases of conceptually novel but also conventional metaphors, linguistically expressed by direct as well as indirect metaphors, to be identified as potentially deliberate metaphors in discourse. That is why this study takes a bottom-up approach to data of learner discourse and investigates the development of metaphor use across a series of frame-inspired task-based lessons.

3. The study

3.1. Setting

The proposed frame-inspired task-based approach to metaphor teaching was implemented in an EFL course at a Greek university. The participants in the study were first-year students majoring in English and taking a mandatory course aimed at developing students' EFL skills through a focus on the descriptive/narrative genre. For the purposes of the course, students were divided (alphabetically) into small groups of about 25 participants

and continuous assessment was employed. One of the learning outcomes of the course was to improve students' writing skills in this particular genre, and therefore one of the assessment methods used was writing short descriptive/narrative texts on a weekly basis as well as two essays. Previous teaching experience in this course has shown that, although metaphors run through the reading materials used in the course, students' use of metaphors in their own productions was limited. Motivated by this observation, I designed learning materials based on the proposed approach and used them with one group of students.[2] Students' level of proficiency in English upon entering this university department is usually B2+/C1 (CEFR), and this was the case with the specific group that participated in the study, as measured by the Oxford Placement Test.

Five frame-inspired task-based lesson plans were designed and implemented in the context of the EFL course described above. This implementation was, in fact, a pilot study for testing the procedure and resources used, and gathering information about the effectiveness of the proposed approach and the designed materials. The topics of these lessons were the following: life stories, film/book reviews, experiences of illness and disease, natural disasters, and iconic monuments. Providing an overview of the lessons, Table 1 shows how they were structured in terms of TBLT and what each stage involved, how frame semantics was used in each stage, and what tasks learners primarily worked on. From the teacher's perspective, metaphor is approached in its three dimensions – linguistic, conceptual and communicative– through authentic pieces of discourse. Each lesson starts by inviting learners to identify the communicative function of a conventional metaphor systematically realized in a naturally occurring (written or oral) text and to relate the conceptual link to their own experiences. During the task cycle learners are encouraged to take fresh and interesting viewpoints in their descriptions (pointing to the communicative function of metaphor), but they are not explicitly asked to use specific linguistic or conceptual metaphors; these are incidentally encountered while searching for information on the Internet. Lastly, in the language focus phase learners' attention is drawn to the linguistic realization of frames and the conceptual metaphor involved, while they also have the opportunity to practise using metaphor more creatively to effect a deliberate change of perspective.

In order to investigate the learner's perspective, three types of data collection tools were used: (a) students' texts produced during the main task of each lesson (see the "Task cycle" column in Table 1), (b) students' essays produced at the end of the course, (c) focus group interviews giving access to students' attitudes, opinions and

2 The participants provided their written informed consent to participate in this study.

Table 1. An overview of the frame-inspired task-based lessons

Lesson stages	Pre-task	Task cycle	Language focus
Task-based learning	Introduction to topic and task	• Doing task in groups by searching for information on the Internet • Preparing for report • Giving report to class	• Analysis • Practice
Frame semantic insights	Activation of frame(s)	Involvement in the frame(s) and incidental encounter with FEs	Linking FEs to lexico-grammatical items
Metaphor dimension prioritized	communicative, conceptual, linguistic	communicative	linguistic, conceptual, communicative
Lesson 1: Life story	Speaking activity on the famous phrase "life is a journey"; students examine a website with relevant quotes; they talk about whether they think of their experiences as being different parts of a journey.	Students are asked to propose a "genius" for National Geographic's anthology series. Each group justifies their suggestion by describing his/her life story. In the end, they decide which group has presented the most interesting life story.	Analysis: text with highlighted verbs instantiating the metaphor LIFE IS A JOURNEY; students use FrameNet to identify source, path, goal FEs in the text. Practice: controlled activity on linking lexical items with frames; guided activity on writing sentences using the Motion frame to describe someone's life; communicative activity in pairs talking about the life of a person who is important to them.
Lesson 2: Film/ book review	Speaking activity based on two short extracts from reviews of the *The Lord of the Rings* book series and movies. Students talk about how emotions created in readers/viewers are described in these reviews.	Students are asked to choose a book, film or play that has left an impression on them and prepare a short review. In the end, they decide which one was the most persuasive review.	Analysis: extract from a film review with highlighted lexical items; students use FrameNet to identify the frames evoked and notice what they have in common; students use MetaNet to understand the metaphor (CONTROL IS MANIPULATION) that motivates the use of the highlighted items. Practice: controlled activity on matching extracts from reviews with the frames exploited metaphorically; guided activity on identifying extended metaphors in movie reviews on a specific website; communicative activity in pairs writing one-sentence movie reviews to be included in the same website.

Lesson stages	Pre-task	Task cycle	Language focus
Lesson 3: Describing experience of illness and disease	Speaking activity based on a video that talks about and visualizes a city's fight against COVID-19. Students talk about whether they think of their experiences with illnesses in relation to war.	Students are asked to report on how the world has fought against the COVID-19 pandemic with a view to creating a leaflet. They consider different countries and different perspectives (e.g., doctors', patients', politicians').	Analysis: text with highlighted lexical items referring to disease literally and metaphorically; students use MetaNet to understand the underlying metaphor (DISEASE TREATMENT IS WAR) and identify other metaphors in the text. Practice: controlled activity on filling the gaps in a text (about a patient's experience with cancer) with words from MetaNet's entry for the War frame; guided activity on using a different source frame to write a hopeful quote to inspire people who experience a chronic disease; communicative activity about their hopeful quotes.
Lesson 4: Natural disaster description	Speaking activity based on two videos describing a hurricane. Students discuss a news report and a survivor's report, both of which personify the hurricane as a monster.	Students are asked to prepare a report about the 2004 Indian Ocean tsunami. They consider news reports and survivors' stories.	Analysis: extracts from news articles (about a hurricane) with highlighted lexical items; students use FrameNet to identify the frames evoked and MetaNet to understand the metaphors (NATURE IS AN AGENT and ACTION IS MOTION ALONG A PATH) that motivate the use of the highlighted items. Practice: controlled activity on filling the gaps in a text (about a hurricane experience) with words from FrameNet's entry for the Cause_harm frame; guided activity on writing headlines using metaphors from MetaNet; communicative activity in pairs talking about a natural disaster experience.
Lesson 5: Monument description	Speaking activity about how the Eiffel Tower has been described by two visitors. Students compare the two descriptions, both of which personify the Eiffel Tower as a lady.	Students are asked to choose a famous monument and describe it from a fresh viewpoint. In the end, they decide which one was the most vivid and interesting description.	Analysis: text with highlighted lexical items referring to Big Ben as an old man; students use MetaNet to understand the metaphor (MACHINES ARE PEOPLE) that extends over the whole description and to identify the metaphoric mappings. Practice: controlled activity on filling the gaps in a text (about the Taj Mahal) with words from FrameNet's entry for the Light_movement frame; guided activity on writing titles using metaphors from MetaNet; communicative activity about reconsidering the descriptions the groups presented.

suggestions. This paper focuses only on the data collected through the first source, i.e., the short descriptive/narrative texts produced during the task cycle of each lesson, for which students worked in groups of four for 20–30 minutes.[3] We thus compiled five sub-corpora (of 600–650 words each) corresponding to the five lessons. By annotating them in terms of metaphor use (in the way explained in the next section) and comparing the results, we monitor the development of students' productive metaphoric competence during the course.

3.2. Method

The goal of this paper is to examine students' productions in the five sub-corpora in terms of the extent, type and function of metaphor use with a view to identifying potential patterns of development in L2 productive metaphoric competence. To this end, MIPVU was used as a tool for identifying metaphor-related words (MRWs) in natural discourse; this is a refined and extended version of MIP ('Metaphor Identification Procedure') and the procedure has been outlined in Steen et al. (2010). The core principle of MIPVU is to compare the contextual meaning of a target word with a more "basic" or concrete meaning it has in other contexts and look for a relation of comparison. The unit of analysis in MIPVU is the lexical unit (LU), rather than the word; although LUs are generally orthographic words, some lexical units contain more than one word (e.g., compounds, phrasal verbs, multiword expressions). To identify LUs in the texts under study, we followed the guidelines provided by Steen et al. (2010: 27–32) as well as Nacey et al. (2019: 43–46); for example, we consulted the *List of Multiwords and Associated Tags in BNC2,* and if a particular expression was on that list it was counted as a single LU. We also consulted online versions of *Macmillan Dictionary* and *Longman Dictionary of Contemporary English* to establish the basic meaning and contextual meaning of each LU and to minimize subjectivity in doing so.

Following the MIPVU protocol, we identified both 'indirect' and 'direct' linguistic metaphors in students' productions.[4] In the former case, the indirect use of a word "may potentially be explained by some form of cross-domain mapping from a more basic meaning of that word", while in the latter case "an underlying cross-domain mapping is triggered through 'direct' language use, where there is no contrast between the basic and contextual senses" (Steen et al. 2010: 25–26). An example of an indirect metaphor is provided in (1); the basic (concrete, physical) meaning of the verb *raise* is "to put something

3 The five lessons took place in a lab so that students could search for information on the Internet during the task cycle and compose their texts by collaborating on a Google Doc.

4 Implicit metaphor (Steen et al. 2010: 26) was excluded from metaphor identification in this study. We should also note that the prepositions *of, for* and *with* were not considered for metaphoricity, because their basic sense is not easy to discern (Nacey 2013: 207, 2019: 194).

in a higher place or position" (the first sense in the *Macmillan Dictionary* entry), while the contextual meaning of the verb in this example is the dictionary's fifth sense "to make someone have a particular feeling or reaction". These two senses are sufficiently distinct –since they are represented by different sense divisions in the dictionary– and are also related through comparison whereby we understand the creation of an emotion in terms of physical movement to a higher location. By contrast, in example (2) we find a simile, which is signalled by a metaphor flag (MFlag), i.e., *like*. The following compound (annotated as a single LU) is a direct metaphor because there is no distinction between its basic and contextual sense, even though there is clearly an underlying conceptual metaphor, since what is described is a tsunami rather than a plane. To understand this sentence, which directly evokes an alien source domain unrelated to the topic under discussion, we need to set up a cross-domain comparison between the referents of the words in the text. All lexical words in the simile are direct metaphors; that is why the two instantiations of *louder* have also been marked as MRWs.

(1) This movie **raises**[MRW] sentiments about friendship, kindness, acceptance. (from the 'Film/ book review' sub-corpus)

(2) There was a noise ***like***[MFlag] a **jet engine**[MRW] becoming **louder**[MRW] and **louder**[MRW]. (from the 'Natural disaster description' sub-corpus)

The MIPVU method can be applied only to linguistic metaphor and it is emphasized that the identification of the conceptual structures and communicative functions of the metaphorically used words should be a separate step in the process of metaphor analysis (Steen et al. 2010: 63, 109). Among the two higher levels of analysis, we focus on the level of communication by using the Deliberate Metaphor Identification Procedure (DMIP).[5] Building on MIPVU, DMIP has been proposed for determining the communicative value of MRWs as either deliberate or non-deliberate cross-domain comparisons (Reijnierse et al. 2018: 136–137). To illustrate DMIP, we shall reconsider the MRWs in (1)–(2) in light of the question "Is the source domain of the MRW part of the referential meaning of the utterance in which the MRW is used?" (ibid.: 136). It becomes clear that *raise* in (1) constitutes a case of non-deliberate metaphor, since there are no cues that make the movement-to-a-higher-position source domain stand out, whereas the MRWs in (2) are cases of potentially deliberate metaphor. Following (Reijnierse et al. 2020: 21–25), we take account of co-text which provides evidence that the MRWs in (2) function *as* metaphors in the communicative dimension of metaphor. More precisely, (2) contains an explicit comparison signalled by means of the preposition *like* in the immediate co-text of *jet engine*; the comparison is further elaborated by the two instantiations of *louder*, but their

5 Conceptual metaphor identification involves separate complex procedures (see, e.g., Steen's (2011) five-step procedure and Ahrens & Jiang's (2020) source domain verification procedure), which are not employed in this study.

direct metaphorical use is not signalled (for direct metaphor without metaphor signal, see VisMet — http://www.vismet.org/metcor/documentation/relation_to_metaphor.html). Besides the immediate, the wider co-text contributes to the identification of potentially deliberate metaphor when several metaphorical expressions appear in consecutive sentences and evoke the same source domain to describe the same target domain (Reijnierse et al. 2020: 25–30); relevant examples of extended metaphor from students' texts are discussed in the following section.

On the whole, we coded metaphors in our learner corpus at the linguistic level (using MIPVU) and at the communicative level (using DMIP),[6] and collected both quantitative and qualitative data that show how learners' metaphorical production developed during the implementation of five frame-inspired task-based lessons. The underlying assumption is that learners' language proficiency grows during the semester with increased L2 exposure, and instructional and learning opportunities. The overall goal of the study is to shed light on how metaphorical production changed as learners progressed through the semester. Three research questions are addressed in this paper:

1. Does the amount of metaphor produced in L2 writing vary across the pilot lessons?
2. Do the types of metaphor produced in L2 writing vary across the pilot lessons?
3. How does the role of metaphor evolve in learners' texts?

3.3. Findings and discussion

This section discusses findings for each of the study's research questions. On the one hand, we provide a quantitative picture of metaphor use in the students' texts per lesson in Table 2. On the other hand, we illustrate qualitative changes by presenting sample extracts from the students' productions per lesson. The size of the learner corpus under investigation is 3,200 words, corresponding to 2,915 LUs;[7] it is composed of 25 student texts organized in five sub-corpora according to the lesson in which they were produced.[8]

Students' texts were first analyzed for their metaphor density, using MIPVU to determine the metaphorical status of each of the LUs in the corpus. Metaphor density is calculated as "the number of metaphors per total number of lexical units in the sample" and highly depends on the consistent demarcation of LUs (Nacey et al. 2019: 43). Calculations of metaphor density were carried out for each text taking individual text length into account and are presented in the Appendix. Table 2 shows mean, standard deviation, and

6 In this small-scale pilot study metaphor codings were provided by one researcher. However, the coding of several samples from the data was discussed in the cognitive linguistic reading group of the university department where the study was conducted.

7 As explained in the Method section, the lexical unit (LU) is the unit of analysis in MIPVU and doesn't always correspond to the orthographic word.

8 As explained in the Setting section, student texts are the result of group work during the task cycle of each lesson. The 25 students worked in the same groups of five.

minimum and maximum values in the metaphor density of each sub-corpus. The mean values indicate a gradual increase in metaphor density in the first four lessons (starting at 7.16% in the first lesson and reaching 11.58% in the fourth one)[9] and a sharp rise in the last lesson (20.14%). The latter figure should be interpreted with caution in light of the standard deviation, which indicates high variation within the student texts produced in the last lesson. If we consider the properties of these texts in the Appendix, we realize that the metaphor density of three texts (ST21, ST23, ST25) is particularly high due to the occurrence of direct metaphors stretching over several lines and making it necessary to code many lexical items as MRWs. On the whole, there is an increasing trend in the amount of metaphor produced, which should be seen in relation to a qualitative shift in the types of metaphor produced across the pilot lessons.

As regards word class, both the collective data in Table 2 and the individual counts per text in the Appendix show that open-class and closed-class MRWs are of about the same amount in the first lesson and then, as the semester progresses, the number of open-class MRWs clearly increases, while the number of closed-class MRWs slightly decreases. This observation is in line with studies reporting an increase in the metaphor density of open-class words as proficiency increases (see, e.g., Nacey 2019: 196), although it should be noted that this trend is not supported by other studies (see, e.g., Nacey 2022: 285). Conflicting results in this respect underline the need for collecting more data on the behaviour of open- and closed-class metaphors based on larger-scale studies.

9 Metaphor density depends on register; for example, Steen et al. (2010: 195) report metaphor densities of 17.5% for academic texts, 15.3% for news, 10.8% for fiction and 6.8% for conversation. Although metaphor densities of this study cannot be directly compared to these figures, which do not focus specifically on the descriptive/narrative genre, we can see that there is a similarity to the figures of the "news" and "fiction" text types, which usually include descriptions and narrations. However, what is more important in this study is to compare metaphor densities for the sub-corpora under examination with each other to see how they develop throughout the course.

Table 2. An overview of metaphor use in students' productions

Students' texts per lesson			Metaphor Density (%)				Word class		Metaphor_Language			Metaphor_ Communication	
	LUs	MRWs	Mean	Standard deviation	Minimum	Maximum	Closed-class MRWs	Open-class MRWs	Metaphor Flag	Direct metaphors	Indirect metaphors	Deliberate metaphors	Non-deliberate metaphors
Lesson 1: Life story	613	44	7.16	3.64	3	10.6	20	24	0	0	44	0	44
Lesson 2: Film/ book review	606	56	9.14	2.98	5.1	13.3	14	42	0	0	56	5	51
Lesson 3: Describing experience of illness and disease	569	64	11.06	2.46	7.4	13.7	18	46	2	4	60	12	52
Lesson 4: Natural disaster description	570	69	11.58	4.82	6.3	17.3	12	57	9	36	33	37	32
Lesson 5: Monument description	557	110	20.14	8.36	8.6	29.3	11	99	5	70	40	84	26

The rest of Table 2 is divided into two parts on the basis of the level of metaphor analysis: metaphor in language and metaphor in communication. At the linguistic level, there is an exclusive use of indirect metaphor in the texts produced in the first two lessons, but in the following lessons direct metaphors gradually appear. The expansion of learners' repertoire of metaphors points towards increased awareness of metaphor use. This observation is further supported by the pattern of metaphor development at the level of communication. What can be clearly seen in Table 2 is a steady rise in the number of deliberate metaphors, which is related to a shift in the function of metaphors in learners' texts.

On the whole, based on both the collective data in Table 2 and the individual counts per text in the Appendix, we identify two main stages in the development of learners' metaphoric competence in EFL writing in the context of the frame-inspired task-based intervention. The first stage is quantitative and manifests itself as an increase in the number of metaphor related words; this is evident not only in the mean metaphor density percentages in Table 2, but also if we compare MRW% values in the texts produced by each group of students across the lessons (e.g., compare MRW% in ST1, ST6, ST11, ST16, ST21, i.e., the texts produced by the first group of students). Slight discrepancies like the second group's ST17, the third group's ST13 and the fourth group's ST19 do not disturb the increasing trend in metaphor density. It should be noted at this point that such discrepancies provide an important reminder about the value of considering individual texts and not just bulk data. Overall, it seems that students start to realize the role of metaphor in description/narration and produce more metaphors of that type that is most frequently encountered in discourse, i.e., indirect conventional metaphors. The second stage is qualitative and concerns the production of additional types of metaphor (see the counts of direct metaphors in Table 2). As shown in the Appendix, all five groups experiment with direct metaphor in the fourth lesson, while three of them choose to build their texts on direct metaphors in the fifth lesson. As the lessons progress, learners produce texts containing more instances of deliberate metaphors and they seem to exploit metaphor in a more systematic manner to better serve the communicative purpose of the texts.

To explore the function of the observed metaphors, we should look beyond quantitative measures and consider sample extracts from students' productions. For each lesson we provide two samples from students' texts produced through group work in the task cycle. To visualize patterns of metaphor use in learners' productions, we use colour to differentiate among the types of metaphor at the level of language and underlining to mark deliberate metaphors at the level of communication. In extracts (3)–(12) the following coding is thus used: indirect metaphor; direct metaphor; metaphor flag; deliberate metaphor.

(3) Despite his serious health problem, Stephen Hawking managed to pursue a career in physics and become the most distinguished scientist of his time. Through his

success, he broke stereotypes and inspired many people to surpass their limits and reach new heights.

(4) Vincent Van Gogh managed to shape a whole era with his artworks, that posthumously became successful, despite the many hardships he went through. One might be surprised when they hear that Van Gogh was fighting with severe depression and struggling to climb out of poverty his whole life.

More precisely, as sample texts from the first lesson in (3) and (4) show, metaphor is mainly found in prepositions and collocations. As B2+/C1 learners, they use verbs that conventionally appear in the context of *career, stereotypes, hardships,* etc., and there is no evidence of deliberate metaphor use. However, from the second lesson onwards metaphors with a special role start to appear.

(5) An emotional roller coaster of a movie about man's best friend that will leave you considering the meaning of friendship and devotion. [...] The spiritual aspect of the film offers an interpretation of grief that transcends species: humankind and animals both grieve deeply. *Hachiko* paints a mural of friendship and loyalty that surpasses the boundaries of life and death.

(6) The story follows Leonardo DiCaprio, the main protagonist, whose job is to steal information by invading his targets' minds, infiltrating their subconscious. This intense movie keeps you on your toes with the rising suspense and the epic visuals. As you keep diving into the deepest parts of the human subconscious throughout the movie, you begin to wonder more and more about what is real and what's a projection of the mind.

For example, in (5), besides the common indirect conventional metaphors, we find an interesting case of metaphor manipulation used for conveying the writers' opinion on the film reviewed (evaluative effect). They have changed the conventional metaphorical collocation *paint a picture (of something)*[10] into *paint a mural*, thus making the source domain of drawing play a role in the referential meaning of the utterance. This collocational deviation is evidence of increasing metaphoric competence, although it is "a risky strategy for L2 learners, whose potential linguistic creativity may be taken for linguistic error" (Nacey 2019: 195). As regards (6), a sample from the second lesson as well, it has been chosen for two reasons: (a) it illustrates Reijnierse et al.'s (2018: 135) argument that conventional metaphor should not be equated with nondeliberate metaphor, and (b) it represents an early (and isolated) attempt to create an extended metaphor, i.e., "multiple metaphor-related words expressing the same source-target domain mapping" (ibid.: 135). A number of LUs (*invading*, *infiltrating*, *diving into*, *deepest*) in the extract display a contrast between the target domain meaning of gaining mental control and a source

10 The collocation is recorded under both *paint* and *picture* entries in the *Macmillan Dictionary* in sense description 3 and 2, respectively.

domain meaning of physical movement into a place. Although a conventionalised target domain meaning is available for these items in the dictionary, they are potentially deliberate metaphors because their concentration arguably draws attention to the source domain and creates a dramatic effect.

(7) Doctors in India struggle in the brutal battlefield that the COVID-19 crisis presents. Dealing with little to no rest and pay, as well as staff shortages, Indian doctors battle ceaselessly on the front lines. Thousands of them have lost their lives, leaving the rest frightened and exhausted. All of them are heroes in the war against COVID.

(8) The Greek government took proactive measures to ensure the health and safety of its citizens. Some successful battle strategies to beat COVID-19 were that schools were ordered closed and carnival parades were canceled. Greece imposed severe social distancing measures at a much earlier stage of the epidemic than other southern European countries in order to win this battle.

In the third lesson there are more instances of using several MRWs in close proximity expressing the same cross-domain mapping with a dramatic/rhetorical impact. In (7) and (8) the underlined items (i.e., *struggle, battlefield, battle* (v), *front lines, war, battle* (n), *beat*) display a contrast between their contextual meaning related to the Covid-19 pandemic and a basic meaning related to war; the two sense descriptions can be compared, making the LUs metaphorical at the linguistic level. For each of the underlined items there is a conventionalized metaphorical meaning in the dictionary that matches the target domain of the utterance, and if examined in isolation they would not be identified as metaphors at the level of communication. However, when analysed in its surrounding co-text, it becomes clear that each one of these MRWs is part of an extended metaphor that stretches over consecutive sentences, encouraging readers to map the war experience onto Covid-19 pandemic experience stirring up their emotions. At this point we should note that this is a conventional extended metaphor reflecting the dominant military imagery used to describe a less tangible problem, especially at the beginning of the pandemic (see, e.g., Semino 2020). Since War metaphors draw from basic, embodied, sensorimotor experiences and are frequently found in communication about difficulties (ibid.: 51), it was easy for learners to extensively use this scenario to talk about the pandemic. The language focus phase of that lesson drew learners' attention to more creative possibilities of extensively using different source domains to talk about experiences with diseases. As a result, they went on to further experiment with extended metaphor in the fourth and fifth lessons.

(9) Stretching across many South and Southeast Asian countries, and reaping the lives of over 225,000 people in a matter of hours, the Indian Ocean tsunami of 2004, also known as the Christmas tsunami, was one of the most devastating in recorded history. Like a furious Titan emerging from the Indian ocean, the towering waves shattered concrete and bones as they raced across the continent,

leaving a lasting and poisonous effect: the land had either crumbled or was flooding with corpses, debris, and plant-killing salt water. Nearly no one swallowed by the waves survived.

(10) One of the deadliest natural disasters in the world that spread like a plague over multiple countries of South and South-East Asia on the 26th of December 2004. At 7:59 AM local time an earthquake that took place underwater with an unprecedented magnitude of 9.1 started to take over the coast of the Indonesian island of Sumatra which eventually triggered the outbreak of the tsunami. The Indian Ocean tsunami was rather 'contagious' as it spread as fast as an epidemic reaching out across the Indian Ocean, 'infecting' even coastal areas of East Africa.

The sample texts from the fourth lesson in (9) and (10) illustrate two extended metaphors built upon a different metaphorical simile. In (9) tsunami waves seem to be personified, as they are compared directly to a "furious Titan" (a giant god) having control of human beings: reaping their lives, racing across their land and swallowing them – human emotions and activities attributed to an inanimate entity. The cluster of metaphorical expressions is identified as deliberate due to the incongruence between the topic of discourse (tsunami) and the expression (about a god from Greek mythology). Besides the dramatic effect and vividness, the extended metaphor in (10) seems to serve another important communicative function as well: it gives internal coherence to the description. That text directly evokes an alien physical source domain (plague) unrelated to the topic at hand (tsunami), and the process of the plague spreading (from outbreak to contagion to infection) is used to structure the description of the tsunami spreading. The deliberate highlighting through the use of scare-quotes (Nacey 2013: 186-188) may convey the writers' awareness of the unusual collocations and prompt readers to resolve the anomaly through a metaphorical interpretation.

(11) The leaning Tower of Pisa: A delicious monument in Italy
The tower of Pisa looks like a massive wedding cake leaning to the ground, after being knocked by a clumsy guest. Every floor resembles a layer of the cake and the architecture, with marble columns, is as beautiful as its creamy decoration. On its top, a waving red flag completes the image, as it looks like a cherry.

(12) The Great Snake of China
Since the very start of the humankind, there has been a giant, poisonous and dangerous snake meandering over the mountains of China. Even though this snake seemed to be deadly and venomous, its hiss was weak and soft. [...] Today, its long slender body stretches somewhere between 4,000 and 5,500 kilometers as it glides across China's terrain and it is considered to be a symbol of China's culture. They named it "The Great Wall of China" and its thick body is claimed to be visible from the moon.

Lastly, the deliberate use of metaphor to serve communicative functions is observed, although to a different extent, in all texts produced in the fifth lesson. By way of illustration, we may consider (11) and (12), which describe two monuments by introducing a new perspective on them through metaphor. In (11) a direct metaphor is used to introduce an extended metaphor that continues to the end of the text; a series of metaphorical similes elaborately comparing the Tower of Pisa to a wedding cake is used for creating a humorous effect and giving internal coherence to the description. The structuring function of metaphor is also evident in (12), where the Great Wall of China is systematically described as a snake. Here, like (11), there is a direct comparison between two different domains, but, unlike (11), this is not signalled with metaphor flags. In both cases, the titles underscore the intentional nature of the comparisons and the deliberate use of metaphor as a discursive framework, providing more convincing evidence of learners' increased metaphoric competence.

4. Conclusion

This paper has reported the results of a pilot study that put a frame-inspired task-based approach to metaphor teaching into practice. The overall objective has been to shed light on how metaphorical production develops in L2 writing through a series of frame-inspired task-based lessons designed for EFL university students of B2+/C1 level. The empirical data for this study were retrieved from a corpus consisting of the short descriptive/narrative texts produced by 20 students, working in groups, during the task cycle of each lesson. Five sub-corpora (of 600–650 words each) corresponding to the five pilot lessons have thus been examined to determine quantitative and qualitative facets of metaphorical production in EFL learners' texts.

As regards the amount of metaphor produced (first research question), we have seen that metaphor density gradually increases as the lessons progress, and more precisely it is the open word classes that exhibit the highest relative proportions of metaphor, pointing to a developing lexicon. The types of metaphor (second research question) have been identified at the linguistic and communicative levels. In this respect, we have observed that learners' repertoire of metaphors gradually expands by including both indirect and direct metaphors and deliberate, besides nondeliberate, ones. It seems that a quantitative shift precedes a qualitative shift in metaphor use; as learners realize the role of metaphor in description/narration, they first produce more indirect conventional metaphors (i.e., the most frequent form of metaphor in discourse), and then they produce additional types of metaphor to better serve the communicative purpose of the texts. When it comes to the functional role of metaphor (third research question), we have noticed a qualitative change from using metaphor as an aesthetic figure of speech for dramatic effect to additionally using it as a conceptual and discursive framework for creating coherence in the text. At the same time, learners' confidence to experiment with metaphor seems to

develop along a continuum from just using conventional metaphorical collocations to incidentally manipulating metaphorical collocations to building extended metaphor.

These observations should be seen as preliminary findings of an exploratory study which is part of a wider project investigating the effectiveness of the proposed frame-inspired task-based approach to metaphor teaching in EFL. This model has been designed as a comprehensive methodological framework for developing L2 learners' metaphoric competence, in response to the open call for improving existing instructional methods and materials (MacArthur 2017: 421; Nacey 2017: 510; Low 2020: 49). The present analysis of students' productions during the pilot lessons will be further enriched with data from their exam essays, as well as other students' essays collected within the same course setting in the previous academic year, during which the same topics were introduced by the same instructor but not through the proposed approach and materials. In addition, focus group interviews will give access to students' attitudes, opinions and suggestions, which will be taken into account to improve the course. In conclusion, despite its limitations, this paper may contribute to the growing body of knowledge about learners' metaphoric competence in L2 by illustrating the interaction of metaphor with writing skills, and may raise implications for teacher education.

Data availability

Data will be made available on request.

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Appendix: An overview of metaphor use per students' text

Students' texts (ST) per lesson			Metaphor density	Word class		Metaphor_Language			Metaphor_ Communication	
	LUs	MRWs	MRW%	Closed-class MRWs	Open-class MRWs	Metaphor Flag	Direct metaphors	Indirect metaphors	Deliberate metaphors	Non-deliberate metaphors
Lesson 1: Life story										
ST1	80	8	10	3	5	0	0	8	0	8
ST2	112	4	3.5	2	2	0	0	4	0	4
ST3	161	14	8.7	11	3	0	0	14	0	14
ST4	129	4	3	2	2	0	0	4	0	4
ST5	131	14	10.6	2	12	0	0	14	0	14
Lesson 2: Film/ book review										
ST6	88	9	10.2	3	6	0	0	9	0	9
ST7	235	20	8.5	6	14	0	0	20	1	19
ST8	58	5	8.6	0	5	0	0	5	0	5
ST9	98	5	5.1	1	4	0	0	5	0	5
ST10	127	17	13.3	4	13	0	0	17	4	13

Students' texts (ST) per lesson			Metaphor density	Word class		Metaphor_Language			Metaphor_ Communication	
	LUs	MRWs	MRW%	Closed-class MRWs	Open-class MRWs	Metaphor Flag	Direct metaphors	Indirect metaphors	Deliberate metaphors	Non-deliberate metaphors
Lesson 3: Describing experience of illness and disease										
ST11	138	19	13.7	4	15	1	1	18	1	18
ST12	107	11	10.2	4	7	0	2	9	7	4
ST13	121	9	7.4	2	7	0	0	9	0	9
ST14	71	8	11.2	2	6	0	0	8	3	5
ST15	132	17	12.8	6	11	1	1	16	1	16
Lesson 4: Natural disaster description										
ST16	159	24	15	2	22	4	15	9	15	9
ST17	128	8	6.3	3	5	1	1	7	1	7
ST18	115	20	17.3	4	16	2	11	9	12	8
ST19	70	5	7.1	1	4	0	3	2	3	2
ST20	98	12	12.2	2	10	2	6	6	6	6

Students' texts (ST) per lesson		**Metaphor density**	**Word class**		**Metaphor_Language**			**Metaphor_ Communication**	
	LUs	**MRWs**	**MRW%**	**Closed-class MRWs**	**Open-class MRWs**	**Metaphor Flag**	**Direct metaphors**	**Indirect metaphors**	**Deliberate metaphors**	**Non-deliberate metaphors**
Lesson 5: Monument description										
ST21	64	16	25	1	15	4	13	3	14	2
ST22	62	9	14.5	0	9	0	0	9	6	3
ST23	172	40	23.2	2	38	0	36	4	36	4
ST24	150	13	8.7	2	11	0	0	13	7	6
ST25	109	32	29.3	6	26	1	21	11	21	11

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Where there's a proverb, there are many conceptual mappings

Abstract. This paper explores how metaphorical and metonymic mappings are recognised as part of proverbs' meanings in Brazilian Portuguese. Six proverbs were analysed from the perspective of Conceptual Metaphor Theory. The underlying conceptual mappings of these proverbs were suggested and categorised into primary metaphorical, complex metaphorical, and metonymic. Two psycholinguistic tasks were conducted with 112 adults aiming at determining to what extent these mappings were identified as part of the proverbs' meanings. Results suggest that underlying conceptual mappings were well identified and associated with the proverbs' meanings. For some items, complex mappings generated lower identification rates as compared to primary and metonymic ones. Statistical differences in participants' judgments were found when contrasting the three types of mappings. Our results support the idea that participants can identify conceptual mappings and associate them with their meanings in proverbs when prompted to do so. However, their judgments vary across different types of mappings.
Keywords: primary metaphor, complex metaphor, metonymy, proverb understanding.

1. Introduction

Picture two friends engaged in a conversation about their busy professional lives. One of them confides in the other about feeling overwhelmed by work. In response, the second friend offers a well-known English proverb: "I'm sure you can do it. *Where there's a will, there's a way.*". With a simple sentence, the friend manages to convey more than

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its literal meaning, suggesting that determination can pave the way to problem-solving and achieving one's goals.

Here, we define proverbs as figurative fixed sentences, which usually communicate morals, cultural beliefs, and communal wisdom. Proverbs are, in essence, a cultural figurative device within our cognitive-linguistic system, encapsulating a traditional and usually complex belief in a simple sentence. Beyond guiding actions and behaviours in life, proverbs also point to schemes that may be at the foundations of language, thought, and action (Gibbs 2001: 168). They serve indeed as vehicles for organising societal values and morals.

Gibbs & Beitel (1995) suggest that metaphorical and metonymic mappings underlie and motivate proverbs. For instance, the proverb "Where there's a will, there's a way" could be motivated by the conceptual metaphor LIFE IS A JOURNEY. It treats problems in life as obstacles, and their solutions as open routes in the metaphorical path of life. Gibbs & Beitel (1995) argued that proverbs are typically motivated by conceptual metaphors and metonymies in the sense that they might help with the formation of proverbs' meanings. In a later work, Gibbs (2017: 6) expands on claiming that "significant parts of abstract thinking are partly motivated by metaphorical mappings between diverse knowledge domains [...]". Both works imply that proverbs, being a linguistic phenomenon that requires abstract thinking, are partially motivated by conceptual mappings. Consequently, their work could lead to the idea that individuals also need to engage with these conceptual mappings when interpreting proverbs.

Given the complexity of proverbs and the possibility of underlying conceptual mappings in proverbs, this paper aims to analyse how Brazilian Portuguese speakers associate hypothesised conceptual mappings with the meanings of six popular proverbs. Alongside the examination of these underlying conceptual mappings, we also analyse dimensions such as comprehension, familiarity, and conventionality of the proverbs themselves, as well as the conventionality of the underlying conceptual mappings. In addition, we analysed how mappings of the same type are assessed within the proverbs, aiming to investigate whether there's a tendency to identify mappings based on their types (metonymic, primary metaphorical, or complex metaphorical).

We begin our study by analysing underlying conceptual mappings in six Brazilian Portuguese proverbs. In most cases, we were able to identify primary metaphors, complex metaphors, and metonymies. Based on the assumption that complex metaphors are more challenging to identify relative to primary metaphors and metonymies, we carried out two tasks: one to assess proverbs' familiarity, conventionality, and comprehension, and another to gauge how individuals perceive the conceptual mappings as part of the proverbs' structure.

Our main hypothesis hinges on the complexity level of the identified mappings: Brazilian Portuguese speakers are expected to better identify and associate primary metaphors and

metonymies with the proverbs' meanings, given their foundation in bodily experiences. Complex metaphors, on the other hand, would not be as readily identified because of their more cultural motivations. In simpler terms, as the complexity of the mappings increases, the measures of identification and association decrease. Our second hypothesis regards mapping types (primary, complex, and metonymic): mappings of the same type are expected to receive similar evaluations, with no significant differences, independent of the specific mapping and proverb they motivate. This would support the assumption that conceptual mappings of the same type are identified and associated with their intended meaning in a consistent manner, given their theoretical classification. Confirmation of both hypotheses would lend support to the idea that proverbs are a complex figure of speech, shaped by different cognitive-linguistic mechanisms, and further clarify the role of metaphorical and metonymic mappings in interpreting proverbs.

As follows, we briefly present some theoretical background of our study, centred on the Cognitive Linguistics framework. Subsequently, the third section outlines the methodology adopted in our study, detailing our sample, materials, and procedures. Moving on to the fourth section, results are introduced. We begin by analysing the underlying conceptual mappings in proverbs, followed by participants' ratings of comprehension, familiarity, and conventionality of both the proverbs and mappings. Later, we explore differences among these mappings to verify if mappings of the same type receive consistent judgments.[3]

2. Theoretical background

Proverbs, when examined through the Cognitive Linguistics approach, stand as one of the most intricate metaphor-related phenomena, as they are shaped by linguistic, cognitive, and cultural aspects. Gibbs & Beitel (1995: 134) define proverbs as "familiar, fixed, sentential expressions that express well-known truths, social norms, or moral concerns". Proverbs may be seen as a pervasive phenomenon, shaping not only our language and thought but also offering insights into diverse human cultures and behaviours.

As a complex phenomenon, proverbs are not always easily comprehended and are typically acquired later in development (Nippold & Haq 1996; Nippold et al. 1998; Nippold et al. 2000; Yoon et al. 2016; Nippold et al. 1997; Duthie et al. 2008; Ferrari & Siqueira 2020; Ferrari 2020), as compared to other figurative language phenomena. Proverbs also involve distinct cognitive phenomena in their processing, like conceptual mappings (Gibbs & Beitel 1995; Siqueira et al. 2017). According to the Conceptual Metaphor Theory, metaphor and metonymy play central roles in conceptualising abstract ideas, being an essential part of our conceptual system. Thus, the presence of metaphorical

3 This project was evaluated and approved by the Federal University of Rio Grande do Sul Research Ethical Board, under report number 2.469.701.

and metonymic motivations in proverbs would demonstrate the pervasiveness of such phenomena within a specific aspect of language formation — the formulation of speech formulas in figurative language.

Lakoff & Johnson (1980) define metaphor as a mechanism that allows us to understand one conceptual domain in terms of another. When one says *I am boiling with rage*, one instantiates the mapping INTENSITY OF EMOTION IS HEAT, using experiential and physical knowledge to grasp the abstract concept of emotion. The same happens when people say *she needs to keep her eyes on the ball to pass the test*, for example; they instantiate the conceptual metaphor LIFE IS A GAME, applying a game metaphor to conceptualise a life situation.

Metaphors are likely to give rise to potentially universal knowledge, usually more accessible to our bodily perception, as in INTENSITY OF EMOTION IS HEAT, or more culturally rooted, as in LIFE IS A GAME. Metaphors that are potentially universal, acquired through embodied experiences, are termed *Primary Metaphors* (Grady 1997; Lakoff & Johnson 1999). For being dependent on embodiment, they are usually common in different languages and are less influenced by sociocultural factors. In contrast, metaphorical mappings that are composed of other mappings, often culturally motivated, are called *complex metaphors*. They are usually more creative and less universal, depending on the socio-cultural experiences of given communities. Overall, determining if a metaphor is complex or primary is not a clear-cut process. In Cognitive Linguistics, we tend to consider a *continuum* of figurative language, moving from more potentially universal mappings like primary metaphors, to the most culture-dependent ones, like complex metaphors.

This continuum of figurative language is not restricted to metaphors, being expanded to other figurative phenomena such as proverbs, which are strongly dependent on culture, and metonymies, which are usually more potentially universal. According to Siqueira et al. (2017), to gain a comprehensive understanding of each phenomenon and figurative language as a whole, it's essential to analyse them interdependently, as they can often intersect and influence one another.

Metonymies, for example, are akin to metaphors, but differ in the number of domains involved. Littlemore (2015) and Lakoff and Johnson (1980) define metonymy as a figure of language and thought that uses one entity to refer to another typically related entity, usually within the same domain. While metaphors deal with a domain in terms of another, metonymies are based on relations within a single domain (Radden & Kövecses 1999). For instance, when you call someone by one of their characteristics, as in the phrase *Hey, blond hair!*, you are instantiating the metonymic mapping PART FOR THE WHOLE, representing the person as a whole through one of their salient parts, in this case, their hair colour. In this example, the mapping is built under a large Person domain, which encompasses the two faces of the mapping (*hair*, as a salient part of the person, and *person*, as a whole).

Both metonymies and metaphors are likely to be embedded in the figurative meaning of proverbs. Lakoff & Turner (1989) analyse proverbs through the use of a general conceptual metaphor, which would underlie all proverbs: GENERIC IS SPECIFIC. This metaphor allows specific sayings like proverbs to be employed, abstracted, and generalised in the most varied contexts. Consequently, the GENERIC IS SPECIFIC metaphor could be a generic-level schema for all proverbs, motivating, along with other mappings, the meanings of these widely recognised sayings[4]. For Gibbs & Beitel (1995: 135), the specificity of a proverb's usage is built when its meaning is formed, reflecting human truths in the context in which they are applied. Thereby, people tend to use proverbs based on their experiences, conceptualising them through popular sayings. The proverb *The early bird catches the worm,* for example, draws from the specific scenario of a bird finding food by rising early, but we abstract and generalise this situation in order to apply it to any context that aligns with the proverb's generic schema. This proverb could further be motivated by the metaphor PEOPLE ARE ANIMALS, as the bird in the proverb may represent a person or a person's action. Proverbs seem to encapsulate a range of individual and social experiences, partially motivated by their underlying conceptual mappings. While generic mappings are identified as the motivation for the use of proverbs in discourse, specific mappings may help concretise and particularise a proverb's meaning, helping to build the meaning of proverbs in the most diverse contexts (Lakoff & Turner 1989; Gibbs & Beitel 1995).

Considerable research has shown that conceptual mappings, whether metaphorical and/or metonymic, motivate most proverbs in different languages and cultures. Some studies explore common conceptual mappings in proverbs within the same language, focusing on specific domains such as *animals*, *food*, *colour*, and *natural phenomena* (Kobia 2016; Muhammad & Rashid 2014; Moreno 2005; Sameer 2016; Liu 2013; Idegbekwe 2017; Lu 2012; Faycel 2012; Aliakbari & Khosravian 2013; Mele 2013). Others compare the conceptual mappings in proverbs across different languages, examining similarities and differences influenced by culture (Muhammad & Rashid 2014; Moreno 2005; Sameer 2016; Liu 2013; Fonseca 2017; Buljan & Gradečak-Erdeljić 2013). These studies consistently underscore the critical role of culture in shaping proverbial meanings.

Particularly in Portuguese, our review identified only three studies: one in European Portuguese (Lanović & Varga 2015) and two in Brazilian Portuguese (Fonseca 2017; Siqueira et al. 2017). Lanović & Varga (2015) examined the motivations behind idioms and proverbs about the sea, through their underlying metaphorical mappings. They observed that

4 We acknowledge that the GENERIC IS SPECIFIC metaphor forms part of a more extensive generic schema for the comprehension of proverbs known as the Great Chain Metaphor (Lakoff & Turner 1989). However, our paper focuses on the analysis of the GENERIC IS SPECIFIC metaphor and does not delve into the exploration of other facets within the Great Chain Metaphor.

most of the sayings are motivated by the metaphor LIFE IS A SEA JOURNEY. Note that this result is culture-dependent, as sea journeys hold significant historical and cultural importance in Portugal. In Brazilian Portuguese, Fonseca (2017) reviewed phraseological units such as idioms and proverbs and their metaphorical motivations about animals both in Portuguese and French. Her findings indicate that certain characteristics of animals, such as their shape and lifestyle, strongly influence the construction of these phraseologies and their underlying metaphorical mappings. She also highlights that those choices are not random, but are firmly grounded in cultural elements. Additionally, Siqueira et al. (2017) delved into the exploration of the underlying metaphorical and metonymic mappings of the same six proverbs that form the core of the current paper, all part of a larger proverbs comprehension task in Brazilian Portuguese. The results from this investigation suggest that most proverbs are motivated by both generic and specific metaphors and metonymies, which have served as a motivation for the current study.

In our literature review, only one theoretical study was found addressing how people comprehend conceptual mappings within proverbs. In this study, Lemghari (2017) discussed and demonstrated the effect of conceptual mappings in the polysemy of proverbs, considering specific contexts. Drawing from existing literature, the author associated proverbs' polysemy with their underlying conceptual mappings, positing that these mappings play a partial role in motivating polysemy. In Lemghari's view, proverbs are stable in their meanings, as they are deeply embedded within a culture's collective understanding. However, they exhibit polysemy in their application to different contexts. Building upon the mappings proposed by Siqueira et al. (2017), we aim to elucidate how underlying conceptual mappings are perceived by Brazilian Portuguese speakers in a group of widely recognised proverbs. In the following sections, we outline the methodology and present the results of this study.

3. Method

This study employs a within-participants design, structured into two different steps. In the first step, which is basically theoretical, proverbs were selected, and their conceptual mappings were identified. In the second step, we experimentally examined the proverbs' familiarity, conventionality, comprehension, and identification of metaphorical and metonymic mappings underlying the items. We also looked for differences in figurative language comprehension based on geographical region (urban or countryside) and the type of conceptual mapping (metonymic, primary metaphorical, and complex metaphorical). In this context, our independent variables were geographical region and mapping type, while our dependent variables were participant ratings for familiarity, conventionality (of both proverbs and underlying conceptual mappings), and proverbs' comprehension.

For clarity, familiarity is operationally defined as the extent to which participants are familiar with the proverbs. Conventionality denotes how common it is for participants

to associate specific expressions with certain figurative meanings in discourse. Finally, comprehension gauges participants' ability to explain what each proverb means. Our analytical approach encompassed both qualitative and quantitative analyses to investigate how our sample perceives conceptual mappings. In the following sections, we detail our sample, data collection procedures, and the instruments employed.

3.1 Sample and stimuli

At first, our stimuli consist of six highly popular and familiar proverbs in Brazilian Portuguese. Each of these proverbs forms an integral component of a Proverb Comprehension Task in Brazilian Portuguese, which, in turn, constitutes a broader figurative language comprehension test, named COMFIGURA. Those proverbs are:

1. *Em boca fechada, não entra mosca.* [A closed mouth catches no flies];
2. *Filho de peixe, peixinho é.* [Son of fish is little fish];
3. *Quem vê cara não vê coração.* [Those who see the face don't see the heart];
4. *Onde há fumaça, há fogo.* [Where there's smoke there's fire].
5. *Quem não chora não mama.* [Those who don't cry don't get breastfed];
6. *Cachorro que late não morde.* [Dogs who bark don't bite].[5]

As for the second step, our study sample comprises 112 adult participants aged between 18 and 68 years old (M = 34.1 years, SD = 12.9 years), selected via convenience sampling. Participants were invited to participate through social media platforms using the snowball sampling method. As an inclusion criterion, only native speakers of Portuguese could take part in this study.

At the outset, the sample was categorised into two groups: 39 participants (M = 34.7 years, SD = 14.1 years) from the metropolitan (urban) area of Porto Alegre, the capital of Rio Grande do Sul — a southern Brazilian state; and 73 participants from the *Serra* (countryside) region within the same state (M = 33.8 years, SD = 12.4 years). This division was undertaken to control for cultural effects in our study's outcomes. *Serra* is a region strongly characterised by European immigration in Brazil, while the metropolitan area of Porto Alegre boasts a more diverse cultural landscape. As both regions have different sociocultural characteristics and proverbs are profoundly influenced and shaped by culture, the introduction of this control variable may enhance the study's reliability.

3.2 Instruments

In the first step, which involved a theoretical analysis of underlying conceptual mappings, no instruments were necessary. In the second step, we employed two instruments for data collection: a proverbs' familiarity and comprehension task and a conceptual mappings' conventionality and identification task. All mappings in the latter task had been

5 All translations of Brazilian proverbs presented here are literal word-for-word translations.

identified as underlying mappings in the proverbs studied here. Both tasks were designed based on the six proverbs that compose COMFIGURA's proverb comprehension task.

The proverbs' familiarity and comprehension task comprises six items. Each of them features a different proverb, a 5-point Likert scale (ranging from 1 = totally unfamiliar, 5 = totally familiar), and an open-ended question regarding the proverb's meaning. The answers to the open-ended questions were categorised as expected or unexpected, aligning with the expected answers of COMFIGURA's proverb comprehension task. Expected responses were those in accordance with predefined guidelines established based on findings from a prior psycholinguistic study employing this task (Ferrari 2020). For that matter, 204 adults were interviewed about selected proverbs' meanings. For instance, in the case of the proverb 'A shut mouth catches no flies', answers were considered expected if they touched upon concepts such as 'keeping a secret', 'keeping in silence', 'not speaking too much', 'not being intrusive', 'being aware of what one says'.

The second task, focusing on conventionality and identification of proverbs' underlying conceptual mappings, was developed based on the conceptual mappings identified in the first step. The task items featured questions about the proverbs and the conventionality of their mappings. These questions consistently utilised elements from the mappings' source domain to inquire about elements from the mappings' target domain. In essence, we sought to gauge the extent to which people perceived that concrete elements in the proverb's wording (the source domain) represented an inferential meaning within the proverb (the target domain). An example of those questions is available in Figure 1, Task 2, questions 2 and 3.

To enhance the instruments' validity, the identified conceptual mappings, along with both tasks, underwent rigorous evaluation and received approval from six expert judges. Before commencing formal testing sessions, a pilot study involving two participants was conducted. With their feedback, the tasks were considered ready to be tested.

In the following figure, we provide an example of both tasks, for the same proverb, *Em boca fechada não entra mosca* [A closed mouth catches no flies]. It's worth mentioning that the items were presented in a decontextualised manner, in Brazilian Portuguese.[6]

6 The complete versions of the tasks in Portuguese and English are available at `https://osf.io/xvduz/`.

Proverb 1: *Em boca fechada não entra mosca* [A closed mouth catches no flies]

Task 1: Familiarity and comprehension

1) From 1 to 5, how familiar are you with the expression '*Em boca fechada, não entra mosca* [A closed mouth catches no flies]'?

1 - Totally unfamiliar; 2 - Unfamiliar; 3 - Somewhat familiar; 4 - Familiar; 5 - Totally familiar.

1 ◯ 2 ◯ 3 ◯ 4 ◯ 5 ◯

2) What does the expression '*Em boca fechada, não entra mosca* [A closed mouth catches no flies]' mean?

. . . . . .

Task 2: Proverbs' and conceptual mappings' conventionality

1) From 1 to 5, how common is it to use the proverb '*Em boca fechada não entra mosca* [A closed mouth catches no flies]' to mean that 'keeping quiet avoids unpleasant consequences?

1 - Totally uncommon; 2 - Uncommon; 3 - Somewhat common; 4 - Common; 5 - Totally common.

1 ◯ 2 ◯ 3 ◯ 4 ◯ 5 ◯

2) From 1 to 5, how much do you think that 'insects' represent 'unpleasant consequences' in this proverb?

1 - Nothing; 2 - A little; 3 - Moderately; 4 - A lot; 5 - Totally.

1 ◯ 2 ◯ 3 ◯ 4 ◯ 5 ◯

3) From 1 to 5, how much do you think that 'a shut mouth' represents 'silence' in this proverb?

1 - Nothing; 2 - A little; 3 - Moderately; 4 - A lot; 5 - Totally.

1 ◯ 2 ◯ 3 ◯ 4 ◯ 5 ◯

Figure 1. Tasks examples

3.3 Procedures

In order to identify proverbs' underlying conceptual mappings, we initiated our process with a brainstorming session involving our research group. Based on the proverbs' meanings, we embarked on an analysis and suggested underlying conceptual mappings

that could motivate these expressions. To suggest the mappings, our approach sought to delineate connections between the proverbs' elements and their moral or ethical facets. Thus, by elucidating these connections, we could suggest conceptual domains and mappings for each proverb. It is important to note that this step was also based on previous findings from a prior study (Siqueira et al. 2017) examining the same set of proverbs. After that, in another brainstorming session, we categorised each identified mapping into one of three types: metonymic, primary metaphorical, and complex metaphorical. It is worth acknowledging that complex metaphors often arise from a fusion of two or more primary mappings. However, it is important to clarify that this paper does not delve into the detailed process through which these metaphors are formed.

In the second step, experimental methods were conducted. Data collection was carried out via *Google Forms* in July 2019. Participants were sent invitations along with the link to participate in the study. Prior to engaging with the tasks, participants provided their consent and some demographic information (i.e., age, languages spoken, city of residence). Subsequently, they proceeded to undertake the familiarity and comprehension task. Lastly, participants responded to the task on proverbs and underlying conceptual mappings' conventionality. All task items were presented in the same predetermined order. Participants had the flexibility to follow their own pace, but they were unable to look ahead or return to previous questions to modify their answers. On average, participation in the study consumed approximately 15 minutes per participant. In the following section, we detail and discuss our results.

4. Results and discussion

Results will be presented and discussed in two distinct sections. In the first one, we unveil and analyse the underlying conceptual mappings of the proverbs, alongside participants' ratings of comprehension, familiarity, and conventionality of both the proverbs and the mappings themselves. In the second section, we delve into an analysis of statistical differences among the identified mapping types. This exploration aims to shed light on the role of the types of conceptual mappings in proverbs, verifying whether mappings of the same type elicit uniform judgments.

4.1 Proverbs and conceptual mappings' identification and judgement

In this section, we will present our analysis and identification of conceptual mappings within the six proverbs studied here. It is worth reminding that this segment of our study builds upon a previous investigation conducted by our research group (Siqueira et al. 2017). Thus, some of the mappings identified here have already been identified in that previous study. After discussing each proverb and its associated mappings, we bring descriptive findings on participants' identification of conceptual mappings. We also furnish a statistical analysis that compares the mappings' judgments, aiming at finding

differences between the mappings in the same proverbs. In this analysis, we employ the Wilcoxon-Mann-Whitney test. Data were analysed using RStudio version 4.2.2, and the significance level of 5% ($p < 0.05$) was established.

Prior to going deeper into the results, we conducted an initial statistical analysis to verify whether there were significant differences in judgments based on participants' geographical regions. We analysed their responses concerning the familiarity, comprehension, and conventionality of proverbs, as well as the conventionality of the underlying conceptual mappings. Our analysis revealed no significant differences in proverbs' familiarity and comprehension. In proverbs' conventionality, one significant difference was observed in Proverb 5 (*Quem não chora não mama* [Those who don't cry don't get breastfed]). As for underlying conceptual mappings, out of the 15 mappings we identified, only one exhibited significant differences based on geographical region, also in Proverb 5. Given that only two out of 33 results showed significant differences across regions, we decided to consider that, in general, both participant groups have a similar level of comprehension, familiarity, and conventionality with regard to proverbs and their underlying mappings. Consequently, data from all participants were grouped and analysed without the interference of the *region* independent variable. In the following sections, we provide a comprehensive breakdown of the results found for each of the analysed proverbs.

4.1.1 Proverb 1: *Em boca fechada, não entra mosca* [A closed mouth catches no flies]

In Brazilian Portuguese, the proverb *Em boca fechada, não entra mosca* is a commonly used expression, meaning that it's often wiser to remain silent than to speak unnecessarily, thereby avoiding unwanted or unpleasant consequences. In other words, this proverb means that we should speak only when necessary. Our analysis identified two conceptual mappings underlying this proverb: UNPLEASANT CONSEQUENCES ARE INSECTS, characterised as a complex metaphor (Siqueira et al. 2017), and THE STATE FOR ITS EFFECT, characterised as a conceptual metonymy. In our analysis, the metaphor arises from the notion that *the consequences of the things we say* are meant instead of *flies*, while the metonymy lies in the use of the idea of *a closed mouth* (the state) for *silence* (the effect).

Within our sample, this proverb was considered highly familiar and well-comprehended. An overwhelming 88% of participants rated the proverb as highly familiar (which means they received ratings of 4 and 5 on the familiarity Likert scale), while 94% of participants demonstrated a clear understanding of the proverb by elucidating its meaning. In terms of conventionality, 81% of participants highly agreed that it is common to employ this proverb to convey the idea that *maintaining silence avoids unpleasant consequences*.

Concerning the conventionality of the conceptual mappings, 60% of respondents could well identify (4 = a lot and 5 = totally in the Likert scale) the relationship established by the complex metaphor (*insects* representing *unpleasant consequences*), while a striking 96%

recognised a high degree of metonymic association (*closed mouth* for *silence*). We believe that both findings corroborate the idea that metonymies are typically more accessible for perception than other phenomena, involving fewer inferential processes. Conversely, complex metaphors may pose greater complexity due to their derivation from a combination of metaphors, potentially requiring more inferential processing. Statistically, our analysis, utilising the Wilcoxon-Mann-Whitney test, uncovered a significant difference ($p < 0.05$) between the comprehension of the mappings. This suggests that participants did not uniformly evaluate both mappings, with metonymy being more readily perceived than the complex metaphor.

4.1.2 Proverb 2: *Filho de peixe, peixinho é* [**Son of fish is little fish**]

The proverb *Filho de peixe, peixinho é* is a commonly used expression in Portuguese to mean that there are resemblances and similarities, whether physical, behavioural, or in personality, between parents and their children. Within this proverb, three complex metaphors could be identified: PATERNITY IS SIZE, SIMILARITY IS KINSHIP, and HUMANS ARE ANIMALS. The metaphor PATERNITY IS SIZE is evoked through the usage of *size*, entrenched in the suffix *-inho*, to indicate a position within the *family relationship*. In Portuguese, the *-inho* suffix is employed to mean *little* or *small* in nouns (e.g., *peixe* [fish]; *peixinho* [little fish]). It is not a random choice, but rather a metaphorically motivated one, representing the little one as the offspring while the 'regular one' denotes the parent. The SIMILARITY IS KINSHIP mapping is instantiated to illustrate the idea that a *familial relationship* embodies *similarities*, which is the core notion of the proverb. Finally, the HUMANS ARE ANIMALS mapping is instantiated when the proverb, conveying *human characteristics and behaviours*, employs *animals (fish)* to portray these same characteristics (Siqueira et al. 2017).

This particular proverb scored remarkably high in terms of familiarity, with a striking 95% of participants rating it as highly familiar (4 and 5 on the scale). Regarding comprehension, an impressive 97% of respondents provided expected answers to the question "What does the proverb mean?", which was the highest rate among all six proverbs. On the topic of conventionality, 93% of our sample strongly concurred that the proverb means that children are similar to their parents.

Given the presence of three complex metaphors in this proverb, we expected that their identification rates would be uniform. For SIMILARITY IS KINSHIP, 86% of responses exhibited a high level of identification among participants. Similarly, the mapping HUMANS ARE ANIMALS yielded 88% of ratings 4 and 5 on the scale. However, in the case of the mapping PATERNITY IS SIZE, 68% of participants highly identified *size* as a representation of *one's position within a family relationship*. Our statistical analysis revealed significant differences between the two highest-rated mappings and the lowest-rated one: HUMANS ARE ANIMALS and PATERNITY IS SIZE ($p < 0.05$); PATERNITY IS SIZE and

SIMILARITY IS KINSHIP ($p < 0.01$). The comparison between HUMANS ARE ANIMALS and SIMILARITY IS KINSHIP, which garnered better recognition, did not exhibit a statistical difference. Since the lowest ranked mapping (PATERNITY IS SIZE) is expressed morphologically in this proverb, through the use of the suffix *-inho*, its identification may be potentially less transparent than the other mappings, which operate at the word level and are more noticeable in the saying.

4.1.3 Proverb 3: *Quem vê cara não vê coração* [Those who see the face don't see the heart]

The proverb *Quem vê cara não vê coração* is commonly used in Brazilian Portuguese to convey the message that we should not judge people solely based on their appearances. Instead, it emphasises the importance of evaluating individuals based on their personality and character. Within this proverb, we identified four conceptual mappings. The metonymy PART FOR WHOLE is instantiated when referring to their *face* for their *appearance* and the *heart* for the *personality* (Siqueira et al. 2017). Additionally, we identified two primary metaphors: ESSENTIAL IS INTERNAL, instantiated when we indicate that somebody's *feelings and personality* are more important by mentioning the *heart*, an internal and essential organ; and KNOWING IS SEEING, when we say *see the heart* to mean that we *know someone better.* Furthermore, a complex metaphor, JUDGING IS SEEING, was also identified when we say *see the face* to represent *judging someone* (Siqueira et al. 2017).

Regarding familiarity, this proverb garnered 89% of ratings at levels 4 and 5, underscoring its popularity among our sample. In terms of conventionality, 91% of the participants rated it as *common* or *totally common* to express the idea that one *should not judge people based on their appearance*. When it comes to comprehension, 94% of the sample demonstrated an understanding of the proverb on the terms previously mentioned.

In our conceptual identification task, the metonymy PART FOR WHOLE was associated with the idea that *a part of a person* stands for *a person as a whole* by 71% of participants. The primary metaphor ESSENTIAL IS INTERNAL was identified in the relation of the *heart* representing *our character and personality* by 91% of respondents. The other primary metaphor, KNOWING IS SEEING, was identified in the relation of *seeing the heart* to represent *knowing someone* by 83% of participants. Finally, the complex metaphor JUDGING IS SEEING was identified by 84% of participants in the context of *seeing someone's face* as *judging someone*. It is noteworthy that the relationships established by the primary metaphor ESSENTIAL IS INTERNAL were widely recognised, possibly due to the metaphor's high level of conventionality in Portuguese, where it is customary to discuss somebody's personality in terms of their "inside". However, it was surprising to find that the relationships associated with the other primary metaphor and the metonymy were less recognised than those of the complex metaphor. Unexpectedly, the metonymy presented the lowest rate of high answers. Upon analysing the task materials, we observed that the question about the metonymy in this proverb was more generic than the questions about

the other mappings in the same proverb. In the other questions, we explicitly referred to the elements present in the proverb, such as *cara* [face] and *coração* [heart]. In contrast, the metonymic question presented a more general inquiry concerning *a person's specific part* representing *a person as a whole*, when the proverb does not present equivalent lexical units. This generality in the question may have created some vagueness for participants, requiring more inferences compared to the other questions, which explicitly pointed to the lexical units present in the proverb.

Statistically, only one combination of mappings did not exhibit a significant difference: the complex metaphor JUDGING IS SEEING and the primary metaphor KNOWING IS SEEING. Despite not being of the same metaphorical type, both were recognised similarly by the sample in this study. This could be attributed to their shared domain, SEEING, which is a basic bodily experience, and the fact that both questions in the task complemented one another. One question related to *judging someone by their face,* while the other represented *knowing someone by their heart, their personality.* All other combinations of metaphors were significantly different ($p < 0.05$), contradicting our hypothesis of a similar perception based on mapping type.

4.1.4 Proverb 4: *Onde há fumaça, há fogo* [Where there's smoke there's fire]

The proverb *Onde há fumaça, há fogo* encapsulates the prototypical meaning that the presence of evidence or signs indicates the occurrence of something. Within this proverb, we identified two primary metaphors (KNOWING IS SEEING and EXISTENCE IS VISIBILITY) along with one metonymy (EFFECT FOR CAUSE). The metaphor KNOWING IS SEEING motivates the idea that *seeing smoke* represents *knowing something* (Siqueira et al. 2017). The metaphor EXISTENCE IS VISIBILITY is intricately connected to the former, suggesting that *existence* is attributed only to *what is seen*. In the proverb, *seeing smoke* motivates *the existence of evidence concerning something.* Due to their close interconnection, we treated both metaphors operationally as a single primary metaphor. The metonymy EFFECT FOR CAUSE embraces a consequence of fire – *smoke* – for its cause – the *fire* itself. In the intended meaning of the proverb, the *evidence* takes the form of *an effect*, which represents its *origin*, or the *cause*.

This proverb was ranked as the third most familiar among our sample, with 92% of respondents indicating either *familiar* or *totally familiar* responses. Regarding conventionality, 97% of the participants strongly associated the proverb with the meaning that *if something is happening, there will be signs of it*. Out of all six proverbs, this one demonstrated the most conventional alignment between proverbs and their intended meanings. This item was also well comprehended, with 89% of responses matching the expected answers.

Given the close similarity and intertwining nature of both primary metaphors, we formulated a single question that encompassed both aspects. In relation to the question

concerning the link between *seeing smoke* and *knowing about the existence of something*, 94% of the participants identified a strong relationship. Likewise, in the metonymy EFFECT FOR CAUSE, the percentage of 4 and 5 ratings on the scale was also high, reaching 96%. In this proverb, both the metaphorical and metonymic mappings were acknowledged as closely related to their conceptual domains. However, the statistical analysis unveiled a significant difference between these mappings ($p < 0.01$). This partially corroborates our hypothesis, as both mappings were highly recognised by the sample but statistically exhibited varying identification rates.

4.1.5 Proverb 5: *Quem não chora não mama* [**Those who don't cry don't get breastfed**]

When we employ the proverb *Quem não chora não mama*, we convey the idea that those who do not express their desires or do not persist in pursuing what they want are less likely to get what they wish for. Within this proverb we identified two conceptual mappings: the primary metaphor DESIRE IS HUNGER, and the metonymy MEANS OF ACTION FOR THE ACTION. The metaphor DESIRE IS HUNGER is derived from the notion that the act of *having something one wishes for* is instantiated in the proverb through the concept of *breastfeeding*, that is, *satiating hunger* (Siqueira et al. 2017). On the other hand, the metonymy MEANS OF ACTION FOR THE ACTION comes into play when the act of *asking or requesting something* stands for one of its possible means (i.e., *crying*).

Within our sample, this proverb, while still highly familiar, was ranked as the least familiar among the items, with 86% of respondents indicating strong familiarity on the scale. On conventionality, 91% of participants strongly associated the proverb with the idea that *those who do not ask do not receive what they desire*. Lastly, 93% of the sample demonstrated a good comprehension of the proverb.

Upon analysing the results for the conventionality of the conceptual mappings, the metonymy was identified by 89% of respondents in the relationship between *crying* and *asking for something*. For the primary metaphor, 88% of the participants identified a strong connection between *breastfeeding* and *attaining one's desires* in the proverb. Both sets of ratings indicate a strong relationship between the domains outlined for these mappings, which aligns with our expectations since they are based on a metonymy and a primary metaphor. In our statistical analysis, no significant differences were observed, suggesting that these mappings were identified and associated similarly with their intended meanings in the proverb.

4.1.6 Proverb 6: *Cachorro que late não morde* [**Dogs who bark don't bite**]

The proverb *Cachorro que late não morde* is commonly employed in everyday conversation to convey the idea that individuals who make frequent verbal threats or promises often fail to follow through with their actions. In essence, it suggests that those who talk a lot about what they intend to do but take little or no action are akin to 'barking dogs that

do not bite'. In terms of mappings, we could find a complex metaphor, HUMANS ARE ANIMALS, and a metonymy, MEANS OF ACTION FOR THE ACTION. The metaphor arises from the figurative use of *dogs* to represent *humans.* The metonymy, on the other hand, is instantiated when discussing the *action of doing something* through one of its methods, such as *biting* (in the case of dogs).

Interestingly, this proverb emerged as the most familiar among our participants, with 96% of them indicating that the proverb is *familiar* or *totally familiar.* On conventionality, it yielded 93% of responses rated at 4 and 5 on the scale. On comprehension, 94% of the sample provided responses that aligned with the expected interpretation of the proverb.

In the mappings identification task, the metonymy MEANS OF ACTION FOR THE ACTION received 86% of high answers on the scale, while the complex metaphor HUMANS ARE ANIMALS got 88%. Both types of mappings received favourable ratings from the sample. However, the complex metaphor was slightly more readily identified than the conceptual metonymy, refuting our hypothesis. Statistically, no significant difference was found between these mappings, indicating that they were judged similarly by our sample and, once again, refuting our hypothesis.

4.1.7 All proverbs considered

We conducted an analysis of six widely recognised proverbs in Brazilian Portuguese, uncovering a total of 16 underlying conceptual mappings that motivate these proverbs. Our classification revealed that these mappings could be categorised into 5 metonymies, 5 primary metaphors, and 6 complex metaphors. In formulating the questions for the tasks, one primary metaphor (EXISTENCE IS VISIBILITY) was omitted, as it was inherently intertwined with another metaphor in the same item. In total, we presented participants with 6 proverbs and 15 mappings: 5 metonymies, 4 primary metaphors, and 6 complex ones.

All the proverbs under examination were highly familiar and conventional among the sample, with a strong comprehension of their intended meanings. Their underlying conceptual mappings were also generally perceived as conventional concerning their intended meanings in the proverbs.

Regarding the underlying conceptual mappings, our study aimed to test two specific hypotheses: (i) primary metaphors and metonymic mappings are more strongly associated with their intended meanings compared to complex mappings, and (ii) there are no significant differences between the evaluation of primary metaphors and metonymies, while there are in the evaluation of complex metaphors (measured by Likert scales). Our findings partially corroborated these hypotheses. Primary metaphors and metonymies indeed exhibited the highest conventionality rates on the mappings, whereas complex metaphors had the lowest rates. However, not all primary metaphors and metonymies were rated as the most conventional, and not all complex metaphors were rated as the

least conventional. Some of our results also appeared to be influenced by the wording of certain questions, particularly those that incorporated more abstract words, which received lower ratings for mapping identification.

Combining mappings for each proverb, we observed that our second hypothesis was also partially corroborated. While significant differences were found in some instances when comparing different kinds of mappings based on their complexity, it was not always the case. In Proverb 1, for example, a significant difference was found when comparing a complex metaphor and a metonymy. The same happened in Proverb 3, between a metonymy and a complex metaphor, and a primary metaphor and a metonymy. However, significant differences were also found (i) between the same type of mapping, as in Proverb 2, with two complex metaphors; (ii) and between metonymies and primary metaphors, as in Proverb 4. In both cases, we did not expect significant findings. Further, contrary to our hypothesis, we did not consistently observe expected differences in expected cases, as in Proverbs 3 and 6 between metonymies and complex metaphors.

Overall, our first analyses suggest that accurately predicting the results of conceptual mapping identification may not solely depend on mapping types but rather on the specific relationships between mappings within their respective proverbs. Our findings demonstrate that individuals are capable of recognising smaller meaning components within larger figurative expressions, such as proverbs. In the next section, we present a comprehensive analysis that considers all mappings examined together, categorised by type.

4.2 Relations within conceptual mappings

In addition to examining relationships among mappings within the same proverbs, we also analysed the interrelations among all identified mappings, regardless of the proverbs they were associated with. If differences were not found, we could state that mappings of the same type are evaluated similarly by our sample, allowing a deeper analysis and a possible influence of the mapping type on their evaluation.

In this analysis, we assessed a total of 105 combinations of mappings, encompassing all 15 mappings in the study (5 metonymies, 4 primary metaphors, and 6 complex metaphors). Out of these combinations, 58 resulted in significant differences ($p < 0.05$), while 47 did not. Significant differences imply that, statistically, those mappings were not identified at similar rates by the participants. We then analysed which combinations showed more similar or dissimilar identifications. The data are organised in the following table, according to the mapping type comparisons.

Table 1. Results from the analysis of mapping combinations

	Significant differences ($p < 0.05$)*		**Non-significant differences***		
Mapping combination	**Absolute number**	**Percentage**	**Absolute number**	**Percentage**	**Total number of combinations**
Metonymy — Metonymy	8	80%	2	20%	10
Primary metaphor — Primary metaphor	2	33.33%	4	66.67%	6
Complex metaphor — Complex metaphor	9	60%	6	40%	15
Metonymy — Primary metaphor	10	50%	10	50%	20
Metonymy — Complex metaphor	20	66.67%	10	33.33%	30
Primary metaphor — Complex metaphor	9	37.5%	15	62.5%	24

*Wilcoxon-Mann-Whitney test.

Interpreting our findings, some results corroborate our hypothesis regarding the influence of mapping types, while others refute it. Two out of the three first combinations listed in Table 1, which combine mappings of the same type, exhibit a higher percentage of significant differences, refuting our hypothesis. Primary metaphors are the only mapping type that yielded fewer significant differences. Given the essence of primary metaphors, which are potentially universal and based on embodied experiences, it is expected that people may judge and evaluate their inferences similarly. In contrast, complex metaphors, often rooted in culture, may allow for inferences across a broader range of contexts and ideas than those presented in the questions. Finally, metonymies also refuted our hypothesis, with a higher percentage of significant differences in their judgments. We noticed that some questions related to metonymic inferences were more abstract than others, potentially affecting participants' abstract thinking and contributing

to this higher number of significant differences (see section 4.1.3). It is also worth mentioning that metonymies, probably due to being more lexicalised, are usually challenging to identify and judge as figurative in everyday discourse. This factor may have also influenced our sample's judgments, yielding unexpected results.[7]

Contrasting different types of mappings, we expected that complex metaphors would be less identifiable than primary metaphors and metonymies due to their complexity. Results from the comparison between metonymies and complex metaphors corroborated our hypothesis, with a higher percentage of significant differences in ratings. However, the comparison between metonymies and primary metaphors contradicted our hypothesis, as half of the results were statistically different. This is noteworthy considering the prevalence of metonymies, which are as pervasive, if not more than, primary metaphors. In this study, most primary metaphors were rated as strongly conventional, whereas some metonymies did not receive similar strong conventional ratings. Again, this may result from the challenge of identifying and discussing metonymies. Combinations of complex and primary metaphors also refuted our hypothesis, exhibiting more similarities in participants' judgments for both mapping types than expected.

Overall, the results partially supported our hypotheses. As in the previous section, we could see that abstract thinking, required for comprehending proverbs, does not necessarily depend on the identification of conceptual mappings, based on their types. While some types of combinations corroborated our hypotheses, such as primary x primary metaphors and metonymies x complex metaphors, others did not yield expected results.

Significant differences in combinations involving metonymies and metaphors are intriguing results. As mentioned earlier, metonymies are prevalent in language and thought but challenging to schematise and assess (Siqueira et al. 2023*:* 24), depending on several complex factors (Gibbs & Colston 2012: 152), such as linguistic expression familiarity and the presence of highly abstract structures, like PART FOR WHOLE (Gibbs & Colston 2012: 161). Contrasting metonymies with the other mappings presented here, we noted that combinations within this phenomenon produced more significant differences in ratings than comparisons with other phenomena. This may suggest that metonymies, as approached in our task, may require more metalinguistic ability. However, this may not accurately reflect the processing of proverbs or metonymic speech but underscores important considerations in metonymic assessment.

Results also raise theoretical issues about metaphors. We initially hypothesised that primary metaphors and metonymies would be identified at similar rates, while primary and complex metaphors would not. While primary metaphors and metonymies exhibited similar judgments in half of our results, primary and complex metaphors were more

7 The absence of an established metonymy identification procedure in Cognitive Linguistics is not coincidental.

often judged similarly (62.5% of the time). We acknowledge that complex metaphors are formed by a combination of primary mappings, often enriched with cultural influences. In this context, our findings may indeed support the theoretical understanding of how complex metaphors are constituted. If complex metaphors are composed of other metaphors, some of which are fundamentally primary, it is reasonable to find that many complex mappings can be judged similarly to primary metaphors. After all, primary metaphors can be both embodied and cultural (Winter & Matlock 2017), which means that both primary and complex metaphors are experientially grounded.

5. Conclusions

In this paper, our objective was to explore how individuals associate the underlying conceptual mappings of proverbs with their overall meanings. We conducted two different analyses to achieve this aim. In the first analysis we identified and suggested conceptual mappings within proverbs and examined their familiarity, comprehension, and conventionality, both for the proverbs themselves and their respective mappings. We also assessed potential differences in participants' judgments of mappings within the same proverb. In the second analysis we sought to determine whether there were variations in the conventionality judgments of mappings based on their types, exploring three types of mappings (primary, complex, and metonymic). The results allowed us to analyse and discuss the role of underlying conceptual mappings in proverbs, suggesting some of their meaning components, motivated by conceptual mappings in bigger expressions.

By analysing underlying conceptual mappings in proverbs, we were able to disentangle proverbs' meanings into several smaller components: conceptual metaphors and metonymies. All proverbs in our study were highly familiar, conventional, and well comprehended by the sample. As for the underlying conceptual mappings, most of them were judged as highly conventional with respect to their intended meaning components within the proverbs. Our hypotheses proposed that simpler mappings, such as metonymies and primary metaphors, would exhibit stronger associations with their intended meanings compared to complex metaphors, given their different natures. We also hypothesised that significant differences in participants' judgments would be found when evaluating combinations of simple and complex mappings. Our results partially corroborate our hypotheses, as such patterns were observed only for some mappings, in some proverbs. Analysing descriptive data, we noticed a higher association rate for primary metaphors and metonymies, albeit not consistently across all instances. In cases where all types of mappings coexisted within the same proverb, our hypothesis was not corroborated. Statistical analysis showed significant differences between mappings, attesting that they do not uniformly adhere to the same pattern of answers across all items. Out of all the mappings, primary metaphors were the only ones that consistently aligned with expected judgments. Conversely, results on metonymies and complex metaphors exhibited distinct

patterns compared to primary metaphors in our assessment. All of these findings suggest that the interpretation of conceptual mappings could be more closely linked to the proverbs they motivate and to other variables than to their mapping types.

Our findings align with Conceptual Metaphor Theory, illustrating proverbs' complexity and the interdependence on different figurative language phenomena (Siqueira et al. 2017; Gibbs & Colston 2012). According to Gibbs & Beitel (1995: 136), conceptual mappings, among cultural effects, motivate and form proverbs' overall meaning. All of this would happen unconsciously, without the need for the metalinguistic abilities employed in the psycholinguistic tasks described here. This means that, most probably, when interpreting a proverb in everyday speech, one does not consciously think about isolated conceptual inferences. In our study, participants engaged in a metalinguistic analysis of proverbs' meanings, which prompted them to reason about smaller pieces that constitute the proverb as a whole. We acknowledge that this approach may lack ecological validity, as it deviates from the natural process of proverb interpretation in everyday conversation. Another limitation of our study pertains to the fact that participants were not further asked about their recognition of the mappings, nor were they queried about their ability to identify metaphorical and metonymic mappings without explicit prompts. Conducting experimental tasks to investigate both aspects would prove challenging, given the abstract structural scaffolding inherent in figurative interpretation. We also acknowledge the existence of intricate links between mappings, such as metaphoric and metonymic chains and metaphtonymies (Goossens 1990), which were not explored here but could offer valuable insights to further elucidate our results.

This study also demonstrates that such constitutive units, the conceptual mappings, may not be comprehended similarly based on their mapping type. This suggests that other variables, such as the methodology employed, prior exposure to the proverb, and contextual elements, may also play pivotal roles in the processing of underlying conceptual mappings in bigger abstract units in discourse. These results should be further investigated in future research, utilising different paradigms for online processing of proverbs and assessments of conceptual mappings. Overall, our results corroborate the idea that proverbs are constituted by different conceptual mappings and that individuals may realise that when prompted to do so. Summing up, our study enabled us to gain insights into participants' perceptions of proverbs and their underlying conceptual mappings.

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A new understanding of metaphors: from collective data to individual cases

Abstract. Most theories on metaphor processing are categorical, focus on semantics, and ignore important empirical findings. In this paper, we show how complex systems science can help us understand the apparently contradictory findings in the literature. We claim that metaphors are best understood as processed by the dynamic interaction between different factors, with dynamically shifting weights, in different time scales. To understand what a metaphor means, we must consider the multidimensional aspects of meaning: a) schemas, frames, scenarios, etc.; b) attributes (e.g., big, cruel, etc.); c) phenomenological schemas (e.g., mappings of visceral sensations); d) valence (positive, neutral, negative), etc. These constructs are not an object in the mind or the same for everyone. They are formed by experiences — with some overlaps, depending on people's sharing of cultural and embodied similarities. We never know how one person will interpret a metaphor but can make informed guesses based on empirical findings.
Keywords: metaphor processing, dynamic systems, meaning, Psycholinguistics, Cognitive Linguistics.

1. Introduction

Blame it on Descartes or the computer metaphor of mind, but somewhere in the past cognition was separated from the body, the environment, and time. Consequently, its study was also largely isolated from other sciences. Generative linguists have explicitly stated that syntax is a module with its own rules, and many structuralists view language

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as an unparalleled object. These positions justify the study of language turning a blind eye to our human biopsychosocial existence. Cognitive Linguists, on the other hand, made a different promise to not overlook other sciences while developing theories, known as the cognitive commitment. However, they soon discovered that this was easier said than done.

Although language has distinct characteristics, producing and comprehending language is a behavior similar to others. Science has made substantial progress in understanding behavior as a multifactorial adaptation to local contingencies. One of the primary insights shared by scientists is that the phenomena we study are usually not categorical, but dimensional. This leads us to expect that findings do not apply to all people and all situations, and that theories claiming "all Xs are Ys" are often incorrect. For instance, it is not true that every individual who has the gene for depression will develop depression, or that every person who has experienced trauma will have depression. These are two of the dimensions that may contribute to depression, but they do not determine it.

Furthermore, it is evident to scientists that knowing a person possesses a particular trait does not guarantee that they are going to behave in a specific way in every instance. For instance, knowing that someone tends to be rude does not mean that they will display rudeness in every situation. Science cannot predict how individuals will behave in specific circumstances. Nevertheless, it is usual for linguists to extrapolate from general group tendencies to individuality (or from general tendencies to every context) when examining individual language usage or discourse. This involves using some tendency in word meaning, such as dictionaries, corpora, or theories and applying it to people's linguistic outputs.

When it comes to theories, it is still very common to theorize about different phenomena in language in categorial fashion: all metaphors are processed in one way or another. Either they are all processed as categorization (Glucksberg 2008), or analogies (Gentner 1988), or by resorting to conceptual metaphors (Lakoff 1993), or they must access the lexicon first, then contextual effects will follow (Giora 2008), and so on and so forth.

Besides, a great effort to integrate insights from different theories has been made by incorporating time as a variable into metaphor theorizing. Thus, Bowdle and Gentner (2005) have proposed that metaphors are processed as analogies when they are novel, and as categorizations when they get conventional, all the way to when they lose their metaphoricity by losing connection with their original source domain. Steen (2017) has readily adopted the bipartite theorizing style and stated that deliberate metaphors are processed by analogy, and non-deliberate ones are processed as lexical disambiguation.

However, these theories, along with others currently available, do not fully account for the psycholinguistic findings obtained through years of metaphor research. Therefore, the goal of this paper is to take us one step closer to making sense of these findings in a scientifically consistent way, in line with other fields. To achieve this, we argue that we

need to consider not only the variable of time, as suggested by Bowdle and Gentner, but also many other variables (such as environmental, conceptual, individual, social factors, etc.), as we will discuss here. Metaphor processing is the outcome of the interaction of various variables, with dynamic weight, over different timescales, and hence it is contextual. However, acknowledging the contextual nature of metaphor processing does not mean ignoring the role of the conceptual system (or "the lexicon," as some authors prefer to call it) in terms of tendencies in mappings or meanings (Giora 2008; Lakoff 1993). Ultimately, the conceptual system is one of the dynamic variables that affect, but do not determine, metaphor processing.

Since the wealth of data available on metaphor processing cannot be covered in one paper, our goal is to outline a new approach to metaphors based on research results and some complex systems science concepts that will be introduced when necessary.

2. Behavior: from collective data to individual cases

Human behavior is diverse and can vary between individuals and within individuals depending on various probabilistic factors. This phenomenon is referred to as self-organization since there is no central control that determines how we must behave (Siman 2022). Instead, behavior is a product of the interaction between multiple variables with dynamic weights operating on multiple timescales. To explain behavior, we need to consider different systems, such as neurons, hormones, cultures, interpersonal relationships, environment, memory, biases, and the developmental history of the agent. The emergence of behavior is the result of biases from different timescales and systems integrating the person, which makes the study of any behavior, linguistic or otherwise, an interdisciplinary endeavor.

Scholars acknowledge that prior experience can influence subsequent behavior. For instance, being primed with temperature-related concepts facilitates the processing of a novel metaphor such as "our marriage is an icebox." (Gildea & Glucksberg 1983). Knowing that a speaker is often ironic can make it easier to understand the ironic meaning of the metaphor "your son is an angel," which implies ill behavior (Pexman et al. 2000). Different types of prior knowledge can also affect how a subsequent metaphor is processed. This phenomenon is not limited to experiments as various variables operating on different timescales can influence our behavior in daily life. For example, not sleeping well at night may lead to increased irritability and rudeness during the day.

Thus, to comprehend why an individual has acted aggressively, for example, it is essential to understand various factors that trace back to the evolution of our species (Sapolsky 2017). Some species tend to be more aggressive than others, which may make all individuals more prone to aggression. Within a species, males or females may exhibit more aggression, and culture may develop where aggression is promoted or justified. Additionally, an individual's developmental history, such as experiencing abuse or neglect,

may lead to a propensity for aggression and other antisocial behaviors. Recent hormonal or neurological changes, cognitive biases, and living in a socially hostile environment are other potential factors that can increase the likelihood of aggression. Typically, no single source of causation is responsible for aggression, and instead, many variables may contribute to it in non-linear ways (Sapolsky & Balt 1996).

Scientists continue to discover how different variables, in different timescales, affect adult behaviors and outcomes. For example, the hormones an individual is exposed to in fetal life can impact them in various ways as an adult (Culbert et al. 2008). If the individual's mother experiences chronic stress, they may be more susceptible to developing psychological conditions (Coussons-Read 2013; Entringer et al. 2008). If the mother is food-deprived, the individual may be prone to obesity, and if the mother is facing poverty, the individual may experience neurological changes that affect their success in adult life (Engle & Black 2008; Magnuson 2008). However, none of these variables guarantees a specific behavior or outcome in life because variables interact with other contextual or environmental constraints and may contribute to an outcome or behavior. Every complex behavior, including aggression, thinking, and speaking, is multifactorial (i.e., determined by the interaction of multiple factors) and probabilistic (i.e., each factor may contribute from 0 to 100%).

Let us provide some examples to support the claim that behavior is affected by dimensional and probabilistic variables, not categorical ones. Numerous studies have demonstrated that animals in subordinate positions tend to experience more chronic stress than dominant animals. This is understandable, as animals with lower ranks often suffer abuse from dominant animals who may attack them out of frustration or for pleasure. However, it is important to note that this is not always the case, as Sapolsky (2004) points out. In certain species, being dominant can actually be more stressful than being subordinate.

For instance, in marmosets (Callithrix jacchus), subordinate individuals cooperate with their dominant counterparts and wait their turn to become dominant. Consequently, these subordinate marmosets do not exhibit high levels of stress (Abbott et al. 2003). On the other hand, in wild dog species, being dominant requires constant aggression to maintain dominance, which can lead to higher levels of stress in dominant animals (Creel et al. 1997). Even within the same species, subordinate animals may not always experience high levels of stress, as long as there is a culture of reconciliation among them (Sapolsky 2006). Besides, during a severe drought, subordinate baboons may not experience stress because dominant animals are too focused on finding food rather than attacking subordinates (Sapolsky 1990).

Context also plays a crucial role in determining whether being subordinate is beneficial or not. For instance, when a dominant animal dies or an animal from another group competes for dominance, the dominant animals in that group may experience stress,

while the subordinates do not (Sapolsky 2004). Moreover, when a new dominant animal enters a group and starts to terrorize subordinates, we would expect all subordinates to be stressed, but only those who are attacked will experience more stress, and in proportion to the amount of abuse they receive (Sapolsky 2004).

Lastly, an animal's personality can also influence its tendency to experience stress. Some individuals may have overactive stress responses, which can lead to higher stress levels even if their social position in life is good (Sapolsky 1990).

In a previous publication (Siman et al. 2021), we argued that while experiments on metaphoric framing effects identify variables that play a role in producing such effects, they cannot predict whether those variables will generate similar effects in real-life situations. Some studies indicate that metaphors at the end of a text do not affect reasoning (Thibodeau & Boroditsky 2011), but depending on their function, they may have an impact (Robins & Mayer 2000). Metaphors in a text may influence reasoning, but their effect can be countered by a contradictory source of information, such as an image (Hart 2017). Metaphors may shape reasoning when people have beliefs that are consistent with the metaphor, but people may reject the metaphor when it is inconsistent with their beliefs (Elmore & Luna-Lucero 2017). Recent research suggests that metaphors may influence thought when people feel uncertain about their knowledge of a subject (Flusberg et al. 2018). However, we have not yet explored how insecurity about one's knowledge interacts with the credibility of the speaker who produces the metaphor (e.g., if the metaphor comes from Donald Trump and the reader is an "insecure" left-winger). There are many variables involved in metaphoric framing effects, and even ecologically valid experiments can only test a limited number of possible interactions. Moreover, in experiments, participants are asked to make judgments immediately after reading the metaphor, which may not reflect how people react to metaphors in real-world situations. Therefore, we cannot currently predict the effects of any single metaphor in real-life situations.

Scientists in many disciplines understand that there is no universal human being and that the concept of a "norm" is merely an abstraction or illusion. Every person is unique, even though shared properties are relevant for the scientific understanding of human bodies and minds. This is true for medicine and linguistics alike. Dictionary definitions of words may serve as a helpful abstraction across different people and contexts, but the mind cannot be reduced to a dictionary. The meaning of a word depends on the recurrent and different experiences that each individual has with that word within the context in which it is used. Fortunately, shared experiences within a culture ensure that we can understand each other probabilistically.

To capture the idea that words have senses that are more frequent or relevant, but not necessarily the sole meaning of the word, we describe the mind as a high-dimensional space, in which the most "central" aspect of meaning is an attractor basin. This concept serves two purposes: first, the idea of an "attractor basin" ensures that the central aspect

of the meaning is accessed probabilistically during language processing, without the need to retrieve the full meaning of the word. Second, different attractors can exist alongside the central one, allowing for different nuances of the meaning of the word to be accessed depending on a person's experiences with that word and the context in which it is used.

Thus, while experiments (and other studies) in biology, psychology, and linguistics show highly distributed tendencies in human behavior under specific conditions (which can generalize well or not), when we look at an individual, we do not know what's caused his behavior or what is in his mind. We may make informed guesses based on science, knowing that this practice is incomplete and knowing that an in-depth analysis of the individual's contingencies may support or contradict our informed guesses.

3. Metaphor processing: from collective data to individual cases

People do not start processing a metaphor from an unbiased situation. Their minds are not a blank space where processing begins unconstrained by previous experience and information. In complex systems terms, processing is affected by variables in different timescales, from people's past experiences with a metaphor to their personalities — different biases affect processing, we just need to explain how.

Moreover, when people come across a metaphor, by reading it or listening to it, their minds do not derive all possible meanings a metaphor can have. They derive one or a few, but not all of them. Most often, the meaning of the metaphor will be derived unconsciously, but even if one tries to derive meanings consciously, only a few possibilities will be available in one's mind. The mind is not a database from which you can retrieve — at your power — all the possible meanings for a metaphor. "Life is a journey" could mean something along the lines of "long", "short", "has a beginning, a middle, and an end", "is a process", "has a departure point and a destination", "is tiring", "is full of obstacles", "is fun", "exciting", etc. Certainly, no one will come up with all plausible meanings for this metaphor — we just need to explain how our minds derive (some) meanings. Not only that, we must explain how the same person can derive different meanings for the same metaphor in different contexts. So here are some of the questions we must explain about metaphors:

1) How different people can derive different meanings for the same metaphor.
2) How the same person can derive different meanings for the same metaphor on different occasions.
3) How different people can derive similar meanings for the same metaphor, so that we can understand each other (and different meanings, so we can misunderstand each other, as stated in #1).
4) What the "mechanism(s)" responsible for metaphor processing is.
5) How metaphor processing changes in time.

There are, of course, many other important questions about metaphor processing that we cannot explore here, among which: when and why we project new information to metaphors (Bowdle & Gentner 2005), how metaphors can be a type of loose talk in some contexts (Sperber & Wilson 2008), why we are conscious of some metaphor mappings in some contexts but not others (Steen 2008), etc.

All human behavior, metaphor processing included, is self-organized by the interaction between different variables in different timescales. A self-organized system is one which does not have a predetermined blueprint but is instead organized by the interactions between organism and environment (Gibbs 2019; Spivey 2006). In the case of metaphor processing, the variables involved in producing an outcome, a metaphor comprehension, are (among others):

(i) conceptual: from previous experiences of processing metaphors by cross-domain mappings.
(ii) individual: the experiences of each individual with the metaphors they have been more or less exposed to in a culture — people's minds are unique. This can be broken down into tendencies that can be found in different age groups, different sexes, different neurological make-ups, different personalities, different ideologies, different analogic abilities (Trick & Katz, 1986), differences in fluid and crystallized intelligence (Stamenković et al., 2019), etc.
(iii) linguistic: metaphors may appear in different grammatical forms, which can affect their meanings. Most notably, similes and metaphors can be processed differently (Bowdle & Gentner 2005).
(iv) immediate information: this includes the interaction — or what a person knows about their interactant and what the interactant has recently said; priming effects, information that is available in the context and co-text, etc.
(v) metaphors' characteristics: familiarity, aptness, conventionality, semantic density, history of previous uses, etc.
(vi) time: onset of processing, or later stages of processing.
(vii) task: interpreting a poem, processing an uninteresting conversation, etc. See more in (Gibbs 2013).

Metaphor processing is a very complex phenomenon. However, a very simple way to illustrate the gist of this dynamic theory would be to consider Figure 1.

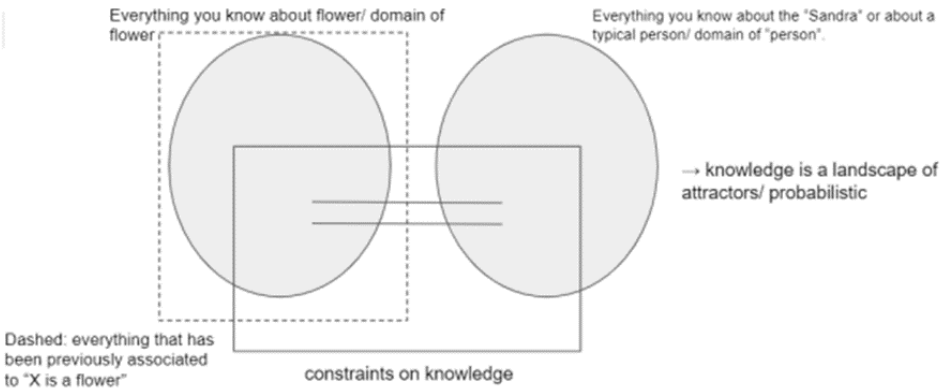

Figure 1. Metaphor processing

In a brief analysis that is meant to capture some aspects of metaphor comprehension, we start with the pairing of two concepts involved (vehicle and topic). People will not activate all the information they have on the concepts, and they will not produce all plausible mappings between the two concepts: the information available in the concepts are constrained by different variables. For example, if a person has recently heard (e.g., in a conversation) or frequently heard (e.g., as a member of a cultural group) some information about the topic of the metaphor, this information will be more salient: they will be more strongly active or more accessible in the concept. Moreover, some information about the vehicle will become more active than others, as a function of the topic (and what is salient in it). All information is dynamically activated, so even though some conceptual information may be highly active regardless of the context, if the context at time X is strong enough, it can weaken the strength of the usual variables (that tend to be strong in most contexts). What this means is that even though we may have a strong tendency to derive meaning X for a metaphor, there can be a context that biases the meaning so strongly in some other direction as to weaken or inhibit meaning X.

Within the concepts (vehicle and topic), the information that will be constrained and matched can be of different kinds. They are multidimensional: a) schemas, primary metaphors, frames, scenarios, etc.; b) attributes (e.g., beautiful, big, cruel, etc.); c) phenomenological schemas (e.g., mappings of visceral sensations); d) valence (positive, neutral, negative). We must consider that: a) any of these dimensions of meaning can be active, depending on the context; b) more than one dimension can be active, depending on the context; c) these dimensions can be probabilistically active, depending on the context (it is not an all or nothing switch). We must also consider that these constructs are useful for theorizing, but they are not exactly the same for everyone, since these dimensions of meaning are constructed depending on people's unique experiences — with some common overlaps, depending on their sharing of cultural and embodied similarities. Besides, we must understand how different variables in different timescales interact making it

possible for people to understand one another, but also to misunderstand one another. The variables (and their interactions) are discovered or tested in different experiments and can be observed in practice in our daily lives.

By taking the psycholinguistic literature into consideration (and some extrapolations that should be tested), metaphor processing starts by the pairing of two domains or concepts[3]. After pairing the concepts, some of their properties need to be matched. The properties that will get matched depend on different biases and the strengths of the biases, which are set contextually. We call those biases attractors. The notion that language processing is like traveling in a trajectory with many attractors exerting different forces helps us understand three facts about processing. First, the mind is not a dictionary in which one word evokes one full-blown meaning. Instead, processing is probabilistic, and meaning is accessed probabilistically, as explained by Gibbs and Santa Cruz (2012). Moreover, there are many attractors for one word's meaning, which gives it nuance and can include different aspects of one's subjective experience with that word (e.g., emotional valence, a sense of where to use the word, who to use it with, etc.), which is part of the meaning. Lastly, since processing is a pathway along many attractors, the pathway need not be always the same: starting from a different place can lead to different semantic experiences in different contexts.

We do not read minds; no one does. The difference between what we propose here (in line with Spivey, 2008), and what traditional cognitive linguistics proposes is that the traditional constructs of linguistics are generic. They are meant to capture a generalization for a given phenomenon (as if context and time did not exist). Here, we are presenting an idealization of an individual mind, not a generic one. Individual minds are bound by time, history, context, previous experiences, etc. They are not an abstraction, but we cannot know any individual mind, so we are going to create one based on the dynamic system's theory and empirical results.

Each mind at each moment is a landscape of attractors. Much more than we can represent here. Thus, our representation here is, of course, a simplification. Figure 2 represents an idealization of the processing of the metaphor "Sandra is a flower". At the moment we say "Sandra", there is a lot of salient contextual information about Sandra, especially if she is in front of us and has just said or done something interesting. This salient information constrains what will come up for the second concept probabilistically. The second part of the probabilistic constraints comes from our frequent or otherwise salient uses of this metaphor. In different contexts, different concepts may dominate

3 The approach to metaphors presented here is not supposed to make categorical claims. For example, up to this point, experiments suggest that metaphor processing starts by pairing two domains/concepts, but in the future, we might find out that other types of metaphor do not need pairing. Thus, the approach will be updated.

the processing. In this case, "delicate" is the dominant attractor in the landscape and it matches the contextual information, thus processing goes smoothly. In figure 2, concept 2 (Flower) is already affected by the previous processing of the same metaphor "X is a flower", thus it contains more information than a non-metaphoric concept of flower would contain (i.e., literal flowers are generally not said to be kind). Concept 1 is about the other term of the metaphor, in this case, "Sandra". We may know a lot or little about Sandra, and it should affect our landscape. In this idealization, we know by the context that Sandra is very delicate, very nice, somewhat kind, etc.

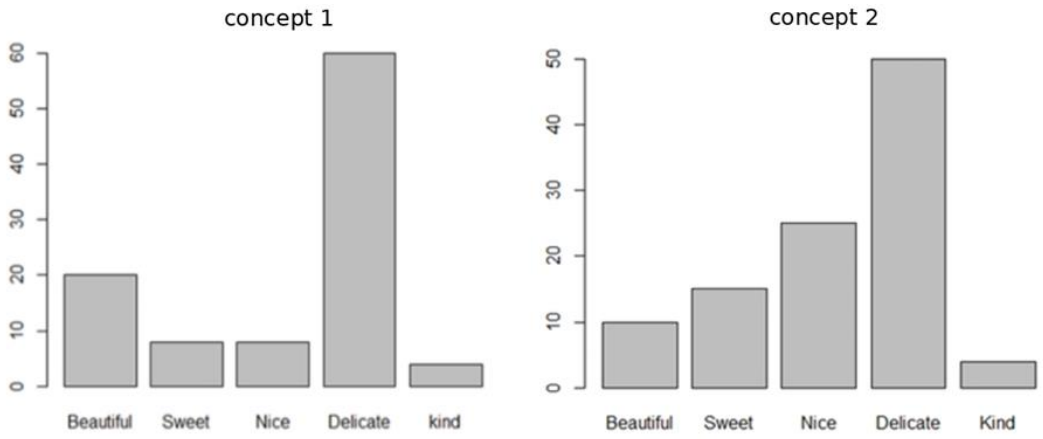

Figure 2. Idealized landscape: concept 1 (with some probabilistically salient properties) and concept 2 (with some probabilistically salient properties). Axis y represents the levels of activation of properties. Metaphor: "Sandra is a flower".

Remember that this is not a picture of what is happening in the mind. All theories are summarizing, condensing a complex multivariate world into simple equations, graphs, stories, metaphors. The world is more complex than we can grasp. Thus, the figures presented here could be broken down into different aspects and could show different parts and facets of cognition. We are choosing to emphasize some aspects that are derived from the results of experiments and which fit a new dynamic understanding of metaphor processing. Another important discussion that we are omitting (for now) is about the distinction between analogy and categorization in this model. The reason for that is that we are running further tests to understand the difference between the two. At this point, we consider the mechanism to be the same, and the difference in processing time shown in experiments to be due to repetition (i.e., reprocessing similar metaphors) and the strength of the biases that induce meaning.

There are two more things that are important to add. One is that all of this happens in flux, or in a continuum. The illustrations represent static and separated objects, but this is just for convenience. The other issue we would like to quickly address is how conceptual metaphors (Lakoff & Johnson 1980) are biases that constrain (probabilistically,

not deterministically) meaning. The experimental evidence on CMT shows some consistencies regarding CMT's role in memory (Nick Reid & Katz 2018) and in processing (Thibodeau & Durgin 2008) — for a more extensive discussion see (Siman 2022). This is not to mean that conceptual metaphors always constrain meaning (McGlone 1996; Miller et al. 2020), but that they do, probabilistically, in some conditions. More studies are needed if we want to specify the interactions that lead to a higher probability of using conceptual metaphors in meaning.

The approach that we briefly presented here is novel and under construction, differing from other approaches in that it is dynamic: the constraints that affect metaphors are multiple and probabilistic, allowing metaphors to have different meanings in different contexts. This approach can be contrasted, for example, with the classic version of Conceptual Metaphor Theory, which proposes that metaphors are processed by fixed, pre-established cross-domain mappings. This approach also differs from models that claim that the mappings occur because of previous similarities between the two concepts involved or from theories that focus on semantic concepts isolated from their contexts (Ortony 1979).

4. Implications for other theories

In the 19th century, John Stuart Mill classified psychology as an inexact science: just like meteorology, we could only predict what minds would do probabilistically. There's a high likelihood that it is going to rain tomorrow, but maybe it won't. If you know that your professor tends to smile when he starts the classes, you might predict that he will smile in the next class… but maybe his dog will die, or he will have a headache, or his boss will threaten to fire him: knowing that a person tends to behave in one way does not guarantee they will behave the same way next time. The same is true for metaphor processing. There are no universal rules that can predict metaphor meaning for all people in all contexts — there are only tendencies. Metaphor meaning is not an exact science (at least not yet).

When we understand this argument, we understand not only the worth of proposing a dynamic theory of metaphor meaning but also what is wrong with all categorical theories of meaning. Conceptual Metaphor Theory (CMT) has made both wrong and useful predictions, which we discuss in (Siman 2022). Just to make the point brief: there can be no single source of constraints on cross-domain mappings, no fixed set of cross-domain mappings that are valid in all contexts — which does not preclude CMT from being valid or partially valid in some conditions, or under some experimental constraints. Gibbs and Santa Cruz (2012), on one hand, and Kovecses (2017) on another, assume a somewhat dynamic position toward conceptual metaphor processing, but they restrain metaphor meaning to some constructs that are found in cognitive linguistics: primary metaphor, schemas, frames, etc. However, metaphor meaning can go beyond these constructs (e.g.,

attributes) (McGlone 1996; Siman et al. 2022). These theories also do not acknowledge how different factors may lead to different outcomes in metaphor processing (i.e., outcomes that are not predicted by CMT). They do offer important insights into how different constructs can be useful in discussing metaphor processing, but they are rather biased in terms of what aspects of meaning are worth theorizing about.

Steen's (2017) DMT divides processing into binary categories: deliberate metaphors are processed as analogies, whereas non-deliberate ones are processed as categorization. The problems with the theory arise at different levels. First, not all novel metaphors seem to be processed in the same way (Glucksberg 2008). Second, novel metaphors may be very much novel or they may rely on conventional metaphors (Siman 2022), thus novel and conventional metaphors might be a continuous category rather than a binary one (which should affect the distinction regarding deliberate and non-deliberate metaphors). Third, very often what seems to be deliberate carries with it a lot of unconscious processing (Bargh 2017; Gibbs 2011). But what is more relevant to our point is that DMT once again relies on metaphors having two universal meanings (either a lexical or an analogical one), as predictable as the laws of classical physics, which we know cannot be true. The theory can be further specified to claim that it does not care about the particular meanings of the metaphor, only that there are two independent processes to derive this meaning (lexical access and analogy), but still, the theory would lack the specifications of how meanings can be different, and the binary distinctions often turn out not to be binary.

Gentner and Bowdle's (2005) theory manages to get an important insight into how metaphor processing changes over time. But the theory fails to make sense of conceptual metaphors' role in metaphor processing, of the fact that some novel metaphors seem to be processed just as quickly as conventional ones (Glucksberg 2008), and of the fact that some metaphor processing seems to go beyond analogy (and categorization as resulting from analogy) (Siman 2022), as discussed in the previous section.

Gibbs's (1994) proposal that metaphors are processed contextually disregards Giora's (Peleg et al. 2001) findings about the role of salience in processing. Sometimes, the most salient meaning of the metaphor is accessed even when it is not contextually adequate. On the other hand, Giora's theory must be further tested considering that even highly salient meanings may fail to be accessed when other variables increase the salience of less salient meanings. This needs to be tested to understand if the salient meaning is inhibited or less active, but daily life experiences with this phenomenon abound: for example, a friend reported reading "amendoim sem pele" (skinless peanuts) as "amendoim sem Pelé" (Peanuts without Pelé) on the day that the famous soccer player Pelé died. His first interpretation was that the peanuts were mourning Pelé (the peanut brand could be paying tribute to Pelé), but he later realized that it was skinless. "Skinless peanuts" is the most frequent and meaningful interpretation for those signs, but Pelé was just too salient in our culture to be blocked.

The overall point is that all experimental findings shown are tendencies (instead of rules) in particular circumstances. The change in those circumstances can lead to different behavior or different interpretation of the metaphor. That is why metaphors are best seen as processed by the dynamic interaction between different factors, with dynamically shifting weights, in different time scales.

The approach to metaphors presented here is meant to put the puzzle together of what empirical findings are telling us about metaphor processing. It is often the case that this presentation leads to a question: what are the predictions this new approach to metaphors is making? As one might guess, we cannot make predictions of the kind generic theories do. We cannot claim "all metaphors will be processed in X way" because we are saying metaphor processing is the result of different variables interacting dynamically. What we can do, instead, is to use this approach to guide us into challenging generic claims, further inquiring into each result: what variables could change the result we got? We cannot know *a priori* what variable will affect the results, but we can look at the world and at science to hypothesize. We work on the principle that most things can change, and our goal is to understand under what conditions they change, knowing that variables can be in different time scales and have different strengths.

5. Why dynamic systems theory?

One could argue that it is widely recognized that meaning is subjective and context-dependent. However, the mechanics of contextual meaning are a subject of debate, as evidenced by the differing perspectives of Giora (2008) and Gibbs (1994), which we have addressed in this paper. Conceptual Metaphor Theory (CMT) scholars generally assume that the meaning of a metaphor is confined to certain constructs used in Cognitive Linguistics (e.g., primary metaphors, frames, etc.), while other theories either disregard conceptual metaphors altogether or only acknowledge their use in novel metaphors (Glucksberg & Mcglone 1999; Steen 2017), which may be an oversight (Thibodeau & Durgin 2008). Although it is commonly understood that meaning is individual, no coherent theory has emerged to explain the specific ways in which meaning is both individual and shared, and how the findings in the literature fit together. We propose one approach to making sense of these issues, which can be subject to discussion, refinement, and refutation.

Of course, all explanations are partial and provisory since our knowledge about the world is ever changing. One might wonder why propose a provisory theory that attempts to summarize our current knowledge about metaphors or why bother explaining when the explanation is incomplete and might be discarded a few years from now. Should we create theories with the only purpose of predicting new data? The fact is that theories, regardless of what they predict, end up telling us what is relevant (or irrelevant) in the world and how to tackle real problems. And we believe that the current theories dismiss important aspects of experience, lead to wrong decisions about how to tackle real

problems, and can, potentially be harmful as they ignore important variability between people (an issue that will be addressed in a different paper).

In psycholinguistics, theories serve the dual purpose of elucidating existing data and predicting new discoveries. Categorical theories or claims are valuable in that they can be supported or refuted by different experiments repeatedly, as seen in the "Metaphor Wars" (Gibbs 2017). On the other hand, a probabilistic theory appears to be an inadequate replacement for our trial-and-error approach. After all, if everything is probabilistic and dependent on the intricate interplay of factors, then nothing can ever be definitively ruled out! However, experiments do not conclusively invalidate theories (Meehl 1967). Moreover, human behavior is characterized by self-organization driven by multiple variables that do not operate deterministically in isolation, but rather interact in non-linear ways, resulting in a deterministic outcome. That is, categorical theories might be good for predictions but not realistic for explanations.

It is also important to realize that experiments artificially hold constant some variables as they change the one variable under investigation. For example, we may create equal texts and change only one metaphor as we investigate the metaphoric framing effect in the context of Covid-19. But in the wild we cannot tell people to hold still and not learn anything new about Covid, not be exposed to new metaphors, new texts with the same metaphor, new ideas, new challenges in their lives regarding Covid. There is no *ceteris paribus* in the wild. The world is dynamic; it is in a state of flux. This is another reason we should consider dynamic theories since it prevents us from making naïve claims about metaphors and society (or more generally about experiments and individuals or societies).

One of the uses we get from Dynamic Theories is a way to articulate what different sciences are showing us regarding different human facets. They explain why we encounter conflicting results and observe behaviors that manifest in certain contexts but not in others. This raises the question of falsifiability: What would convince a dynamic systems scientist to change their minds? Dynamic theories are refuted when scientific evidence demonstrates that behavior is not influenced by multiple variables in different timescales in a probabilistic manner. This would require a scientist to uncover a fundamental universal principle that accounts for all the seemingly disparate behaviors exhibited by individuals, rendering the explanation of dynamic variations unnecessary. From a dynamic systems perspective, however, the ideal of a universal theory is unattainable.

Alternatively, we could settle for an alternative theory that elucidates differences and adaptable behavior. Nonetheless, the history of science has taught us that novel theories explaining the same phenomenon come with both advantages and disadvantages compared to existing ones. The bottom line is that no theory is definitive, and we should employ them if they enhance our understanding and help us address real-world problems. One way to interpret our proposition in this paper is to view our theory as a temporary

placeholder for our accumulated knowledge about metaphors. It serves as a framework for organizing our understanding and thinking about the world.

Dynamic theories can be misconstrued as "theories that explain everything but end up explaining nothing." However, no theory can explain everything. Science continuously develops, revealing realms beyond our current grasp. Dynamic theories are just as partial as other theories. Holism should not be seen as a replacement for reductionism but rather as a complementary and partial approach that contributes to science (Ayers 1997). But how does it contribute to science? Considering other theories, the expectation is that we will make categorical predictions that can be tested. However, even categorical theories (in psychology and linguistics) do not specify the exact conditions when support is to be found.

Thus, if dynamic theories are claiming that behavior is the result of the dynamic interaction between different variables in different timescales, the only way we can predict behavior is by knowing all the variables that lead to an outcome for each person – which at this point is impossible. We can't predict behavior unless it is in a probabilistic way. And this is a fact for all theories, dynamic or not.

With that in mind, some predictions within Dynamic Systems studies involve understanding different phenomena as continuous rather than binary. For instance, Farmer et al. (2007) tracked the trajectory of mouse movements as individuals decided between two potential interpretations for garden path sentences. By capturing mouse movements, the authors revealed the gradual nature of people's thinking, influenced by linguistic and visual information processing biases. Nearly any phenomenon can exhibit continuity, ranging from metaphorical to literal language, from novel to conventional metaphors, and from abstract to concrete language. Identifying informative ways to test continuity can advance our understanding of cognition, particularly toward a non-symbolic/non-representationalist perspective (Spivey 2006).

Another important trend is to explain phenomena through a unified mechanism rather than multiple ones. For instance, instead of positing separate mechanisms for processing regular and irregular verbs, it is plausible that the same mechanism handles both cases (Joanisse & Seidenberg 2005; Rumelhart & McClelland 1985; Seidenberg & Plaut 2014). Similarly, rather than attributing different mechanisms to conventional and novel metaphors, it is likely that they operate under the same "mechanism". Our future objectives include designing experiments that shed light on how this may be possible. Therefore, if we can challenge prevailing beliefs and demonstrate, through experiments, the plausibility of an alternative explanation, it signifies a scientific advancement. When there are multiple plausible explanations for a phenomenon, there is more knowledge to be gained.

Researchers studying dynamic systems also approach the notion of fixed structures in the mind with skepticism. By altering the experimental conditions, we may discover

that what we think is a fixed cognitive structure is, in fact, a dynamic response to the task at hand. Significant modifications to the task can elicit different responses (Perone & Simmering 2017). In this paper, we have discussed how Giora's (2008) proposition, suggesting that metaphors are initially processed by accessing the lexicon, can be challenged through experiments showing that we can manipulate the salience of a less prominent meaning of a word contextually. This manipulation results in the less prominent meaning being accessed first, contradicting the notion that the "lexical" meaning must be accessed prior to contextual factors. Indeed, scientists have attempted to refute other theories by creating situations that defy their predictions. From a dynamic systems perspective, it is unnecessary for someone to predict something before demonstrating that the prediction does not hold in alternative contexts; this is done under the assumption that cognition is dynamic.

In essence, certain theories must undergo revisions when their predictions are found to be incorrect. Dynamic systems theories, on the other hand, are subject to change with each new finding, unless the discovery undermines crucial tenets of the theory (such as determinism, non-representationalism, dynamic adaptable behavior, etc.). While psycholinguists may not favor this style of theorizing, it is indispensable for professionals working in applied sciences (e.g., psychotherapists, physicians, linguists). Understanding how different variables impact individuals in varying ways, whether in symptom manifestation or meaning interpretation, is essential for comprehending individuals and societies, and for understanding that what may benefit one person or group might harm others (i.e., non-linearity).

6. Final considerations

To understand what a metaphor means, we must consider the multidimensional aspects of metaphor meaning: a) schemas, primary metaphors, frames, scenarios, etc.; b) attributes (e.g., beautiful, big, cruel, etc.); c) phenomenological schemas (e.g., mappings of visceral sensations); d) valence (positive, neutral, negative). We must consider that: a) any of these dimensions of meaning can be active, depending on the context; b) more than one dimension can be active, depending on the context; c) these dimensions can be probabilistically active, depending on the context (it is not an all or nothing switch). We must also consider that these constructs are useful for theorizing, but they are not exactly the same for everyone, since these dimensions of meaning are constructed depending on people's unique experiences, with some common overlaps, depending on their sharing of cultural and embodied similarities. Besides, we must understand how different variables in different timescales interact, making it possible for people to understand each other, but also to misunderstand each other. The variables (and their interactions) are discovered or tested in different experiments and can be observed in practice in our daily lives.

Scholars often express skepticism towards dynamic theories when it comes to predictions and falsifications, which we have discussed in this paper. However, we want to emphasize that scientific inquiries also delve into the nature of the mind, the process of interpretation (meaning-making and linguistic processing), and how we interpret findings in the existing literature. The theoretical framework proposed in this paper presents specific claims on these matters, which can be compared to what is already known in psycholinguistic literature and the broader field of humanities. Ultimately, we hope that our paper sparks a philosophical discussion on how to articulate our understanding of metaphor processing, the implications of conflicting findings, and how to approach individuals' discourse when we lack knowledge of their personal history leading to their statements.

By taking a broader perspective on science, we can observe that the problems encountered in one field are often found in many others. In essence, various disciplines grapple with the multidimensional nature of objects, such as diseases, cognition, and development. While traditional science focuses on generalizations, universal rules, and shared trends among many cases, applying science to real-life situations requires us to understand how the interaction of variables leads to non-linear differences. We cannot ignore the fact that people respond differently to the same stimulus in different contexts. Dynamic Systems approaches shed light on these variable interactions.

This paper makes the point that all experimental findings show tendencies (instead of rules) in particular contexts. The change in those contextual variables can lead to different behavior or different interpretation of metaphors. That is why metaphors are best seen as processed by the dynamic interaction between different factors, with dynamically shifting weights, in different time scales.

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Feminists are warriors: Framing effects of war metaphors

Abstract. Metaphors influence general attitudes towards political and social ideas (Otieno et al. 2016). In particular, war metaphors are very common in political discourse. Their framing effects, however, depend on the context in which war metaphors are used, rendering positive or negative outcomes (Flusberg et al. 2018; Thibodeau 2018). Reali (2021) explored metaphorical framing of feminism and women in feminism-related news in online media in Spanish, finding that war metaphors depicting women as warriors fighting for their rights were the most prevalent ones. Here, we use an experimental paradigm to explore whether the use of war metaphors affects the perception of issues defended by the feminist movements. Spanish-speaking participants were exposed to a vignette describing a hypothetical case of elective abortion. Two variables were manipulated in a 2X2 between-subjects design: 1.the use of warfare framing (war metaphors/neutral frames), and 2.the use of inclusive language in Spanish (gender inclusive/gender neutral language). Additionally, participants' sociodemographic data were collected. A series of regression analyses showed an effect of metaphorical framing on the perception of the right to decide, perception of the partner's right to opine, and the perception of the main character's coldness when controlling for sociodemographic variables. The use of inclusive language had little effect on perception. Consistent with previous findings, sociodemographic factors strongly affected perception: men, and conservative and religious participants rated the right to decide lower, and character's coldness as higher.
Keywords: feminism, metaphorical framing, Spanish media, conceptual metaphor theory.

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1. Introduction

While the visibility of feminist movements has increased in the last few decades, the nature of the perception of feminism is heterogeneous (Gill 2012). Online media has enabled the representation of important feminist ideas. However, a tendency towards a negative and sexualized construction of feminism in popular culture has been documented. For instance, feminism is often represented as an outdated theme or treated with irony, and most scholars agree that the prevalent image of the movement in the media is negative (Dean 2010; Jaworska 2012; Lind & Salo 2002; McRobbie 2009). Also, over recent decades, scholars have studied the kinds of stereotypes that shape the perceptions of feminist women. Haddock and Zanna (1994) documented that feminists were evaluated less favourably than housewives, and that the most negative attitudes toward feminists were from conservative males. Ramsey et al. (2007) argue that there is a widespread belief among women about the negative perception others have of feminists. Bashir et al. (2013) identified a series of stereotypes related to feminism and feminist women, including men-haters, cold, lesbian, unhygienic, angry, unattractive, liberal, ambitious, loud or mean. Similarly, Meijs et al. (2019) documented that women who label themselves as feminists are seen by others as less warm and more competent than women who express gender equality beliefs but do not identify as feminists.

Perceptions and opinions related to feminist causes and women's rights have been investigated mostly in Western media coverage. For example, in the specific case of abortion rights, research on media coverage has been predominantly conducted in the USA with a major emphasis on adult women (Feltham-King et al. 2015). Some attention has been directed at the framing of abortion messages aimed at younger demographics. Patel and Johns (2009) documented marked gender differences in the perception of abortion. Females showed more liberal attitudes towards abortion, and generally, attitudes were mediated by religiosity. In the specific case of Colombia, where the data for the current study have been collected, Dalén (2011) showed that opinions and perceptions of abortion are inconsistent and polarized in the media.

2. Metaphorical framing

One way to examine opinions and attitudes towards social matters is to explore linguistic framing, and specifically the type of metaphors used in the media to depict an issue. Metaphors are ubiquitous in everyday communication. Lakoff and Johnson's (1980) conceptual metaphor theory (CMT) has grounded the theoretical basis for the fundamental link between metaphors and cognitive processes. In relation to public opinion, CMT proposes that metaphors shape attitudes, opinions and reasoning because they highlight some aspects of concepts and shadow others (Thibodeau et al. 2019). Because of this, metaphors are used in political discourse as a rhetorical strategy. A growing bulk of evidence in cognitive linguistics and corpus linguistics has established that metaphors

in political and social discourse influence reasoning and decision-making (e.g., Semino 2017). Otieno, Owino and Attyang (2016) reviewed data from all over the world, showing that metaphors have been utilized to facilitate the understanding of political issues, influencing general attitudes towards them. In addition, the use of certain metaphors over others reveals the speakers´ ideological views (Otieno et al. 2016).

Metaphors of women

Outside of feminist discourse, women have been depicted through metaphors in the most varied of ways across different cultures, text genres and time periods. Metaphorical representations of women often have negative connotations (e.g., Yu 2021). Common metaphors compare women to animals or plants, body parts, commodities and objects. For example, corpus analysis results show that the metaphor WOMEN ARE ANIMALS (including depictions of women as pets or wild animals) is quite prevalent across different languages, especially English and Spanish, throughout history (Ho 2022; López 2009; Turpin-Moreno 2014). In the specific case of Spanish, López (2009) concludes that figurative usages of labels such as "vaca" (cow) or "zorra" (vixen) to describe women contribute to normalized social degradation, while Turpin-Moreno (2014) emphasizes that animal imagery conveys negative ideological values in reference to representations of women and their behaviour. In addition to animal imagery, studies on other languages have shown that common frames for women in the news media include objectivizing metaphors such as WOMEN AS BODY PARTS (Chin 2009) or WOMEN ARE COMMODITIES, WOMEN ARE PLANTS, WOMEN ARE A FARMLAND (Ahmed 2018). Some studies focused on the representation of women in academia, showing that the most common metaphors involve the framing of women as strangers/outsiders or mothers/housekeepers (Amery et al. 2015).

Metaphors of feminists and feminism

Some recent studies have looked at metaphors used to describe women in feminism-related discourse, as well as the figurative construal of feminism itself. Recently, Reali (2021) explored the metaphorical construal of feminism and women in feminism-related news in online media in Spanish, using the News on the Web corpus (from Corpus del Español). The results showed that, in this context, the most common metaphors used to describe feminism and women are warfare ones, presumably associated with the intention of empowering the feminist movement. In many of the examples provided by Reali, feminist women were depicted as warriors fighting for women's rights against patriarchy (1a). In some other cases, feminism itself was described as a nation/state/territory or battlefield undergoing a war (1b). The following are examples extracted from Reali (2021):

> 1a. Quizás por ello, el feminismo de clase comience a ser una verdadera amenaza para el sistema que combate, atacando todos los privilegios.' (Diario de Cádiz, Spain, 2019) (tr.

Maybe because of that, class feminism starts to be a real threat to the system it fights, attacking all its privileges)

1b. [..] participó en un debate sobre las victorias y derrotas que ha vivido el campo de batalla del feminismo, en el que su propia experiencia es protagonista.' (La prensa gráfica, El Salvador, 2019). (tr. [..] participated in a debate on the victories and defeats that the feminist battlefield has gone through, in which her own experience is a protagonist.)

The question remains, however, as to whether war framings elicit positive or negative reactions in the eyes of public opinion. Previous work on war metaphors in political discourse—not specifically in reference to women or feminism—has suggested that war metaphors may convey negative connotations such as an increase in fear emotions and political polarization. The use of war metaphors activates conceptual structures related to the representation of "wars", and the schematic knowledge we have of them is used to understand abstract issues. Along these lines, Flusberg et al. (2018) argue that when we use war metaphors to talk about political matters, we understand the phenomena in terms of opposing forces, with an implicit distinction between good and evil sides at play. Also, they note that war frames may convey a sense of fear and urgency as the schema of wars is related to anxiety in the face of risks, and feelings of despair and death. Consistent with these ideas, political discourse studies propose that war metaphors are used as a discourse resource in political rhetoric to bring up a sense of fear (Alexandrescu 2014; George et al. 2016). Additionally, studies on war metaphors for climate change or illness have found that this framing magnifies a sense of threat, possibly triggering negative reactions. In one of these studies, Alexandrescu (2014) analyzed the 'war on drugs' frame, concluding that it can be counterproductive, as it highlights the dangers of drug use. Semino and collaborators conducted studies on the framing of illness such as cancer, suggesting that warfare metaphors (i.e., "the battle against cancer") may trigger fear or threat in reaction to illnesses, resulting in demotivation (Degner et al. 2003; Semino et al. 2018). On the one hand, they have argued that war metaphors can also be empowering for some cancer patients, especially when they are undergoing treatments that are curative (Semino et al. 2018).

Along similar lines, this paper explores the influence of war metaphors used to frame feminist causes. The schema of a warrior brings on an active position and the perception of control over events that counteracts the vulnerable position traditionally associated with women in relation to their rights. Then, feminism, construed as a movement at war against oppressive principles, may encourage empowering positions. On the other hand, however, war metaphors may also bring forward the aggressive side of the movement and its defenders, resulting in antagonistic reactions that are counterproductive to the cause. For example, some feminism scholars have expressed concerns in relation to the

foregrounding of feminist empowerment in the media. Rosalind Gill (2012), for example, argues that the notion of empowerment is often cast as an individualized phenomenon, unrelated to the relevant issues of power and oppression. As empowerment might motivate and inspire young feminist audiences, it may, at the same time, 'threaten to reinstate the terms of the "sex wars" of the 1980s, with their familiar polarization and discomfiting' (2012: 741). The revised findings motivate the empirical question of whether the use of war metaphors to frame feminist ideas influences positively or negatively the perception of these ideas. The first goal of this study is to address this question, exploring the influence of warfare framing on the perception of certain feminist causes. To achieve this goal, we use an experimental paradigm to manipulate linguistic framings before measuring opinions. We focus on the effect of framing on the perception of a controversial issue (abortion) as it constitutes a cause defended by feminist movements. We hypothesize that framing feminists as warriors fighting a battle against patriarchy may have empowering effects.

3. Gender-inclusive language

The use of metaphor is one among many possible linguistic frames that could potentially influence the perception of feminism-related issues. In the case of Spanish, among other languages, in recent years gender-inclusive forms of language have emerged (see Papadopoulus 2022 for a recent review). Some manifestations of these forms include the use of neutral markers in nouns to replace traditional gender-marked nouns and verbs (i.e., *latinx, todes* "everybody") or the use of neutral pronouns (e.g., *elle* "they"). These forms allow for the expression of nonbinary gender identities in the language and for a systematic replacing of the masculine form of pronouns and conjugation to refer to men and women. That is, the inclusive grammatical genders (e.g., *the* x *gender, the* e *gender*) are used in place of the canonically masculine gender to refer to groups of people integrated by more than one gender.

Gender-inclusive language is a form of linguistic framing that operates in discourse. Being a quite recent phenomenon, there is a lack of empirical studies looking at the influence of the use of gender-inclusive language in sensitive feminism-related issues. The second goal of this paper is to explore whether the use of gender-inclusive language exerts a measurable influence on the perception of feminist causes. To achieve this goal, we add gender-inclusive language to our empirical design to explore whether using gender-neutral forms has a measurable influence on perception.

4. Survey experiment

The aim of this study is to explore whether the instantiation of certain linguistic frames produces measurable effects on the perceptions of feminist causes in a hypothetical case study. In particular, we are interested in evaluating the effects of using war metaphors,

being a common metaphor in feminism-related popular media in Spanish (Reali 2021). Additionally, we want to explore the effect of using gender-inclusive language vs canonical language.

The experimental paradigm used here was inspired by the one used by Thibodeau and Boroditsky (2011), where experimental conditions were determined by differences in metaphorical framing in vignette descriptions of social issues. In the current study, participants were exposed to a description of a hypothetical case of elective abortion followed by a number of questions designed to assess their initial perception of the information they had read. The description in the vignette varied across conditions according to two framing factors. The first one was metaphorical framing vs neutral: war metaphors were used (or not) to describe the main character (Andrea) and feminism as a concept in the story narrated. The second factor was the presence or absence of gender-inclusive language in Spanish. As a result, the experiment was a two-factorial fully crossed 2x2 between participants design. Four types of questionnaires were created, each corresponding to one of the following conditions: 1. *War-metaphor frame* X *gender-inclusive language*; 2. Neutral frame X *gender-inclusive language*; 3. *War-metaphor frame* X non-gender-inclusive language; 2. Neutral frame X non-gender-inclusive language. The response questions were followed by a questionnaire to gather participants´ sociodemographic data, which has long been shown to be important in the perception of feminist causes (Haddock & Zanna 1994).

The experiment was done in accordance with the Declaration of Helsinki, and it followed the ethical requirements of the Universidad de los Andes institutional ethical review board. Participants were informed that their data would be treated anonymously and that they could terminate the experiment at any time without providing any reason. We received written informed consent from all participants before they participated in the experiment.

5. Participants

A total of 284 undergraduate students from Universidad de Andes in Bogotá, Colombia, volunteered to participate in the study. All participants were 18 or older and declared their native language was Spanish. From the initial sample, 20 participants were excluded because they did not complete the survey. Participants' sociodemographic characteristics (gender of identification, level of religiosity, political ideology, socioeconomic status, and level of identification as feminists) are described below in the Results section.

6. Materials and procedure

Each participant was presented with one of four versions of a description of a hypothetical case of elective abortion. Each version of the vignette differed in the choice of metaphor frame (war vs neutral) and the presence or absence of gender-inclusive

language. Linguistic frames then varied across conditions according to the 2 X 2 design as described above. The vignette is presented below (Spanish original version and English translation). Lexical items in underlined bold correspond to the **war metaphor frame** and those in italics correspond to the *neutral frame* condition. Lexical items in brackets underlined correspond to the gender-inclusive condition in Spanish.

> En la comunidad, el movimiento feminista hacía un tiempo que (**guerreaba por**/*perseguía*) la causa del derecho al aborto. El feminismo (**luchaba**/*exigía*) en las calles (**por**) la despenalización del aborto, alegando que ninguna persona debe ser juzgada por decidir si traer un (hijo/hije) al mundo o no. Durante el mes de marzo (todos los/todes les) integrantes del movimiento salieron a (**pelear por**/*reclamar*) sus peticiones. Sin embargo, no habían podido (**declarar victoria**/*lograrlo*), debido a que había mucha resistencia desde (los delegados/les delegades) en el congreso.
>
> Andrea fue una de las personas que se vieron (**forzadas**/*obligadas*) a abortar de forma clandestina ese año a escondidas de sus (conocidos/conocides) por no haber una ley que garantizara su posibilidad de hacerlo legalmente con doctores mejor (preparados/preparades). Cuando supo que estaba embarazada se (**resistió**/*opuso*) fuertemente a la idea de ser madre. Lo consultó con sus (amigos/amigues) y se alegró de contar con (allegados/allegades) para tomar su decisión. Andrea estaba segura de que tendría **(que defender a capa y espada**/*argumentar profundamente*) su decisión frente a su pareja y decidió no consultarlo con él. La experiencia de Andrea fue difícil, debido a las condiciones precarias de la clínica a la que pudo acceder. Desde entonces, Andrea ha (**combatido por**/*intercedido por*) las personas que son denunciadas por abortar de forma ilegal y (aquellos/aquelles) que las respaldan.

Translation:

> In the community, the feminist movement had been (**warring**/*pursuing*) the cause of abortion rights for some time. Feminism (**fough**t/*demanded*) in the streets (for) the decriminalization of abortion, claiming that no person should be judged for deciding whether to bring a (nGI-child*/GI-child) into the world or not. During the month of March (nGI-all/GI-all) members of the movement went out to (**battle for**/*claim*) their petitions. However, they had not been able to (**declare victory**/*achieve it*) because there was a lot of resistance from the (nGI-delegates/GI-delegates) at the congress.
>
> Andrea was one of the people who were (**forced**/*obliged*) to have a clandestine abortion that year, hidden from their (nGI-acquaintances/GI-acquaintances) because there was no law that guaranteed their possibility of doing it legally with better (nGI-prepared doctors/GI- prepared doctors). When she found out that she was pregnant, she strongly (**resisted**/*disagreed with*) the idea of becoming a mother. She consulted with her (nGI-friends/GI-friends) and felt glad to have (nGI-relatives/GI-relatives) to help her make the decision.

Andrea was sure that she would have (**to defend tooth and nail**/*argue deeply*) the decision with her partner and decided not to consult him. Andrea's experience was difficult due to the precarious conditions of the clinic that she was able to access. Since then, Andrea has (**combated**/*interceded*) for the rights of people who are denounced for illegal abortion and those who support them[2].

Each participant was presented with the information on an individual computer through the Qualtrics software interface. Participants were instructed to carefully read the paragraphs and answer a subsequent set of questions that appeared on the screen. Response items were listed on a second page consisting of the following Likert-like questions designed to assess participants' perceptions of the information they had just read:

En una escala de 1 a 7, ¿Qué tan de acuerdo está con las siguientes afirmaciones?, siendo 1 "muy en desacuerdo" y 7 "muy de acuerdo". (tr. On a scale of 1 to 7, how much do you agree with the following statements, with 1 being "strongly disagree" and 7 being "strongly agree")

1. "Andrea tiene derecho a decidir sobre el aborto de manera autónoma" (tr. Andrea has the right to decide on abortion autonomously)
2. "La pareja de Andrea debería opinar en la decisión sobre el aborto" (tr. Andrea's partner should have a say in the abortion decision)
3. "Andrea es una mujer fuerte" (tr. Andrea is a strong woman)
4. "Andrea es una mujer fría" (tr. Andrea is a cold woman)

Statements 1 and 2 were designed to measure level of empowerment in relation to the choice, and statements 3 and 4 were designed to measure stereotyping perceptions that have been shown to be associated with feminist women perceived as aggressive or cold (Bashir et al. 2013).

After answering the response items, participants were asked to respond a series of sociodemographic questions, including: 1. Gender of identification (Female, Male, Non-binary, Other); 2. Religiosity (Non-religious, Mildly religious, Moderately religious, Very religious); 3. Political ideology (Very conservative, Moderately conservative, Slightly conservative, Neutral, Slightly liberal, Moderately liberal, Very liberal); 4. Self-identified SES (Low, Low-medium; Medium, Medium-high, High); 5. Level of identification as a feminist person.

2 *nGI stands for "non-gender inclusive form" and GI stands for "gender inclusive form". As gender inclusive forms are variations of specific Spanish conjugation forms (the use of an "e" instead or the canonical masculine marker "o") these forms are untranslatable straightforwardly to English).

7. Results

In this section, we present the results of the study in a more descriptive manner. In the following section, these results are interpreted and discussed more profoundly in the light of relevant theoretical issues.

From a total of 264 analyzed subjects, 59% self-identified as female, 37% as male, 2% as non-binary and 2% as other. In terms of religiosity, 48% declared themselves to be non-religious, 26% mildly religious, 22% moderately religious and 4% very religious. In terms of political ideology, 18% declared themselves to be "very liberal", 29% "moderately liberal", 17% "mildly liberal", 22% "neutral", 5% "mildly conservative", 6% "moderately conservative" and 2% "very conservative". In terms of self-identification as feminists, 17% declared themselves to be non-feminists, 34% declared themselves to be "non-feminists but sympathizers of the feminist causes", and 49% self-identified as "feminists". In terms of SES, 1% self-identified as "low" SES, 8% as "middle-low", 26% as "middle", 42% as "high-middle" and 24% as "high" SES. As sociodemographic variables were ordinal variables, they were transformed to numerical covariates in the analyses described below.

Table 1 shows the mean and SE values of the response measures, that is, the 1–7 scale agreement with the statements "Andrea has the right to decide on abortion autonomously" (henceforth, Right-to-Decide), "Andrea's partner should have a say in the abortion decision" (henceforth Partner's-Say), "Andrea is a cold woman" (henceforth Coldness) and "Andrea is a strong woman" (henceforth "Strength"). Mean responses are presented grouped by framing condition (war-metaphor frame (henceforth WM frame) and neutral (henceforth N frame), and by type of gender-inclusive language (gender-inclusive language (henceforth GI language) and non-gender-inclusive language (nGI language)).

Table 1. Mean and SE values of the response measures grouped by conditions

	WM frame mean(SD)	**N frame mean(SD)**	**GI language mean(SD)**	**nGI language mean(SD)**
Right-to-Decide	5.97 (1.73)	5.6 (2.01)	5.82 (1.94)	5.81 (1.83)
Partner's-Say	3.41 (2.11)	3.83 (2.24)	3.49 (2.22)	3.74 (2.15)
Coldness	2.11 (1.68)	2.48 (1.70)	2.24 (1.59)	2.35 (1.79)
Strength	5.95 (1.67)	5.89 (1.68)	5.84 (1.68)	5.99 (1.67)

Note: WM = war metaphor; N= neutral; GI= gender-inclusive; nGI= non-gender-inclusive

Sociodemographic factors are known to play a role in perception of feminism and feminist ideas (e.g., Haddock & Zanna 1994). Table 2 shows the mean and SE values of the response measures grouped by sociodemographic factors.

Table 2. Mean and SE values of the response measures grouped by sociodemographic factors

	Right-to-decide mean (SD)	**Partner´s-Say mean(SD)**	**Coldness mean(SD)**	**Strength mean(SD)**
Gender				
Male	4.98(2.17)	4.67(2.11)	3.34(1.78)	5.04(1.88)
Female	6.32(1.45)	3.04(1.96)	1.66(1.26)	6.45(1.25)
Other/ nonBinary	6.08(1.93)	2.62(236)	1.92(1.80)	6.15(1.82))
Political ideology				
Liberal	6.29(1.41)	3.09(1.96)	1.90(1.36)	6.40(1.17)
Neutral	5.43(2.21)	4.28(2.36)	2.71(1.81)	5.37(1.97)
Conservative	4.20(2.23)	5.03(2.01)	3.49(2.21)	4.54(2.13)
Religiosity				
Non-religious	6.20(1.63)	3.34(2.18)	2.17(1.51)	6.02(1.56)
Mildly religious	5.90(1.76)	3.43(2.06)	2.13(1.56)	6.10(1.37)
Religious	5.01(2.15)	4.34(2.17)	2.69(2.07)	5.54(2.08)

8. Framing effects

We measured the level of correlation between the 1 to 7 scale rating of the four perception measures, Right-to-Decide, Partner's say, Coldness and Strength, and the sociodemographic co-variables. A series of Spearman's rank correlations revealed that political ideology was associated significantly with Right-to-Decide (more conservative participants produced lower rates, Spearman rho (**ρ**)=-.38, p<.001), Partner's-Say (more conservative participants produced higher rates, **ρ** =.36, p<.001), Coldness (more conservative participants produced higher rates, **ρ** =.30, p<.001) and Strength (more consevative participants produced lower rates, **ρ** =-42., p<.001). Participants' religiosity correlated with Right-to-Decide (more religious participants produced lower rates, **ρ** =-.28, p<.001) and Partner's-Say (more religious participants produced higher rates, **ρ** =.174, p=.005).

We found that the level of feminist identification correlates with Right-to-Decide (more feminist participants produced higher rates, **ρ** =.35, p<.001), Partner's-Say (more feminist participants produced lower rates, **ρ** =-.30, p<.001), Coldness (more feminist participants produced lower rates, **ρ** =-.23, p<.001) and Strength (more feminist participants produced higher rates, **ρ** =.27, p<.001). Participants' gender correlated strongly

with Right-to-Decide (male-identified participants produced lower rates, **ρ** =-.38, p<.001), Partner's-Say (male-identified participants produced higher rates, **ρ** =.38, p<.001), Coldness (male-identifed participants produced higher rates, **ρ** =.5, p<.001) and Strength (male-identified participants produced lower rates, **ρ** =-.46, p<.001). Finally, participants' socioeconomic status (SES) did not correlate with any of the perception measures.

To explore whether Framing and Type of Language had any effect on perception, a series or linear regression analyses were conducted for each of the predicted variables, including Framing and Type of Language as categorical factors and sociodemographic factors as covariates. Only sociodemographic factors that showed some significant correlation with any of the response variables were included as predictors, and therefore participants' SES was excluded from the analyses. Gender was included as a dummy covariate where 0 corresponded to "Male" and 1 to "Female/Non-binary/Other". Results are shown below for each of the perception variables.

Right-to-Decide

In order to explore the relative importance of each factor in predicting Right-to-Decide scores we ran a regression model (explained variable: Right-to-Decide, predictor categorical factors Framing (WM vs N) and Type of Language (GI vs nGI), and covariables political ideology, religiosity, feminist identification and gender. The model was highly significant ($F(6,257) = 18.8$; $p < .001$), accounting for 30.1% of the variance (R^2).

Metaphorical framing significantly predicted Right-to-Decide (standardized estimate=-.23, t=-2.15; p=.032) when controlling for all sociodemographic factors and type of language. As shown in Figure 1, participants exposed to war-metaphors rated Right-to-Decide higher. On the other hand, as shown in Table 3, Type-of-Language (gender inclusive vs non-gender inclusive) had no effect on Right-to-Decide ratings (t<1; p>.4). Also, participants' gender, political ideology and religiosity had significant effects on Right-to-Decide (all p's <.001), such that men, more conservative and more religious participants rated lower on this measure.

Table 3. Right-to-Decide results

Model Coefficients – Right-to-Decide

Predictor	Estimate	SE	T	P	Stand. Estimate
Intercept [a]	8.721	0.5412	16.114	< .001	
Participants' Political Ideology	-0.313	0.0731	-4.278	< .001	-0.2529
Participants' Religiosity	-0.420	0.1179	-3.560	< .001	-0.2039
Identification as Feminist	0.219	0.1190	1.839	0.067	0.1046
Participants' Gender	-1.127	0.2071	-5.443	< .001	-0.3048
Framing:					
Neutral framing – War metaphors	-0.424	0.1969	-2.154	0.032	-0.2254
Type of Language:					
nGI – GI	0.151	0.1971	0.766	0.444	0.0803

[a] Represents reference level

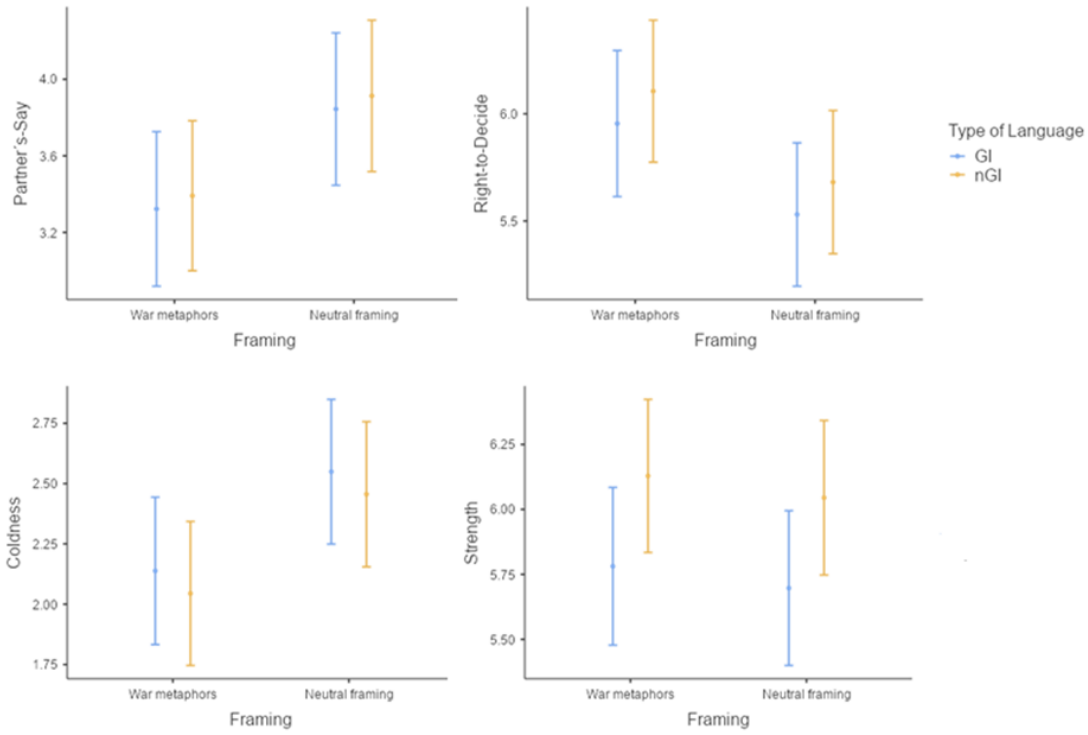

Figure 1. Mean comparison grouped by Framing condition and Type-of-Language condition

Partner's-Say

The relative importance of each factor in predicting Right-to-Decide scores was assessed by a regression model (explained variable: Partner's-Say, predictor categorical factors Framing (WM vs N) and Type of Language (GI vs nGI), and covariables political ideology, religiosity, feminist identification and gender. The model was highly significant ($F(6,257) = 16.4$; $p < .001$), accounting for 27.7% of the variance (R^2). Metaphorical framing significantly predicted Partner's-Say (standardized estimate=.24, t=-2.23; p=.026) when controlling for sociodemographic factors. As shown in Table 4 and Figure 1, participants exposed to war-metaphors rated Partner's-Say lower. Type-of-Language had no effect on Partner's-Say ratings ($t<1$; $p>.7$). Participants' gender, political ideology and religiosity had significant effects on Partner's-Say (all p's <.05) such that men, more conservative and more religious participants rated higher on this measure.

Table 4. Partner's-Say results

Model Coefficients – Partner's-Say

Predictor	Estimate	SE	T	P	Stand. Estimate
Intercept [a]	0.4632	0.6405	0.723	0.470	
Participants' Political Ideology	0.3449	0.0866	3.981	< .001	0.2406
Participants' Religiosity	0.2903	0.1402	2.070	0.039	0.1215
Identification as Feminist	-0.2672	0.1409	-1.895	0.059	-0.1101
Participants' Gender	1.3693	0.2450	5.589	< .001	0.3196
Framing:					
Neutral framing – War metaphors	0.5217	0.2335	2.235	0.026	0.2390
Type of Language:					
nGI – GI	0.0690	0.2336	0.295	0.768	0.0316

[a] Represents reference level

Coldness

Similarly, a regression model was used to explore the relative importance of each factor in predicting the mean character's Coldness (explained variable: Coldness, predictor categorical factors Framing (WM vs N) and Type-of-Language (GI vs nGI), and covariables

political ideology, religiosity, feminist identification and gender. The model was highly significant ($F(6,255) = 19.5$; $p < .001$), accounting for 31% of the variance (R^2).

Metaphorical framing significantly predicted Coldness (standardized estimate=.24, t=2.32; p=.021) when controlling for sociodemographic factors. As shown in Fig. 1, participants exposed to war-metaphors rated Coldness lower. On the other hand, as shown in Table 5, Type of Language (gender inclusive vs non-gender inclusive) had no effect on Coldness ratings ($t<1$; $p>.5$). Participants' gender and political ideology had significant effects on Coldness (all p's <.001) such that men and more conservative participants rated higher on this measure.

Table 5. Coldness predictive results

Model Coefficients – Coldness

Predictor	Estimate	SE	T	P	Stand. Estimate
Intercept [a]	-1.0576	0.4881	-2.167	0.031	
Participants' Political Ideology	0.2686	0.0656	4.097	< .001	0.2414
Participants' Religiosity	0.1734	0.1062	1.633	0.104	0.0935
Identification as Feminist	0.0201	0.1071	0.188	0.851	0.0106
Participants' Gender	1.4795	0.1865	7.934	< .001	0.4447
Framing:					
Neutral framing – War metaphors	0.4112	0.1769	2.325	0.021	0.2424
Type of Language:					
nGI – GI	-0.0935	0.1772	-0.527	0.598	-0.0551

[a] Represents reference level

The model included the main character's Strength ratings as the explained variable: Strength, with predictor categorical factors Framing (WM vs N) and Type-of-Language (GI vs nGI), and covariables political ideology, religiosity, feminist identification and gender. The model was significant ($F(6,257) = 18.8$; $p < .001$), accounting for 30% of the variance (R^2). As shown in Table 6, metaphorical framing did not predict Strength ($t<1$; $p>.6$) when controlling for type of language and sociodemographic variables. On the other hand, Type of Language (gender inclusive vs non-gender inclusive) predicted Strength ratings (standardized estimate=.21, t=1.98; p=.048) in that non-gender-inclusive language resulted in higher ratings of strength (see Fig. 1). Participants' gender and political ideology

had significant effects (both p's <.001) as men and more conservative participants rated lower on this measure.

Table 6. Strength predictive results

Model Coefficients – Strength

Predictor	Estimate	SE	T	p	Stand. Estimate
Intercept [a]	8.8618	0.4815	18.405	< .001	
Participants' Political Ideology	-0.3962	0.0651	-6.090	< .001	-0.3602
Participants' Religiosity	-0.0667	0.1049	-0.636	0.526	-0.0364
Identification as Feminist	-0.0570	0.1059	-0.538	0.591	-0.0306
Participants' Gender	-1.2097	0.1842	-6.566	< .001	-0.3680
Framing:					
Neutral framing – War metaphors	-0.0839	0.1752	-0.479	0.633	-0.0501
Type of Language:					
nGI – GI	0.3476	0.1753	1.983	0.048	0.2078

[a] Represents reference level

9. Discussion of results

Sociodemographic factors had a significant effect on perception: men, and conservative and religious participants rated Andrea's Right-to-Decide lower, her partner's right to have a say in the decision as higher, and Andrea's Coldness as higher (see Table 2). This pattern is consistent with previous finding reported in the literature (Bashir et al. 2013; Patel & Johns 2009).

However, the main goal of this study was to explore the linguistic framing effects on perception. We found that framing feminist ideas using war metaphors may increase the perception of the ability to control or react to events. The use of war metaphors is ubiquitous in political discourse, and is frequently used to frame feminist movements. The use of these metaphors could be either a source of empowerment or a polarizing tool. Flusberg et al. (2018) compared the potential benefits and disadvantages of using war metaphors to frame social and political matters, concluding that the meaning of war metaphors is intimately tied to the context in which they are used, which may result in either positive or negative outcomes.

Consistent with our hypothesis, frames had a small but significant effect. The use of war metaphors to describe a situation of elective abortion produced a higher perception of the main character's right to decide and a lower perception of her partner's right to have a say in the decision, even when controlling for sociodemographic factors (see Fig 1). This pattern is consistent with the hypothesis that war metaphors may have an empowering effect. Also, the perception of the character's coldness was lower in the war metaphor condition. On the other hand, the use of inclusive language had much less of an effect on perception.

War metaphors used to frame women are ubiquitous in feminism-related articles which are presumably targeted at a feminism-sympathizing audience (Reali 2021). Here we have shown that, even in a randomly selected group of participants, the use of war metaphors may have empowering effects. A possible caveat of this study, however, is that our sample is composed of students only. Therefore, a reasonable follow up to this work would be to use a sample that is more representative of the general population.

How do metaphors work? War metaphors tend to highlight the structural similarities between warfare and abstract events, engaging the mind in representations of two opposing forces undergoing combat. Moreover, they convey a sense of "danger" since wars are phenomena that naturally bring on fear and anxiety (Flusberg et al. 2018). For example, a recent study by Martynyuk (2021) examined 16 TED talks given by transgender individuals, finding the presence of TRANSITION IS CONTEST metaphors, which were interpreted as indicative of the struggle between transgender individuals and a disapproving society.

Furthermore, war metaphors serve as political rhetorical tools, as they evoke fear and shape discourse (Alexandrescu 2014). As discussed in the Introduction, feminists are frequently subjected to negative portrayals that cast them in an unfavourable light in popular media. Framing feminists as "warriors" depicts them as actively aiming to establish their fighting stance within those realms. While the construal of women as warriors can be inspiring and empowering for some, it may also encourage the depiction of feminism as an "evil enemy" that needs to be defeated—a connotation suggested by the unfortunate term 'feminazi'—fueling polarization in political discourse and contributing to the demonization of the movement as one fed by hostility towards men (McRobbie 2009). For example, Edley and Wetherell (2001) conducted an analysis showing that some men understand "gender equality" in terms of women taking their place in the context of a battle, and feminists are often conceptualized as women who hate men, and whose goal is to destroy traditions. On the other hand, some evidence suggests that frames of empowering women may be beneficial. For example, Naruddin (2018) found positive representations of feminism in the context of the raising of the recent #Metoo movement. She argues that, far from working against the cause, the visibility of this movement provides an ideological platform that motivates many women around the globe

in positive ways. Similarly, Kay and Banet-Weiser (2019) have recently argued that the visibility that women´s anger has gained in popular media in recent years contributes to inspire young women against oppression in constructive ways.

In addition to the effects on the perception of the main character´s right to decide, we found that she was perceived as "less cold" when war metaphors were used (see Figure 1). This was surprising, as previous work has shown that women who label themselves as "feminists" are seen by others as "less warm" (Bashir et al. 2013; Meijs et al. 2019). A possible explanation for this could be related to the embodied representation of warriors and particularly "anger" in terms of heat (e.g., Wilkowski et al. 2009). Heat-related metaphors are commonly used in reference to angry subjects (e.g., "hot-headed" in English, or the Spanish "calentarse" (tr. to become hot-headed). From an embodied cognition perspective, Wilkowski et al. (2009) argue that "the metaphoric representation perspective contends that such metaphors [heat-related ones] are not simply a poetic means of expressing anger but actually reflect the manner in which the concept of anger is cognitively represented" (2009: 464). Drawing upon this perspective, as war framings could elicit anger-related thoughts, using these metaphors may activate "heat" schemas that explain the reduced perception of "coldness" of the fictional character that undergoes an elective abortion, at odds with documented stereotypical representations.

Perceptions of women-rights and feminism have been investigated mostly in Western media coverage. Most corpus studies on feminism construal have focused on Anglo-American and European media (Feltham-King et al. 2015). As noted by Gill (2012), to fully understand the nature of the discourse in a broader sense, it is important to study how feminism and women are construed transculturally and across different cultures and languages. Then, a further contribution of this work is that it sheds some light on the ways in which feminism (and women) are linguistically construed in the context of Colombia and Spanish-speaking participants.

Finally, new forms of expressing nonbinary alternatives to gender marked language in Spanish (i.e., *niñxs, niñes*) have been increasingly used in Latin America in recent years, as an attempt to legitimize the use of gender-neutral forms and make them linguistically valid (Nausa 2020). The use of gender-inclusive forms responds in many ways to the legacy of feminist movements since the 1970s, which have denounced the systematic dominance of masculine linguistic gender across different languages (Papalopoulus 2022). Feminist linguists have long denounced the use of the masculine gender as the default linguistic gender prescribed for use in mixed-gender or supposedly generic personal reference, as in the canonical case of Spanish. In recent years, new forms of expressing nonbinary alternatives have been invented (e.g., *niñxs, nines*). According to Popalopoulus, "While gender-inclusive Spanish faces ongoing institutional rejection from language academies like the Real Academia Española [RAE] "Royal Spanish Academy", many more universities and other institutions now legitimize its usage as linguistically

valid, and the adoption of gender-inclusive Spanish by queer community members and allies continues to increase" (2022: 41).

In Latin America, the use of gender-inclusive language began to be considerably popular at the beginning of 2018, and it has become more frequent in the countries of the southern cone: Chile, Argentina and Uruguay, a tendency probably related to the incidence of feminist movements in those countries (Nausa 2020).

The current study is one of the first empirical works looking at the influence of the use of gender-inclusive language on sensitive feminism-related issues. In relation to our second main objective—to explore the effects of this framing in the context of feminist causes—the results suggest that incorporating gender-inclusive language has little measurable effect on perception, at least in the context of the specific example studied here. Therefore, such a gap in the literature points towards the need to conduct broader empirical designs and corpus analysis studies aimed at exploring whether using gender-neutral forms has a measurable effect on perception.

10. Conclusion

Previous work posits the question of whether using war metaphors in political discourse may increase fear emotions that fuel political polarization (Flusberg et al. 2018). On the other hand, some have suggested that the use of war metaphors to talk about the fight against disease may have empowering effects, especially when patients are traversing potentially curative treatments (Semino et al. 2018). In the context of feminism-related discourse, previous studies have revealed a high prevalence of war metaphors to describe women and feminist activists (Reali 2021). The current study adds a unique contribution to this literature in that it implements empirical methods to explore the possible influence of warfare and language-inclusive framing on the perception of certain political matters. Our results suggest that framing feminist ideas using war metaphors may have empowering effects that may increase the degree of agency of a vulnerable group, involving a greater perception of the ability to control or react to events. From a more general perspective, these results add additional evidence that supports the importance of metaphorical framing on perception.

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A spiderweb of human trafficking: An empirical linguistic study

Abstract. The state of the art in human trafficking (HT) prevention requires the elaboration of subtle verbal techniques that can enhance informative awareness campaigns. The paper explores the representations of metaphors in the media about HT through the SPIDERWEB construal and its impact on the youth in Ukraine. Compared to previous decades (Paliichuk 2011), the SPIDERWEB metaphor can be observed more frequently in recent publications, encouraging the study of whether it contributes to a stronger reader response. The methods embrace conceptual analysis and an experiment, in which 60 undergraduates (grouped into G1, G2, and G3) took part. Four media fragments were used in three modes: *authentic* (A), *weakened* (W), and *enhanced* (E). In total, twelve variables were tested. The Paired Samples *T* Test revealed the changes in student post-reading perceptions, with the highest response to *E* texts (*identifying oneself with trafficked persons; imagining oneself being in the same situation; imagining sounds/voices; being emotionally affected*). Used for the differences between *A–W; A–E; and W–E,* the Independent Samples *T* Test revealed higher degrees for *imagining oneself being enslaved in the HT situation*; *being secluded or isolated*; *emotionally affected*; and *being more careful about personal safety*, which points to the feasibility of designing anti-trafficking educational content based on the SPIDERWEB metaphor.
Keywords: metaphor, human trafficking, spiderweb, experiment, image schema, social impact, media discourse.

1. Introduction

The social impact of metaphors is multi-dimensional. Metaphor studies are marked by a shift from seeing the metaphor as a means of understanding the world we perceive to using it to influence social behaviours. A particular focus is placed on reconsidering

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the role of metaphors in a social world (Julich-Warpakowski & Jensen 2023) and refining the use of metaphors to address social needs. Thriving on transdisciplinary diversity, metaphor studies are increasingly linked to socially relevant research areas, embracing social sciences (Leezenberg 2009; Ghazinoory & Aghaei 2023), healthcare (Jayan & Alathur 2021; Deng et al. 2022), public health (Dada et al. 2021; Olza et al. 2021), and social care (Siddiqi & Khan 2022; Jen et al. 2022). Metaphors are considered a tool to unveil implicit knowledge and experiences (Petrucijová & Glumbíková 2021) for reconsidering social work and educational practices.

As an applied area of research, metaphors are a source for moderating social behaviours and public opinion, establishing meaningful links with the law (Hanne & Weisberg 2018) and economics (Zhu 2023), psychology (Landau et al. 2011; De Saint Preux & Blanco 2021), ecology (Rapport 1995; Currie & Clarke 2022; Pottinger et al. 2022), cross-border security and migration (De Backer & Enghels 2022), military affairs (Al-Muttairi 2022), media communications (Flusberg et al. 2018; Hullman & Kwiatkowski 2021), and education (Farhadi & Winton 2021; Spours et al. 2022), etc. Metaphors are also viewed as a key to problems when traditional methods do not meet the needs, for instance, in the social care field, or any other domain where enhanced impact on public opinion is required to tackle socially relevant issues.

This research deals with metaphorical representations of human trafficking (HT) in media texts. It focuses on the exploration of the potential of the SPIDERWEB metaphor, which can be deliberately used for HT awareness by exposing target audiences to media texts saturated with explicit or implicit verbal manifestations of the SPIDERWEB metaphor, representing human trafficking as a "biological web weaved by a spider where potential prey can get in". Such metaphors can provide media audiences with analogies describing cases of getting into slavery conditions in the search for a better life, and can lead to reproducing the SPIDERWEB construal in collective perceptions of HT described in the media.

To reveal whether the SPIDERWEB metaphor can be used as a means of warning vulnerable social groups, in particular, graduates, about the dangers of getting into an HT situation, the experimental study was conducted in the specifically Ukrainian context under the conditions of the increased HT risks arising amid the Russian large-scale war launched in Ukraine on 24 February 2022 eight years after the annexation of Crimea and eastern regions. Therefore, the research objective was to verify the potential of cognitive metaphor theory in learning activities that involve reading. This was done by measuring differences in student impressions of media content under the condition of the reduced and extended use of the language means representing HT through the SPIDERWEB metaphor. The results shed light on whether the SPIDERWEB metaphor could be used effectively in learning materials about HT risks.

The given study relies on previous findings reconsidered under the conditions of the current social context in Ukraine. Therefore, it further provides an overview of

the characteristics of HT in light of the specific socio-economic and security context in Ukraine, an explanation of the results and observations made in earlier studies of the representation of HT in the media, the description of the methods and techniques used to meet the objective of this study, as well as the interpretation of the results of the experiment, a discussion of the limitations, and the summary of the major findings of this study.

2. Background to the study

This section explains the relevance of the research under three main conditions. Firstly, the social context in Ukraine is described, concerning the increased vulnerability of youth to HT in Ukraine considering the factors aggravating the situation in Ukraine because of the war and in general. Secondly, it provides a brief overview of previous findings (Paliichuk 2012) considering the cognitive prerequisites of the representation of HT in the media through the SPIDERWEB construal. Thirdly, it highlights the recent observations of contemporary media discourse on HT. Finally, it specifies the research question, hypotheses, objective, and tasks of the study.

2.1. Ukrainian context: migration, vulnerability, and academia

Media coverage of human trafficking (HT) features real-life cases ranging from personal survival stories of victims to reports from police and non-governmental organizations (NGOs). HT includes "the use of force, fraud, or deception in the recruitment, transportation, transfer, harbouring, or receipt of individuals for profit." (*Human-Trafficking* n.d.). It takes many forms, with the most prevalent being forced labour, forced criminal activity, trafficking of women for sexual exploitation, trafficking of organs, and people smuggling (*The Issues*, n.d.). Currently, more than 90% of detected female victims are trafficked for sexual exploitation, with searches for Ukrainian women escort services having increased by 300% (Bahous 2022) within only months of the invasion of Ukraine by the Russian Federation. Media report that "refugee families have fled Ukraine to seek safety. Sadly, their journey is fraught with many dangers and risks, even after they arrive at their destination (*How We're Helping Protect Ukrainian Refugees from Human Traffickers*, n.d.).

The report by UNHCR recognises HT in Ukraine as a widespread phenomenon even before the war "thriving on highly adaptable strategies. Potential victims respond to fraudulent employment offers inside the country and abroad, offers of support for accommodation and residence for displaced persons and refugees, and online recruitment and disinformation. "Both the internally displaced and refugees are particularly vulnerable to HT, but also generally the millions of war-affected populations" (Anti-Trafficking Task Force (ATTF) Ukraine, Terms of Reference – May 2022 – Ukraine, 2022), being increasingly exposed to traffickers who take advantage of the vulnerability and trust of the people in need. Despite this, Ukrainians have always striven for free movement of labour

(Panchenko 2019; Nagornyak et al. 2020; Brzozowska 2022; Jirka 2023), being motivated by EU values and practices, which have become one of the triggers of Russian aggression. Now, the prospect of integration in the EU and the forced migration as a direct result of the war have induced students and graduates to cross the border more actively, hoping for a better future. From an economic point of view, highly skilled specialists strive for higher wages, while youth are eager to obtain education in an EU member state to be able to compete as fully-fledged global labour market players. It is reported in a recent study by I. Dolia and E. Klymenko that 50% of respondents would likely go abroad to study and 19% would settle in an EU country. However, these aspirations are shaped not only by personal experience but by stories on social media. At the same time, 41% of respondents said they had no experience of living outside Ukraine, and 10% had only heard about life in the EU from their friends and family, but they were confident that they would be able to find a job there (Dolia & Klymenko 2023). These data point to the high level of vulnerability of Ukrainian youth in terms of the potential deceptive practices they can face.

Considering the current social context in Ukraine, the issue of raising awareness of HT risks for the prevention of slavery exploitation of Ukrainians abroad has become urgent. In addition to traditional anti-trafficking information campaigns by the Ministry of Social Policy of Ukraine, the Ministry of Education and Science of Ukraine, local and regional social care institutions, and NGOs, there should be more effort made to create a subtler impact on vulnerable social groups[2]. The methods of stimulating students' emotional perceptions and moral judgments to reduce their vulnerability should be grounded on the evidence of an empirical study and the findings of the research carried out within the cognitive linguistics paradigm, with greater attention paid to conceptual metaphors representing HT in the media. Amid the backdrop of the war in Ukraine, such research would mainly target a female audience, for women have an increased vulnerability to HT-related crimes. A particular social group consists of female graduates from higher education institutions, whose numbers are disproportionate to male graduates, who are prohibited from crossing national borders. This involves two HT risk factors: gender and

2 Just to name some Ukrainian and international NGOs working with social groups and youth to prevent HT: 1) *A21* (*Human Trafficking | A21* n.d.) and *A21 Ukraine* are NGOs working on awareness among high school students (Ukraine – Live Free | A21, n.d.); 2) The *IOM* Mission in Ukraine provides assistance to internally displaced persons (IDPs) and war-affected people, fights HT ("Everyone Can Fall Victim To Human Trafficking. Even You." on International Day for the Abolition of Slavery IOM Launches the Awareness Campaign, 2020); 3) *La Strada – Ukraine*, a public human rights organization working to promote gender equality, peacebuilding, prevention of gender-based violence, including domestic violence, combating human trafficking, and ensuring children's rights.' (*La Strada – Ukraine*, 2023); 4) *Stem is Fem*, an educational project that promotes STEM specialities among high school girls in Ukraine (Home | Stem Is Fem, n.d.) to raise awareness of the opportunities inside the country.

age, as young women and girls lack life experience and skills to resist potential traffickers. It follows that the study should focus on the image of the "victim" as depicted in the media seeking linguistic resources for enhancing the reader's response to the HT risks.

The recent reports on this issue (Greenemeier 2015; Mackin 2021; Beating Human Trafficking on the Deep & Dark Web 2021; United We Care 2022; Dickenson 2022; Williams & Muhammad in press) open new vistas for the development of methods to enhance awareness on the internet, including gamification and digital storytelling. The review of the literature data shows the advancement in the study of HT from the legal, psychological, political, economic, and cultural perspectives, with particular attention given to the profile of the victim, the causes, and the factors aggravating the risks of getting into situations of being enslaved (Reis et al. 2022; Ortega et al. 2022). Powerful and innovative research is carried out by scientists in the framework of the digital dimensions of HT, focusing on the challenges related to digital technologies, ensuring the anonymity of Darknet users (Reid & Fox 2020). Nevertheless, much can be done in a traditional educational setting, through immersive reading and observing learning activities incorporated into academic courses in linguistics, pedagogy, psychology, social science, social health, etc. (Paliichuk 2023). Routine activities provide suitable conditions for obtaining empirical data (Chesnokova 2016) in a seamless educational process while stirring the trainees' emotions and encouraging moral judgments through storytelling, sensory modelling, metaphors, and other techniques that can simultaneously provide educators with observations, insights, and empirical data.

2.2. Earlier findings

Previously, the study on HT was done from the point of view of the linguistic and conceptual peculiarities of its representation in English-language media discourse (Paliichuk 2011). As a result of the conceptual analysis of 600 media texts, a spiderweb-like construal was revealed. HT was construed in the media as a highly organised system of spatial interrelations between *actors,* with the *victim* being the central one. This mental image implied the visual resemblance of a spiderweb: the links between *actors* were like the web threads, and the *actors*' actions were directed to the *victim* as if the victim were a spider's prey (Fig.1)[3]. The term "construal" in terms of the cited study should be understood as the "ability to conceive and portray the same situation in alternate ways" (Langacker 2019: 140). It means that the media construe the impression of HT rather than reflecting reality as it is. The identified actors are the *victim, trafficker, family members, law enforcement agencies, governments,* and *international NGOs.* The spiderweb-like construal is predetermined by the close interrelation between all the *actors* of the HT situation, in

3 In this subsection the italicised terms refer to the conceptual level of HT representation.

which *family members, law enforcement agencies, governments*, and *international NGOs* are represented by the media as complicit traffickers or clients.

To describe the process of modelling the construal of HT it is necessary to refer to Pr. S. Zhabotynska's theory of five frames (Zhabotynska 2010). The method implies the analysis of linguistic data at different levels of the conceptual organisation, with five basic frames embracing the limited set of propositions where the most fundamental categories of thought are arranged by the way we perceive things in the experiential world (Zhabotynska 2010: 80). Those five basic frames are the Thing Frame, Action Frame, Possession Frame, Identification Frame, and Comparison Frame, each having iterative propositions (propositional schemas). The term "proposition" means the most basic unit of meaning in a representation (*University of Alberta Dictionary of Cognitive Science: Proposition*, n.d.). Depending on the type of propositions within a frame, various schemas were modelled. For instance, in the Thing Frame the actors' *qualitative, quantitative, locative, temporative (a time parameter)*, and *mode of existence* propositions were modelled. The Action Frame was modelled through the interrelation of *state, process, contact, causation, agent-affected, result*, and *consequence* propositions. In the Possession Frame, the *part-whole, inclusion,* and *ownership* propositions were traced. The Identification Frame included *personification, classification*, and *characterisation* propositions, while within the Comparison Frame, the relations of *identity, similarity*, and *likeness* were also analysed, which helped uncover the foundation for the metaphorical projections of HT through the SPIDERWEB image. The sets of five frames of each actor were then put together and the interframe relations between the actors were analysed[4]. As a result, two types of conceptual relations were established: the action towards the *victim* and the interrelationship between other *actors*. Figure 1 shows the *victim* at the centre, highlighting the *actor's* passiveness, and the other *actors*' stable interrelationships. At the same time, *governments* were described through modal verbs such as *should, will*, and *must*, while *law enforcement* and *NGOs* were depicted as ineffective bodies or even as "helpers" of *traffickers*. These frames were used to build the conceptual spaces of *actors*, i.e., "a collection of one or more quality dimensions" (Boden 2009) pertinent to each actor in HT conceptual situations.

4 The terms *qualitative (what kind of?), quantitative (how much/many?), locative (where?), temporative (when?),* and *mode of existence (how?),* etc. are given in the wording of Pr. S. Zhabotynska's terminology (Zhabotynska 2010).

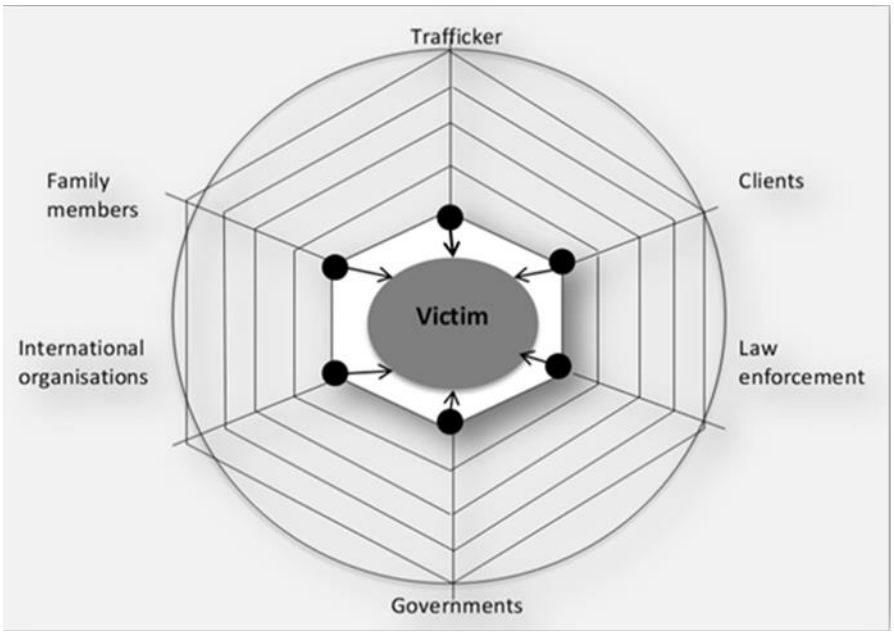


Figure 1. SPIDERWEB HT Construal

Though the SPIDERWEB metaphor was not explicit in the media at the verbal level, multiple other metaphors highlighting the properties of the construal (Table 1) were manifested in media discourse on HT. The verbal traces of the SPIDERWEB metaphor were revealed due to the analysis conducted from the point of view of schemata arrangement in the mapping of the source (*Weaving a Web of Wonder | Research Matters*, n.d.) and target domains (Paliichuk 2011) (Table 1). According to M. Johnson, the term image-schema (schemata) denotes a "dynamic recurring pattern of organism-environment interactions, it will often reveal itself in the contours of our basic sensory-motor experience" (Johnson 2005: 19).

The table shows the fundamental aspects of a *spiderweb construal* in terms of the interpretation of metaphors representing the relations between *trafficker* and *victim* (Paliichuk 2011) and the properties of the biological phenomena, characterising the *trafficker-victim* relationship in what is referred to as "predator-prey interactions" in the work by Ludwig et al. (2018).

The predominant schemata identified are as follows:

1) *containment*, which depicts the victim as a passive entity enclosed within a confined space, like prey ensnared in a spider's web,
2) *path*, which portrays the victim's initial actions preceding trafficking and subsequent movement to different locations, like prey navigating towards a cobweb,
3) *link* and *cycle*, which represents the continuous and cyclical nature of HT analogous to the process of spider web weaving,
4) *centre-periphery*, which metaphorically depicts trafficking as a disease with a growing process of spiderweb-like expansion; and
5) *light-dark* and *up-down*, which symbolises the invisibility of HT and downward orientation analogous to the downward-hanging properties of spiderwebs.

The system of the outlined schemata predetermines a set of metaphorical projections that are compatible with the holistic image of SPIDERWEB actuating in media discourse on HT through a system of respective lexical and semantic language units.

Table 1. Source-and-target schemata mappings in the SPIDERWEB construal

SOURCE	**Compatibility with HT Construal**	**TARGET**
Properties of a *spiderweb* as a natural phenomenon	**Schemata**	**Metaphors for HT (prevailing schemata)**
"Once it finds a trapped victim, the spider approaches and attacks the prey with its venom, spiral and radial threads, capturing properties of the web"	HT is a close entity (e.g. trafficked into a variety of situations) = container	HT – containment, a vicious circle: e.g. locked in the world of sexual cruelty, trap, etc.
"catching a wide variety of prey" ... *"a prey strikes the spiral threads" ...*	HT is the victim's reaction to the trafficker's lure (e.g. going abroad, agreeing to work for the trafficker) = path (journey)	HT – path (journey): e.g. "Odysseys of hope and drama ending in tragedy"
"These webs are composed of several circular threads interspersed with radial filaments, material properties of these spiral threads, spider webs could be reconstructed"	HT is trafficking networks=link	HT – mechanism and links, cycles: e.g. money to a middleman, the cycle will simply continue; "So you just continue in the same cycle..."
"Spiderweb growing"	HT is constantly growing, large-scale, global size = mass, count, center-periphery	HT – Center-Periphery (disease): e.g. "epidemic proportion. No country is immune"
"this 'invisible' web, hanging down"	HT is an invisible world (Penny's story is just one of many that remain hidden., human trafficking is the hidden crime of globalization) = down, dark	HT – light/dark, up/down e.g. "The dark underbelly of the tourist trade…"; "they emerge from the underworld"; "It is the downside, "deepen the misery of others; the economic crisis deepens the pool of potential victims"; "We don't know much about the size of the iceberg that lies beneath".

2.3. New observations

Recent media publications on HT have increasingly used the verbal metaphor of a spider-web, as evidenced by observations over the past decade. This is accompanied by related keywords such as *weblinks, trapped, prey*, and *cocoon*.

In the preparatory stage of this research, this trend was investigated in a corpus of almost 109,876 words (4,877 sentences) (ske. li/spiderweb) generated with the Sketch Engine text analysis software. The preliminary findings indicated the frequent use of words such as "web" (151 occurrences), "spider" (124), "catch" (45), and "into" (196), as well as related words like "prey" (12), "trap" (28), "links" (15) "thread" (5), "weave" (3), and "cocoon" (1) in micro-contexts. Typical cases of concordances actuating the SPIDERWEB complex metaphor are as follows:

1. *The **spider web** of human trafficking*
2. *'I'm like a fly trapped in a **spider's web**,'*
3. *By this time, the victim is **caught in the spider's web.***

4. *As **a spider** spins its **web**, **catches** its **prey**, wraps it, and waits for it to die, a trafficker lures and **catches** its victim, spins a mental and physical **trap** around them, waiting for their spirit to break so they can take full advantage of their bodies.*
5. *Victims of human trafficking have compared the feeling of being **trapped in a spider web**.*
6. *The **web** of human trafficking is extremely complex, and trafficking has reached epidemic proportions on the internet.*
7. *Victims are mentally and physically **trapped** in a cocoon, bound by **threads** of hopes, promises, and dreams of a better life; captured in a **web** of lies **woven** by predators.*

2.4. Research question, hypotheses, objective, and tasks

Given the recent noticeability of the SPIDERWEB metaphor in media discourse, it has been pertinent to investigate whether it has a stronger impact on the audience compared to other forms of expression of the HT concept. This raises the question of whether the SPIDERWEB metaphor can be employed as an effective tool for developing media policies and educational materials to prevent HT. To address this, an empirical study was undertaken to measure the audience's response to the social issue framed in terms of the SPIDERWEB metaphor.

The null hypothesis (H0) assumed that there was no difference in the perceptions of HT among students when they encountered explicit and implicit uses of the SPIDERWEB metaphor in the media. The alternative hypothesis (H1) implied a significant difference in such perceptions. The purpose of this research was to investigate the relationship between the use of the SPIDERWEB metaphor in the media and the audience response. For this, two research tasks were completed. Firstly, the verbal traces of the explicit and implicit manifestations of the SPIDERWEB metaphor were registered. The explicit manifestation was identified with lexemes such as *spiderweb* and respective thematic groups (*spider, spider's web, web, cocoon, prey, wrap, captured, catch,* etc.). The implicit manifestation referred to schemata-charged verbal means of expressions: *containment* (*in, into, inside, get into, captivity*, etc.), *links, process, path, light-dark, up-down, centre-periphery*, etc. Secondly, the audience's reactions to the explicit and implicit manifestations of the SPIDERWEB metaphor in media content on HT were revealed. A tailored methodology was elaborated upon for this study to verify the social applicability of the SPIDERWEB metaphor in raising awareness of HT among Ukrainian graduates.

3. Materials and methods

The methodological framework consisted of a set of techniques employed at various stages of the study to meet the research tasks: observation and corpus analysis, conceptual metaphor analysis, and an experiment.

At the stage of observation, the corpus of nearly twenty-seven thousand words of media publications on HT was compiled with the help of the Sketch Engine tool and

processed as concordances according to the keyword combination *spiderweb of human trafficking* and related thematic groups, as it has been described above (Subsection 2.3). As a result, a set of four fragments of media texts (T1, T2, T3, and T4) was selected as the experimental language material according to the criterion of the explicit use of the SPIDERWEB metaphor.

At the stage of conceptual metaphor analysis (Lakoff & Johnson 2003; Johnson 2005), the verbal traces of the SPIDERWEB metaphor were identified both according to the explicit manifestation of the metaphor representing HT as *a process of weaving a spider's web and catching the prey* and implicit manifestation through schemata charged verbal units. This enabled the formation of experimental texts used under three experimental conditions:

(A) *authentic texts*,

(W) *manipulated weakened texts* (the SPIDERWEB metaphor verbal expressions were replaced with lexical units bearing direct and denotative meanings or actuating the schemata only), and

(E) *manipulated enhanced texts*, (some phrases were extended or replaced with the word combinations actuating the SPIDERWEB metaphor).

For the analysis,

1) the verbal elements under consideration were capitalised in *A*-texts,
2) capitalised and italicised words – in W texts, and
3) the capitalised phrases in bold – in E texts (Figures 2–5 below).

AUTHENTIC: G1 (ORIGINAL) – T1G1

LONDON -- One of the three women allegedly 1) [HELD CAPTIVE] in a London home for 30 years and wrote hundreds of love letters to a neighbor, according to reports.
2) ["I'M LIKE A FLY TRAPPED IN A SPIDER'S WEB,"] the 30-year-old wrote in one of the notes to Marius Feneck, which were obtained by Britain's Mail on Sunday newspaper. Feneck, 26, lives two floors above the South London apartment where police say the woman 3) [WAS HELD AS A SLAVE].
"It is not as brutally obvious as women being 4) [PHYSICALLY RESTRAINED] 5) I[NSIDE AN ADDRESS AND NOT ALLOWED TO LEAVE,"] he added. "What (investigators) ... are trying to understand is what were the 6) [INVISIBLE HANDCUFFS] that were used to 7) [EXERT SUCH A DEGREE OF CONTROL OVER THESE WOMEN."]. He added that two of the victims had met the male suspect through a shared political ideology and they lived together in what "you could effectively call a collective."
It was unclear if the 30-year-old woman 8) [WAS BORN INTO CAPTIVITY] at the London house, but police said they believed she has lived with the suspects and the other victims her entire life and 9) [HAS HAD LITTLE CONTACT WITH THE OUTSIDE WORLD]. The only official documentation police found for the woman was a birth certificate.
Detective Inspector Kevin Hyland of the Metropolitan Police's Human Trafficking Unit said on Friday that police do not currently believe the women were subjected to sexual abuse, but were 10) [SUBJECTED TO PHYSICAL ABUSE IN THE HOME DESCRIBED AS "BEATINGS."] U.K. Home Secretary Theresa May wrote in Britain's Sunday Telegraph newspaper that tackling modern slavery in Britain was a "personal priority," saying many other victims were 11) ["HIDDEN IN PLAIN SIGHT"] across the country.

MANIPULATED: G2 (SPIDERWEB WEAKENED) – T1G2

LONDON -- One of the three women allegedly 1) [*HELD PRISONERS*] in a London home for 30 years and wrote hundreds of love letters to a neighbor, according to reports.
2) [*"I FEEL BEING KEPT AND CONTROLLED*]," the 30-year-old wrote in one of the notes to Marius Feneck, which were obtained by Britain's Mail on Sunday newspaper. Feneck, 26, lives two floors above the South London apartment where police say the woman 3) [*HAD NO FREEDOM*].
"It is not as brutally obvious as women 4) [*WERE MADE TO STAY INSIDE AN ADDRESS*] and 5) [*FORBIDDEN TO GO OUT,"*] he added. "What (investigators) ... are trying to understand is what were the 6) [*METHODS THAT WERE USED*] to 7) [*IMPOSE SUCH A DEGREE OF CONTROL OVER THESE WOMEN."*]. He added that two of the victims had met the male suspect through a shared political ideology and they lived together in what "you could effectively call a collective."
It was unclear if the 30-year-old woman 8) [WAS BORN INTO CAPTIVITY] at the London house, but police said they believed she has lived with the suspects and the other victims her entire life and 9) [*DID NOT COMMUNICATE WITH THE PEOPLE OUTSIDE*]. The only official documentation police found for the woman was a birth certificate.
Detective Inspector Kevin Hyland of the Metropolitan Police's Human Trafficking Unit said on Friday that police do not currently believe the women were subjected to sexual abuse, but were 10) [*BEATEN."*]
U.K. Home Secretary Theresa May wrote in Britain's Sunday Telegraph newspaper that tackling modern slavery in Britain was a "personal priority," saying many other victims were 11) [*"UNSEEN"*] across the country.

MANIPULATED: G3 (SPIDERWEB ENHANCED) –T1G3

LONDON -- One of the three women allegedly 1) **[WERE ENTRAPPED]** in a London home for 30 years and wrote hundreds of love letters to a neighbor, according to reports.
2) ["I'M LIKE A FLY TRAPPED IN A SPIDER'S WEB,"] the 30-year-old wrote in one of the notes to Marius Feneck, which were obtained by Britain's Mail on Sunday newspaper. Feneck, 26, lives two floors above the South London apartment where police say the woman 3) **[WAS HELD AS A SLAVE]**.
"It is not as brutally obvious as women being 4) [PHYSICALLY RESTRAINED] 5) I[NSIDE AN ADDRESS AND NOT ALLOWED TO LEAVE,"] he added. "What (investigators) ... are trying to understand is what were the 6) **[INVISIBLE SPIDER'S THREADS]** that were used to 7) EXERT SUCH A DEGREE OF CONTROL OVER THESE WOMEN." **AND POWER OVER THESE WOMEN.**"]
He added that two of the victims had met the male suspect through a shared political ideology and they lived together in what "you could effectively call a collective."
It was unclear if the 30-year-old woman 8) **[WAS BORN INTO SLAVERY]** at the London house, but police said they believed she has lived with the suspects and the other victims her entire life and 9) **[WAS DEEP INSIDE THE TRAFFICKER'S NET]**. The only official documentation police found for the woman was a birth certificate.
Detective Inspector Kevin Hyland of the Metropolitan Police's Human Trafficking Unit said on Friday that police do not currently believe the women were subjected to sexual abuse, but were 10) [SUBJECTED TO PHYSICAL ABUSE IN THE HOME DESCRIBED AS "BEATINGS."]. U.K. Home Secretary Theresa May wrote in Britain's Sunday Telegraph newspaper that tackling modern slavery in Britain was a "personal priority," saying many other victims were 11) ["HIDDEN IN PLAIN SIGHT"] across the country.

Figure 2. T1 A-W-E. (*London Police Investigate Case of Women Held as Slaves for Decades*, 2013)

AUTHENTIC: G1 (ORIGINAL) – T2G1

As an attorney working with survivors of both sex trafficking and labor trafficking (involuntary servitude), I am just beginning to 12) [SCRATCH THE SURFACE] myself. I am now starting to understand 13) [HOW MANIPULATIVE THE TACTICS OF TRAFFICKERS CAN BE]. I have also managed to learn that almost 14) [ANYONE CAN BECOME A VICTIM, GIVEN THE RIGHT SET OF CIRCUMSTANCES].

When thinking of human trafficking, most people by default envision abductions such as those seen in movies like "Taken." Under the kidnapping scenario, people believe that the trafficker(s) will employ some measure of immediate force, the threat of force, or coercion 15) [TO BRING THE VICTIM UNDER THEIR CONTROL]. While this certainly does occur, I have learned that 16) [SUBTLE TACTICS MORE COMMONLY USED BY TRAFFICKERS] can be just as effective without engaging in activities that may usually set off community alarm bells or Amber Alerts.

17) The [GOAL IS TO TRAP THE VICTIM], which may happen because of fear, emotional control, psychological control, or threats to the victim or family members such as children.

Aside from kidnapping, traffickers have several other methods that 18) [THEY UTILIZE TO ENSNARE VICTIMS BY GAINING THEIR TRUST SO THAT THEY CAN VICTIMIZE AND ULTIMATELY PROFIT FROM THEM]. For instance, a trafficker may 19) [LURE A VICTIM WITH PROMISES OF A LOVING RELATIONSHIP AND GIFTS WHILE WORKING TO ISOLATE AND MANIPULATE THE VICTIM]. In this scenario, 20) [ONCE THE TRAFFICKER MANAGES TO GAIN THE TRUST OF THE VICTIM AND ISOLATE THEM, THE TRAFFICKER'S 'LOVING' ATTITUDE SWITCHES TO REVEAL THEIR REAL PERSONALITY AND MOTIVES]. By this time, 21) [THE VICTIM IS CAUGHT IN THE SPIDER'S WEB]. The trafficker now 22) [MAY FULLY ENGAGE IN ABUSIVE TACTICS] — physical, psychological, emotional, or mental — to exert his or her control over the victim (yes, a trafficker can be a "her") to whatever ends the trafficker desires.

MANIPULATED: G2 (SPIDERWEB WEAKENED) – T2G2

As an attorney working with survivors of both sex trafficking and labor trafficking (involuntary servitude), 12) I am *[JUST BEGINNING TO FIND OUT ABOUT MYSELF]*. I am now starting to understand 13) *[HOW SCHEMING TRAFFICKERS' METHODS CAN BE]*. I have also managed to learn that almost 14) *[ANYONE CAN BE TRAFFICKED, GIVEN THE RIGHT SET OF CIRCUMSTANCES]*.

When thinking of human trafficking, most people by default envision abductions such as those seen in movies like "Taken." Under the kidnapping scenario, people believe that the trafficker(s) will employ some measure of immediate force, the threat of force, or coercion 15) *[TO SUBORDINATE VICTIMS]*. While this certainly does occur, I have learned that 16) *[INGENIOUS TACTICS MORE COMMONLY USED BY TRAFFICKERS]* can be just as effective without engaging in activities that may usually set off community alarm bells or Amber Alerts.

17) *[THE GOAL IS TO MAKE THE VICTIM NOT FEEL FREE]*, which may happen because of fear, emotional control, psychological control, or threats to the victim or family members such as children.

Aside from kidnapping, traffickers have several other methods that 18) *[THEY USE TO ENGAGE VICTIMS BY GAINING THEIR TRUST SO THAT THEY CAN VICTIMIZE AND ULTIMATELY PROFIT FROM THEM]*. For instance, a trafficker may 19) *[ATTRACT A VICTIM WITH PROMISES OF A LOVING RELATIONSHIP AND GIFTS WHILE WORKING TO ISOLATE AND MANIPULATE THE VICTIM]*. In this scenario, 20) *[ONCE THE TRAFFICKER MANAGES TO GAIN THE TRUST OF THE VICTIM AND ISOLATE THEM, THE TRAFFICKER'S 'LOVING' ATTITUDE TURNS THE OPPOSITE]*. By this time, 21) *[THE VICTIM GETS INTO A TRAFFICKING SCHEME]*. The trafficker now 22) *[MAY FULLY USE ABUSIVE TACTICS]* — physical, psychological, emotional, or mental — to exert his or her control over the victim (yes, a trafficker can be a "her") to whatever ends the trafficker desires.

MANIPULATED: G3 (SPIDERWEB ENHANCED) – T2G3

As an attorney working with survivors of both sex trafficking and labor trafficking (involuntary servitude), I am just beginning to 12) [SCRATCH THE SURFACE]. I am now starting to understand 13) **[HOW MANIPULATIVE THE TACTICS OF TRAFFICKING SPIDERS CAN BE]**. I have also managed to learn that almost 14) **[ANYONE CAN BECOME A SPIDER'S PREY, GIVEN THE RIGHT SET OF CIRCUMSTANCES]**.

When thinking of human trafficking, most people by default envision abductions such as those seen in movies like "Taken." Under the kidnapping scenario, people believe that the trafficker(s) will employ some measure of immediate force, the threat of force, or coercion 15) **[TO BRING THE VICTIM UNDER THEIR CONTROL LIKE SPIDERS DO TO IMMOBILIZE THE PREY]**. While this certainly does occur, I have learned that 16) **[SUBTLE TACTICS MORE COMMONLY USED BY PREDATORS]** can be just as effective without engaging in activities that may usually set off community alarm bells or Amber Alerts.

17) The **[GOAL IS TO TRAP THE VICTIM AND LURE IT AS IF IT WERE A FLY IN A SPIDERWEB]**, which may happen because of fear, emotional control, psychological control, or threats to the victim or family members such as children.

Aside from kidnapping, traffickers have several other methods that 18) [THEY UTILIZE TO ENSNARE VICTIMS BY GAINING THEIR TRUST SO THAT THEY CAN VICTIMIZE AND ULTIMATELY PROFIT FROM THEM]. For instance, a trafficker may 19) **[LURE A VICTIM WITH PROMISES OF A LOVING RELATIONSHIP AND GIFTS WHILE WORKING TO ISOLATE AND MANIPULATE THE TRAFFICKING PREY]**. In this scenario, 20) **[ONCE THE TRAFFICKER WRAPS THE VICTIM WINNING THE TRUST LIKE A SPIDER CATCHING A BUTTERFLY AND ISOLATE THEM, THE TRAFFICKER'S 'LOVING' ATTITUDE SWITCHES TO REVEAL THEIR REAL PERSONALITY AND MOTIVES]**. By this time, 21) [THE VICTIM IS CAUGHT IN THE SPIDER'S WEB]. The trafficker now 22) [MAY FULLY ENGAGE IN ABUSIVE TACTICS] — physical, psychological, emotional, or mental — to exert his or her control over the victim (yes, a trafficker can be a "her") to whatever ends the trafficker desires.

Figure 3. T2 A-W-E (Jacon-Duffy 2020)

AUTHENTIC: G1 (ORIGINAL) – T3G1

"What we are seeing is that the way that they are brought into being trafficked is that they have someone who is looking after them, who loves them, so maybe targeting someone who is an at-risk group or doing at-risk behaviours," said Const. Davis. Besides not viewing themselves as a victim, another reason people are not forthcoming to report the incident to the police is the fear of the repercussions of their actions. Victims of human trafficking have compared 23) [THE FEELING OF BEING TRAPPED IN A SPIDER WEB]. Loyie talked about a young women's scenario in her attempt to leave and the real threats she faced. She said one victim had her mother's house burnt down in her attempt to leave. She described another incident where a victim was phoned by her trafficker describing her father, what he was wearing, as he mowed the lawn and the address of her parent's house. She was assured that if she went to the police, her family would be harmed. 24) [VICTIMS WILL OFTEN BECOME DEPENDENT ON THEIR TRAFFICKER FOR BASIC NEEDS. VICTIMS CAN ALSO SUFFER A PSYCHOLOGICAL TOLL AND FEEL PARALYZED BY THE RISK OF ATTEMPTING TO LEAVE]. "I think the mindset is what eventually starts out as trust and hope becomes fear and . . . sometimes just what we call a flat effect where there's no feeling anymore," said Loyie. For victims which were able to leave, Wilson stated there is an unwillingness to report criminal charges because the court process can be daunting. Each time the victims have to disclose the information it can be an overwhelming feeling of constant humiliation and negative judgment by re-victimize themselves in front of a judge, lawyer, or jury."A lot of times traffickers are being charged with say sexual assault or domestic violence and that's not what it is," Wilson expressed. 25) ["I THINK THIS PROBLEM ISN'T GOING AWAY AND IT'S GOING TO ONLY INCREASE IF WE DON'T START WAKING UP AND REALIZE THIS IS HAPPENING." SHE ADDED TO REMEMBER INDIVIDUALS WHO HAVE BEEN TRAFFICKED ARE HUMANS, TOO, AND DUE TO THEIR CIRCUMSTANCES, THEY WERE TARGETED FOR THEIR VULNERABILITIES OR MAY HAVE FALLEN ON HARD TIMES]. This is not an indication of their character and who they are as a person, so it is important not to rush to false conclusions or stigmatize someone.

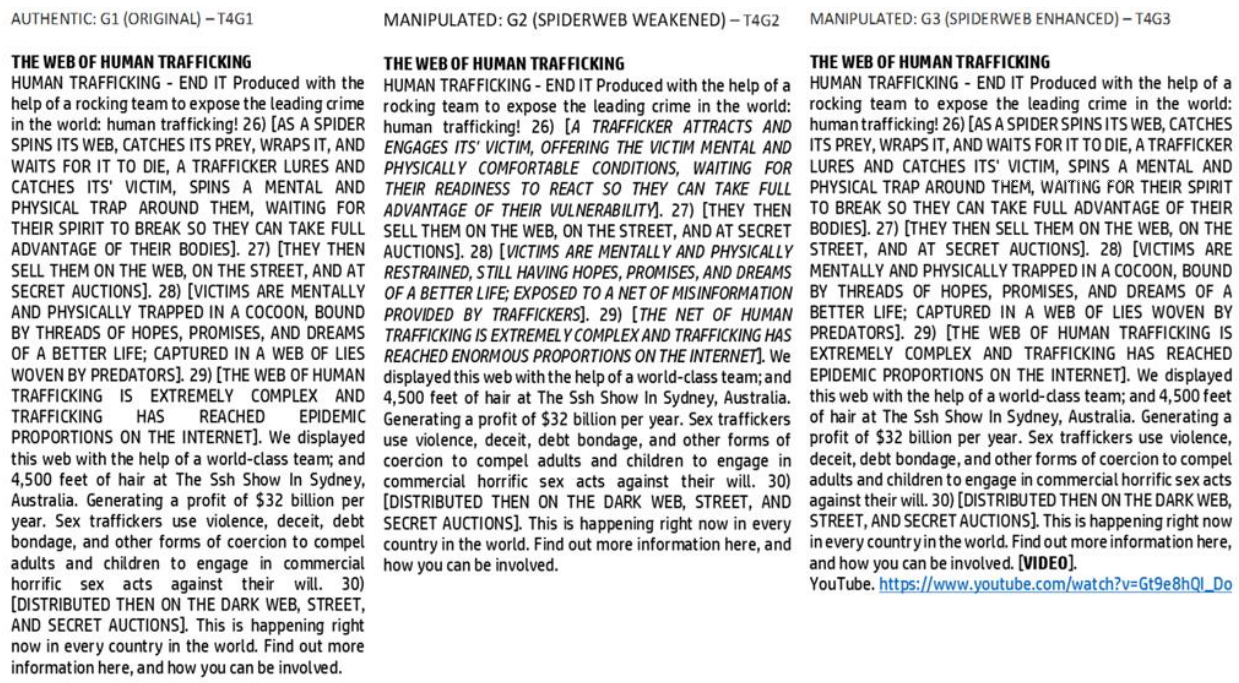
MANIPULATED: G2 (SPIDERWEB WEAKENED) – T3G2

"What we are seeing is that the way that they are brought into being trafficked is that they have someone who is looking after them, who loves them, so maybe targeting someone who is an at-risk group or doing at-risk behaviours," said Const. Davis. Besides not viewing themselves as a victim, another reason people are not forthcoming to report the incident to the police is the fear of the repercussions of their actions. Victims of human trafficking have compared the feeling of being 23) *[IN A DESPERATE SITUATION]*. Loyie talked about a young women's scenario in her attempt to leave and the real threats she faced. She said one victim had her mother's house burnt down in her attempt to leave. She described another incident where a victim was phoned by her trafficker describing her father, what he was wearing, as he mowed the lawn and the address of her parent's house. She was assured that if she went to the police, her family would be harmed. 24) *[VICTIMS WILL OFTEN BECOME DEPENDENT ON THEIR TRAFFICKER FOR BASIC NEEDS. VICTIMS CAN ALSO EXPERIENCE PSYCHOLOGICAL PRESSURE AND FEEL POWERLESS BY THE RISK OF ATTEMPTING TO LEAVE]*. "I think the mindset is what eventually starts out as trust and hope becomes fear and . . . sometimes just what we call a flat effect where there's no feeling anymore," said Loyie. For victims which were able to leave, Wilson stated there is an unwillingness to report criminal charges because the court process can be daunting. Each time the victims have to disclose the information it can be an overwhelming feeling of constant humiliation and negative judgment by re-victimize themselves in front of a judge, lawyer, or jury. "A lot of times traffickers are being charged with say sexual assault or domestic violence and that's not what it is," Wilson expressed. 25) *["I THINK THIS PROBLEM ISN'T GOING AWAY AND IT'S GOING TO ONLY INCREASE IF WE DON'T START TAKING MEASURES AND REALIZE THIS IS HAPPENING." SHE ADDED TO REMEMBER INDIVIDUALS WHO HAVE BEEN TRAFFICKED ARE HUMANS, TOO, AND DUE TO THEIR CIRCUMSTANCES, THEY WERE TARGETED FOR THEIR VULNERABILITIES OR MAY HAVE FALLEN ON HARD TIMES]*. This is not an indication of their character and who they are as a person, so it is important not to rush to false conclusions or stigmatize someone.

MANIPULATED: G3 (SPIDERWEB ENHANCED) – T3G3

"What we are seeing is that the way that they are brought into being trafficked is that they have someone who is looking after them, who loves them, so maybe targeting someone who is an at-risk group or doing at-risk behaviours," said Const. Davis. Besides not viewing themselves as a victim, another reason people are not forthcoming to report the incident to the police is the fear of the repercussions of their actions. Victims of human trafficking have compared 23) [THE FEELING OF BEING TRAPPED IN A SPIDER WEB]. Loyie talked about a young women's scenario in her attempt to leave and the real threats she faced. She said one victim had her mother's house burnt down in her attempt to leave. She described another incident where a victim was phoned by her trafficker describing her father, what he was wearing, as he mowed the lawn and the address of her parent's house. She was assured that if she went to the police, her family would be harmed. 24) [VICTIMS WILL OFTEN BECOME DEPENDENT ON THEIR TRAFFICKER FOR BASIC NEEDS. VICTIMS CAN ALSO SUFFER A PSYCHOLOGICAL TOLL AND FEEL PARALYZED **BY THE THREADS OF ATTEMPTING TO BREAK FREE]**. "I think the mindset is what eventually starts out as trust and hope becomes fear and . . . sometimes just what we call a flat effect where there's no feeling anymore," said Loyie. For victims which were able to leave, Wilson stated there is an unwillingness to report criminal charges because the court process can be daunting. Each time the victims have to disclose the information it can be an overwhelming feeling of constant humiliation and negative judgment by re-victimize themselves in front of a judge, lawyer, or jury."A lot of times traffickers are being charged with say sexual assault or domestic violence and that's not what it is," Wilson expressed. 25) **["I THINK THIS PROBLEM ISN'T GOING AWAY AND IT'S GOING TO ONLY INCREASE LIKE A WEB WEAVEN BY A SPIDER IF WE DON'T START WAKING UP AND REALIZE THIS IS HAPPENING." SHE ADDED TO REMEMBER INDIVIDUALS WHO HAVE BEEN CAUGHT IN THE TRAFFICKING NET ARE HUMANS, TOO, AND DUE TO THEIR CIRCUMSTANCES, THEY WERE TARGETED FOR THEIR VULNERABILITIES OR MAY HAVE FALLEN ON HARD TIMES]**. This is not an indication of their character and who they are as a person, so it is important not to rush to false conclusions or stigmatize someone.

Figure 4. T3 A-W-E (Stuempfle 2019)



AUTHENTIC: G1 (ORIGINAL) – T4G1

THE WEB OF HUMAN TRAFFICKING

HUMAN TRAFFICKING - END IT Produced with the help of a rocking team to expose the leading crime in the world: human trafficking! 26) [AS A SPIDER SPINS ITS WEB, CATCHES ITS PREY, WRAPS IT, AND WAITS FOR IT TO DIE, A TRAFFICKER LURES AND CATCHES ITS' VICTIM, SPINS A MENTAL AND PHYSICAL TRAP AROUND THEM, WAITING FOR THEIR SPIRIT TO BREAK SO THEY CAN TAKE FULL ADVANTAGE OF THEIR BODIES]. 27) [THEY THEN SELL THEM ON THE WEB, ON THE STREET, AND AT SECRET AUCTIONS]. 28) [VICTIMS ARE MENTALLY AND PHYSICALLY TRAPPED IN A COCOON, BOUND BY THREADS OF HOPES, PROMISES, AND DREAMS OF A BETTER LIFE; CAPTURED IN A WEB OF LIES WOVEN BY PREDATORS]. 29) [THE WEB OF HUMAN TRAFFICKING IS EXTREMELY COMPLEX AND TRAFFICKING HAS REACHED EPIDEMIC PROPORTIONS ON THE INTERNET]. We displayed this web with the help of a world-class team; and 4,500 feet of hair at The Ssh Show In Sydney, Australia. Generating a profit of $32 billion per year. Sex traffickers use violence, deceit, debt bondage, and other forms of coercion to compel adults and children to engage in commercial horrific sex acts against their will. 30) [DISTRIBUTED THEN ON THE DARK WEB, STREET, AND SECRET AUCTIONS]. This is happening right now in every country in the world. Find out more information here, and how you can be involved.

MANIPULATED: G2 (SPIDERWEB WEAKENED) – T4G2

THE WEB OF HUMAN TRAFFICKING

HUMAN TRAFFICKING - END IT Produced with the help of a rocking team to expose the leading crime in the world: human trafficking! 26) [*A TRAFFICKER ATTRACTS AND ENGAGES ITS' VICTIM, OFFERING THE VICTIM MENTAL AND PHYSICALLY COMFORTABLE CONDITIONS, WAITING FOR THEIR READINESS TO REACT SO THEY CAN TAKE FULL ADVANTAGE OF THEIR VULNERABILITY*]. 27) [THEY THEN SELL THEM ON THE WEB, ON THE STREET, AND AT SECRET AUCTIONS]. 28) [*VICTIMS ARE MENTALLY AND PHYSICALLY RESTRAINED, STILL HAVING HOPES, PROMISES, AND DREAMS OF A BETTER LIFE; EXPOSED TO A NET OF MISINFORMATION PROVIDED BY TRAFFICKERS*]. 29) [*THE NET OF HUMAN TRAFFICKING IS EXTREMELY COMPLEX AND TRAFFICKING HAS REACHED ENORMOUS PROPORTIONS ON THE INTERNET*]. We displayed this web with the help of a world-class team; and 4,500 feet of hair at The Ssh Show In Sydney, Australia. Generating a profit of $32 billion per year. Sex traffickers use violence, deceit, debt bondage, and other forms of coercion to compel adults and children to engage in commercial horrific sex acts against their will. 30) [DISTRIBUTED THEN ON THE DARK WEB, STREET, AND SECRET AUCTIONS]. This is happening right now in every country in the world. Find out more information here, and how you can be involved.

MANIPULATED: G3 (SPIDERWEB ENHANCED) – T4G3

THE WEB OF HUMAN TRAFFICKING

HUMAN TRAFFICKING - END IT Produced with the help of a rocking team to expose the leading crime in the world: human trafficking! 26) [AS A SPIDER SPINS ITS WEB, CATCHES ITS PREY, WRAPS IT, AND WAITS FOR IT TO DIE, A TRAFFICKER LURES AND CATCHES ITS' VICTIM, SPINS A MENTAL AND PHYSICAL TRAP AROUND THEM, WAITING FOR THEIR SPIRIT TO BREAK SO THEY CAN TAKE FULL ADVANTAGE OF THEIR BODIES]. 27) [THEY THEN SELL THEM ON THE WEB, ON THE STREET, AND AT SECRET AUCTIONS]. 28) [VICTIMS ARE MENTALLY AND PHYSICALLY TRAPPED IN A COCOON, BOUND BY THREADS OF HOPES, PROMISES, AND DREAMS OF A BETTER LIFE; CAPTURED IN A WEB OF LIES WOVEN BY PREDATORS]. 29) [THE WEB OF HUMAN TRAFFICKING IS EXTREMELY COMPLEX AND TRAFFICKING HAS REACHED EPIDEMIC PROPORTIONS ON THE INTERNET]. We displayed this web with the help of a world-class team; and 4,500 feet of hair at The Ssh Show In Sydney, Australia. Generating a profit of $32 billion per year. Sex traffickers use violence, deceit, debt bondage, and other forms of coercion to compel adults and children to engage in commercial horrific sex acts against their will. 30) [DISTRIBUTED THEN ON THE DARK WEB, STREET, AND SECRET AUCTIONS]. This is happening right now in every country in the world. Find out more information here, and how you can be involved. [**VIDEO**].
YouTube. https://www.youtube.com/watch?v=Gt9e8hQI_Do

Figure 5. T4 A-W-E (Strutt Central 2017)

In the experiment, the extracts of the text were used without coding, to provide equal conditions for the respondents, who were unaware of whether they were reading an original fragment or a manipulated one. In the case of T4 A-W-E, the *enhanced* text was augmented with a video representing the visual imagery of HT because the original version of the text contained metaphors that needed no further verbal extension. In this stage of the experiment, a survey was conducted in early September 2022, subject to students' voluntary consent. The psycho-pedagogical conditions of the experiment implied a seamless academic process based on the curriculum activities in Analytical Media Reading and Stylistics courses.

The collected answers were processed with SPSS 26 Windows software, a computer program for statistical analysis (Van Peer et al. 2012: 148) which accurately handles the survey data depending on the research purposes. It provides both descriptive and inference statistics. A researcher needs to enter data manually and designate independent and dependent variables, analyse the descriptive data of respondents (e.g.: age, gender, origin, etc.), explore whether the distribution of responses is normal, and then choose the test for the analysis. Within this research, two types of parametric tests The Paired Samples *T* Test (Van Peer et al. 2012: 235) is used for *dependent, related, repeated*, or *paired samples* in a *within-subjects* design. This test was used to reveal the pre-reading and post-reading responses to the same questions in all groups of respondents. The Independent Samples *T* Test is used for the *between-subjects* design (Van Peer et al. 2012: 231). It was used in this research to reveal the differences between the three groups to the independent variables (types of texts *A-W-E*).

According to the design of the study, respondents were neither aware of the experimental conditions, nor of whether they were reading an original or a manipulated text. The sample included 60 BA undergraduates from Borys Grinchenko Kyiv Metropolitan University, who had taken part in the survey. The questioning suggested unbiased close reading activities and reflective assignments before the students' awareness of literary devices. The sample comprised 88% female and 12% male respondents, aged from 19 to 23. They had been studying English for 10.6 years, were active social media users (95%), were reading media regularly (98%) predominantly about culture (41,7%), society (33%), and politics (33%), and had heard about HT (81,7%).

The respondents were also divided into one control (G1) group and two experimental groups (G2, G3) according to experimental conditions. The tailored questionnaire was developed to measure the perceptions of HT before and after exposure to the texts in the experiment. Also, G3 watched a one-minute video representing HT metaphorically as a matter of enhancing the emotional pressure on the respondents. Each extract took between 1 to 3 minutes to read (or watch). The experiment focused on two measurements:

1) pre-and-post-reading general perceptions within the three groups, for which the Paired Samples *T* Test was used; and
2) the differences in post-reading (or watching) perceptions between the three groups in the following pairs of texts: *A–W; A–E; and W–E,* corresponding to the differences between the groups *G1–G2, G1–G3,* and *G2–G3*, for which the Independent Samples *T* Test was applied.

4. Results

In total, twelve variables were measured. For the Paired Samples *T* Test, the following five variables were used:

V1: *identifying oneself with trafficked persons,*
V2: *imagining oneself being in the same situation,*
V3: *imagining sounds/voices,*
V4: *imagining oneself being touched,*
V5: *being emotionally affected and general impressions (within the three groups).*

For the Independent Samples *T* Test, the following seven variables were used:

V6: *imagining oneself being enslaved in the HT situation,*
V7: *feeling scared,*
V8: *being controlled,*
V9: *being secluded or isolated,*
V10: *being emotionally affected and differentiated impressions (between the three groups),*
V11: *feeling empathetic,*
V12: *being more careful about personal safety.*

The parameter of *being emotionally affected* in HT situations was measured twice in this study as V5 and V10 for different purposes. V5 was used for the Paired Samples *T* Test to

measure the general impressions of HT media content within all groups of respondents, while V10 was used for the Independent *T* Samples Test for establishing the differences in perceptions between such groups of participants. This double use of this parameter (in V5 and V10) helped control the consistency and significance of the responses.

4.1. The Paired Samples T Test: Pre-and post-reading general perceptions

In this stage, the Paired Samples *T* Test was used in three groups separately, which helped discover differences in perceptions before and after reading the texts (watching the video after text 4 in G3). Five pairs of variables (V1-V5) were tested, according to the questionnaire:

V1: *Do you potentially identify yourself with a trafficked person?*

V2: *Do you imagine yourself being in the same situation?*

V3: *Do you imagine any sounds or voices associated with HT?*

V4: *Do you imagine any sensations of being touched when you hear about HT?*

V5: *Are you emotionally affected by HT?*

Based on the comparison of the mean data, the results of the Paired Samples *T* Test showed the following values:

a) The significant result showed a slight increase in the V3 pair, with a mean = 1.3000 – 1.4500 and p=0.041 within G1[5]. The results for other variables were insignificant. The respondents of G1, who read the original texts, more often imagined the sounds or voices associated with HT. In Figure 6 below the significant value is marked in orange.

b) There was a significant decrease in the V2 pair after the respondents from G2 read the weakened manipulated texts, with a mean = 1.8500 – 1.6500, and p=0.021, within G2. The results for other variables were insignificant. This means that the respondents from G2 experienced a decreased degree of imagining themselves being in the same situation as the trafficked persons, which was described in the weakened texts. In Figure 7 below the significant value is marked in orange.

c) There was a significant increase regarding four out of five pairs of variables within G3, whose respondents were exposed to the enhanced texts. The means are V1 (1.8000 – 2.8500), V2 (1.8500 – 3.1500), V3 (1.4000 – 2.400), and V5 (1.4500 – 2.850), with p=0.00. This means that the respondents of G3 more frequently identified themselves with trafficked persons, imagined themselves being in the same situation as HT victims, imagined the sounds and voices related to HT, and were more

5 "p" stands for probability. In statistics, the p-value is a measure of uncertainty. To accept the statistical results as significant, a p-value must not exceed 0.05 ($p<0.05$). The conventional significance level of 0.05 is widely accepted. It means that a result with a 5% or lower error probability is considered *significant* (Van Peer et al. 2012: 207).

affected emotionally by the problem after they had read the text/watched the video[6]. In Figure 8, the significant values are marked in orange.

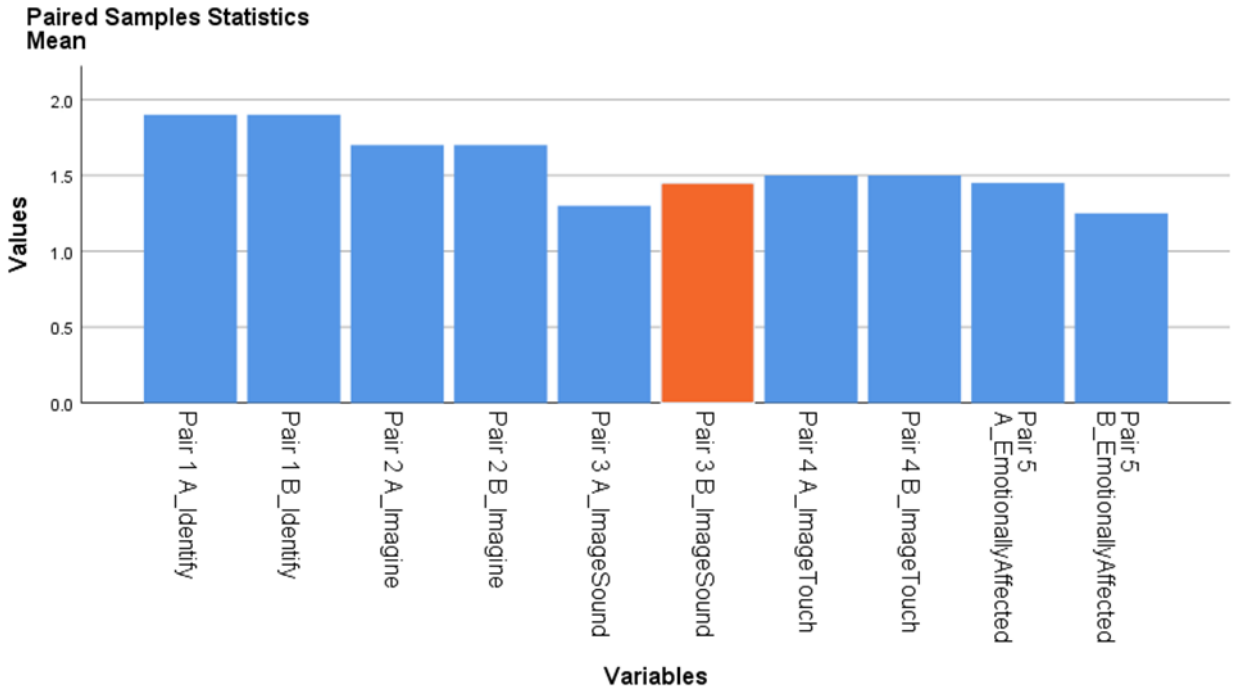


Figure 6. G1: Paired Samples *T* Test

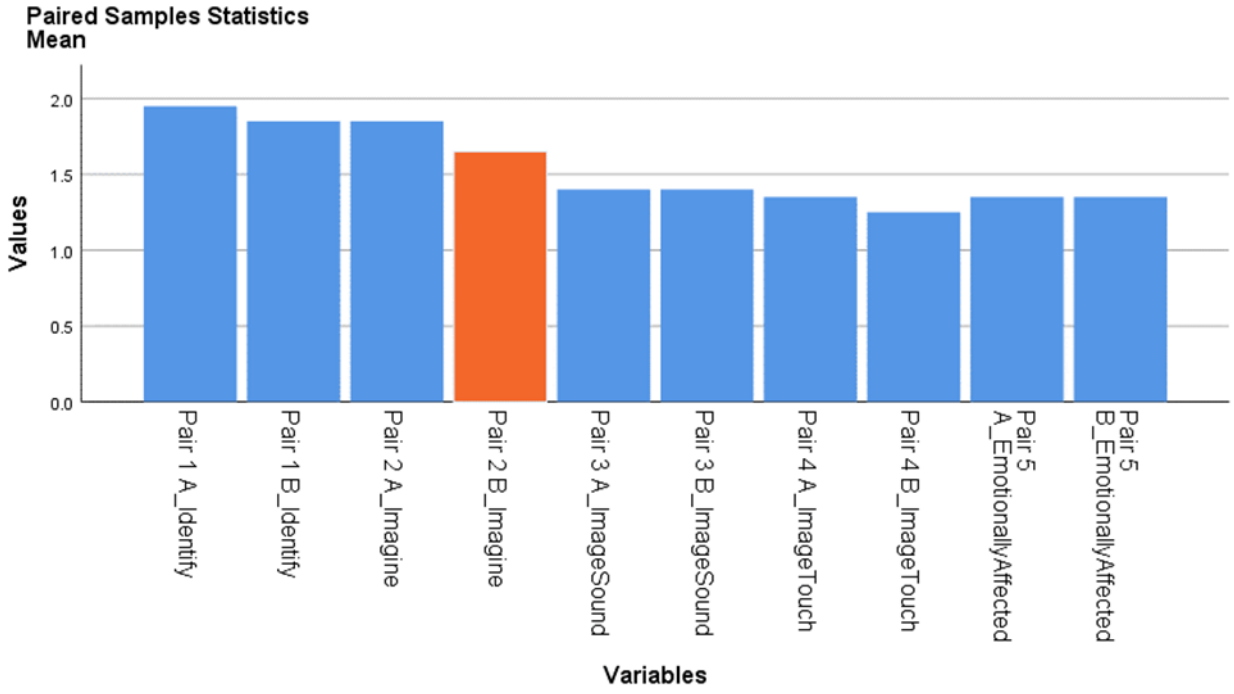


Figure 7. G2: Paired Samples *T* Test

6 The Enhanced T4 was supplemented with a video containing the spiderweb image representing the HT problem.

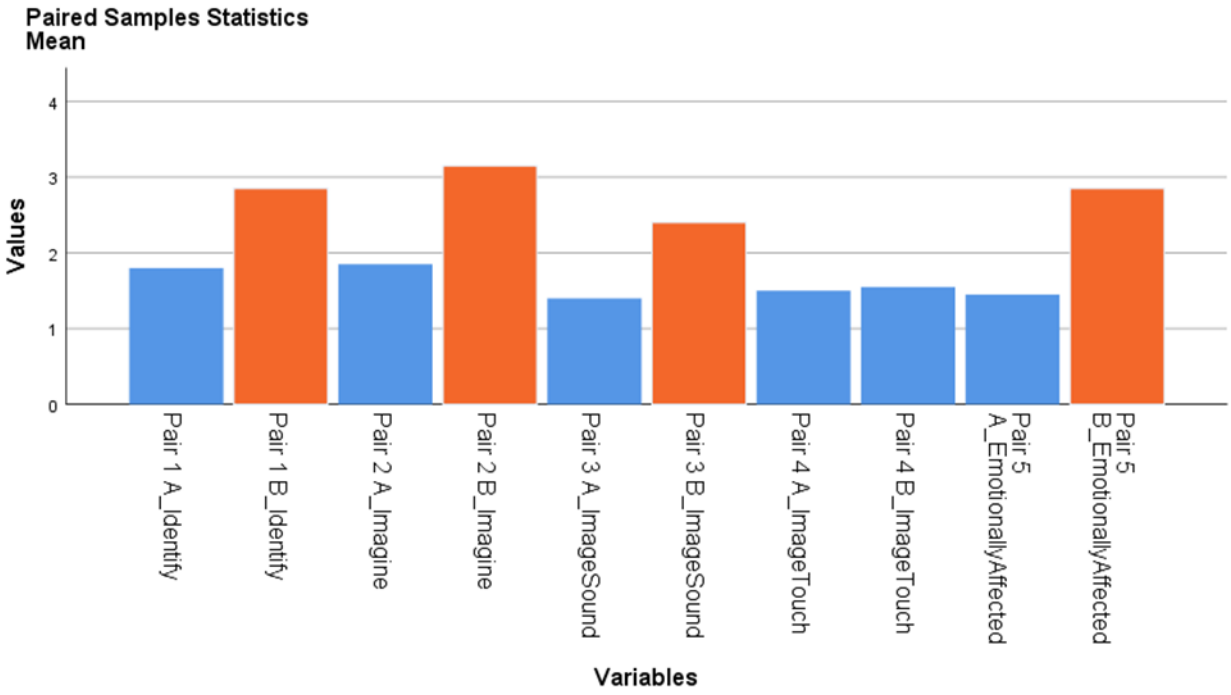


Figure 8. G3: Paired Samples *T* Test

4.2. The Independent Sample T Test

The Independent Sample *T* Test was applied to test seven other variables:

V6: *imagining oneself being enslaved in the HT situation,*

V7: *feeling scared,*

V8: *being controlled,*

V9: *being secluded or isolated,*

V10: *being emotionally affected and differentiated impressions (between the three groups),*

V11: *feeling empathetic,*

V12: *being more careful about personal safety.*

The variables were tested after each text, and the results were compared between the control and experimental groups under three conditions: *A–W* (G1 vs. G2)*; A–E* (G1 vs. G3)*; and W–E* (G2 vs. G3). The variables corresponded to the following questionnaire items:

V6: *Do you imagine yourself being enslaved in the HT situation*?

V7: *Do you feel scared*?

V8: *Do you feel being controlled emotionally or physically, or manipulated*?

V9: *Do you feel secluded or isolated in a closed space*?

V10: *Are you emotionally affected*?

V11: *Do you feel empathetic to trafficked persons*?

V 12: *Will you be more careful about your safety*?

The results were grouped and broken down for each experimental text (T1, T2, T3, and T4) according to the three experimental conditions:

a) *A–W* (G1 vs. G2),
b) *A–E* (G1 vs. G3),
c) *W–E* (G2 vs. G3).

Figures 9–20 show the significant results by the bars marked in orange amid the non-significant results marked in blue.

4.2.1. The Independent Sample T Test: T1

a) Under *A–W* conditions (G1 vs G2), the results were significant only for V12. The mean value is 1.9500 for *W* vs 3.7000 (A), and p=0.000 (Figure 9). This means that the participants showed a lower degree of "being careful about one's safety" after having read the weakened T1.

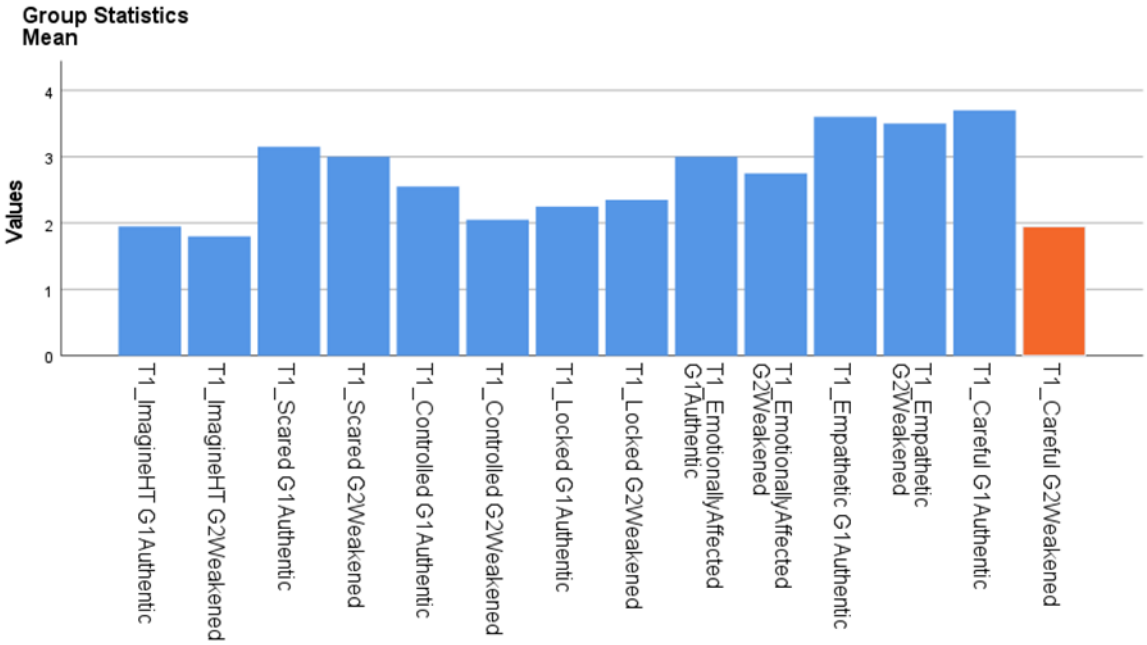


Figure 9. T1: *A–W* (G1 vs G2)

b) Under *A–E* conditions (G1 vs G3), the results were significant for V6 and V9. The mean values are V6 (1.9500 – 2.7500, p=0.03) and V9 (2.2500 – 3.4000, p=0.0005). This means that the respondents show a higher degree of "imagining oneself being enslaved in the HT situation" and a higher degree of "feeling of being secluded or isolated" (Figure 10).

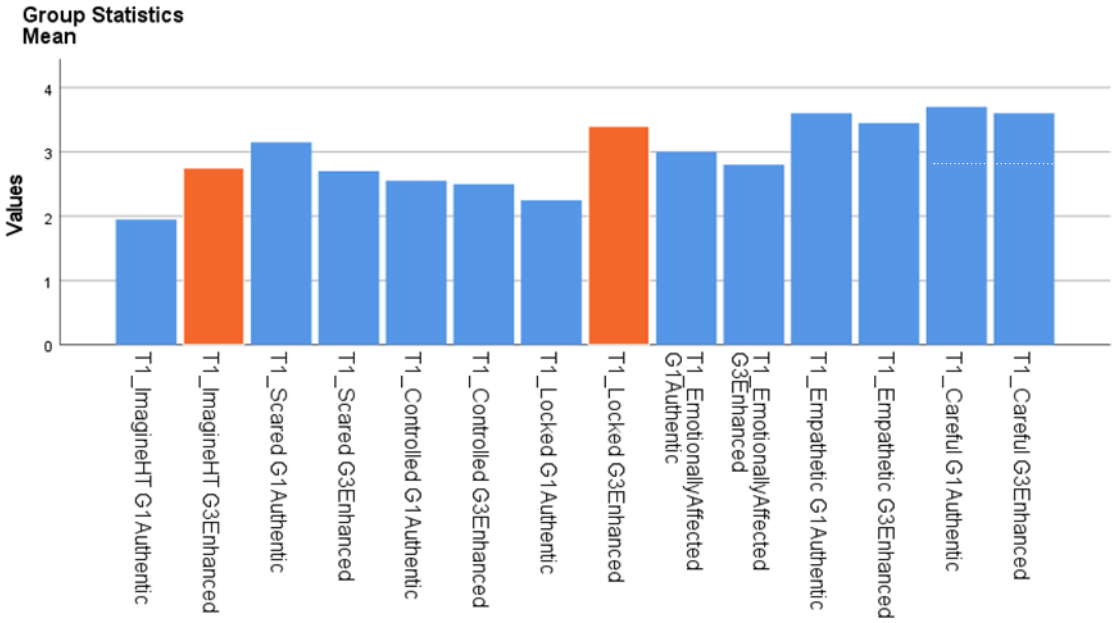


Figure 10. T1: *A–E* (G1 vs G3)

c) Under *W–E* conditions (G2 vs G3), the results were significant for V6, V9, and V12. The mean values are V6 (1.8000 – 2.7500, p=0.015), V9 (2.3500 – 3.4000, p=0.002), and V12 (1.9500 –3.6000, p=0.000). This means that the respondents show a greater degree of "imagining themselves being enslaved in the HT situation", the "feeling of being secluded or isolated", and "being careful about one's safety". All three instances show a significantly higher emotional reaction of the respondents after they were exposed to experimental T1 (Figure 11).

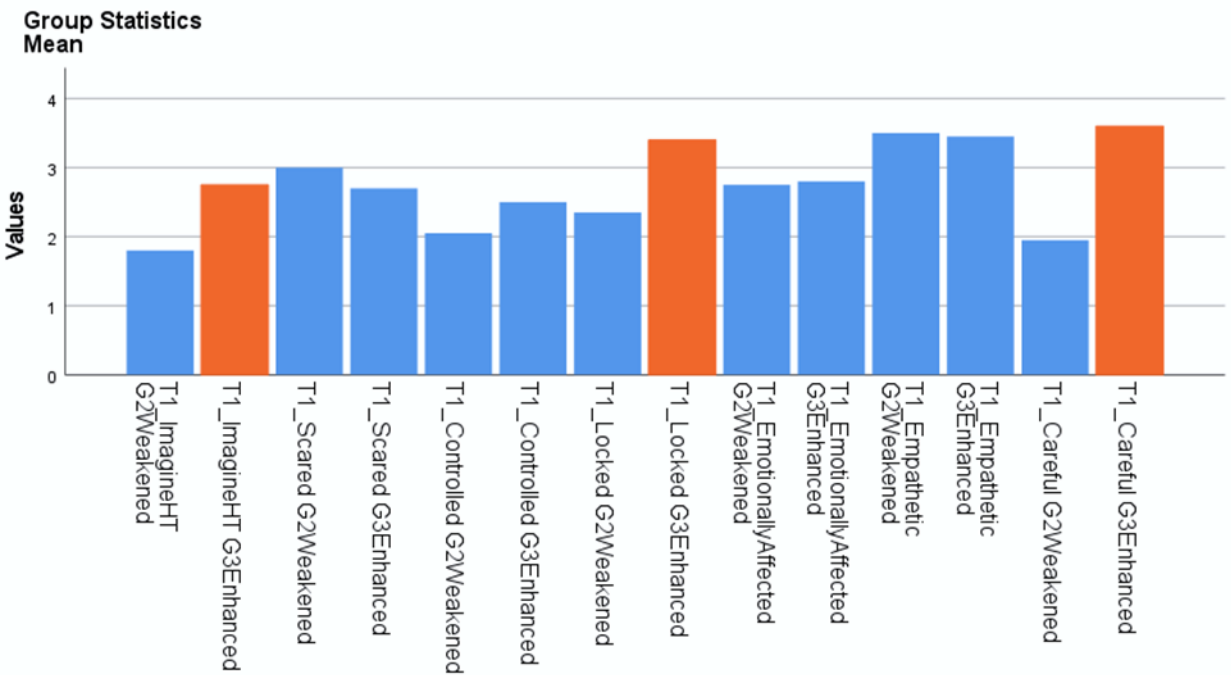


Figure 11. T1: *W–E* (G2 vs G3)

4.2.2. The Independent Sample T Test: T2

a) Under *A–W* conditions (G1 vs G2), the results were significant for V6, V7, and V10. The means are for V6 (2.2000 – 3.1000, p=0.0045), V7 (3.1000 – 2.1000, p=0.002), and V10 (2.8500 – 3.3500, p=0.049). This means a higher degree of involvement in the imagined HT situation within G2, who read a weakened T2. The degree of "feeling scared" was lower within G2, which might be due to the lack of explicit verbal expressions within the SPIDERWEB metaphor. At the same time, the degree of overall emotional involvement was slightly higher even after reading the weakened manipulated T2 as compared to the responses to the authentic T2 (Figure 12). It can be observed here that the more denotative representation of HT in T2 evokes a higher emotional reaction to the media content.

b) Under *A–E* conditions (G1 vs. G3), there were almost no significant differences between the reactions to the authentic and enhanced T2, except for V9. The mean values are 2.3500 – 3.2500, and p=0.03. This means a considerably higher "feeling of being locked" within G3 after having read the enhanced experimental T2 (Figure 13).

c) Under *W–E* conditions (G2 vs G3), the results were significant for V7, V8, and V9. The mean values are V7 (2.1000 – 3.5500, p = 0.000), V8 (2.2000 – 3.0000, p = 0.003), and V9 (2.7000 – 3.2500, p=0.0455). This means a greater degree of "feeling scared", "feeling of being secluded or isolated", and "feeling of being controlled emotionally or physically or manipulated" within G3. The differences in the perceptions between weakened and enhanced T2 are shown in Figure 14.

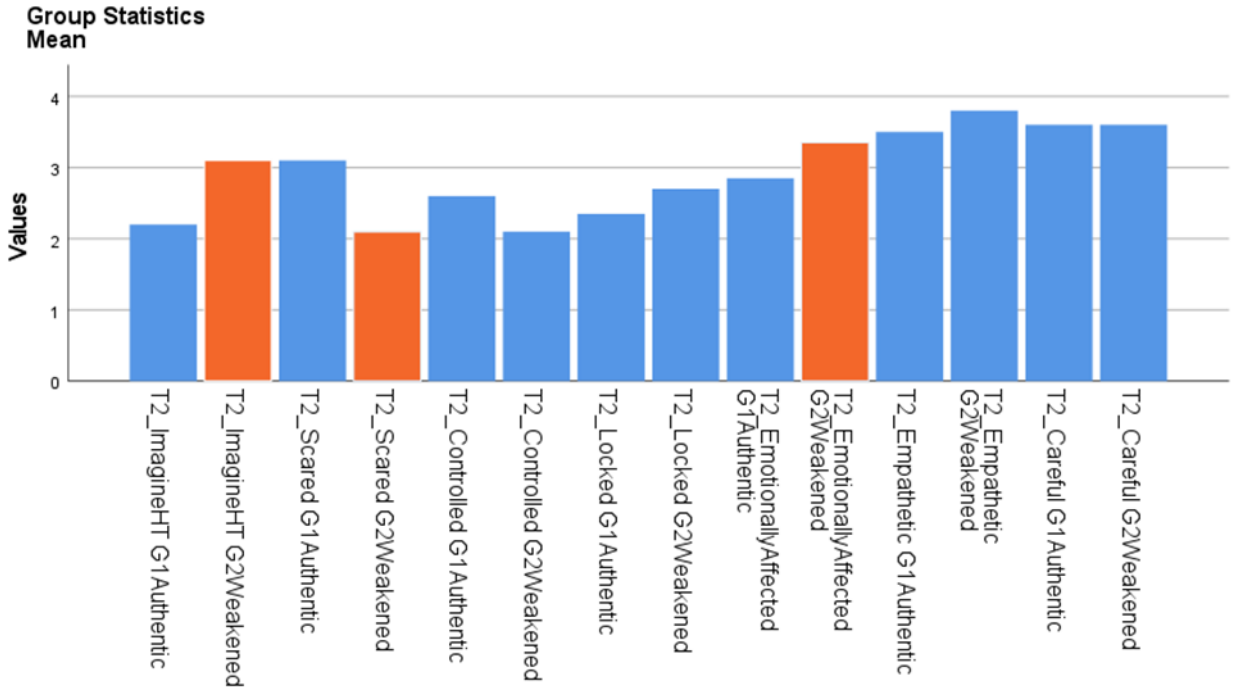


Figure 12. T2: *A–W* (G1 vs G2)

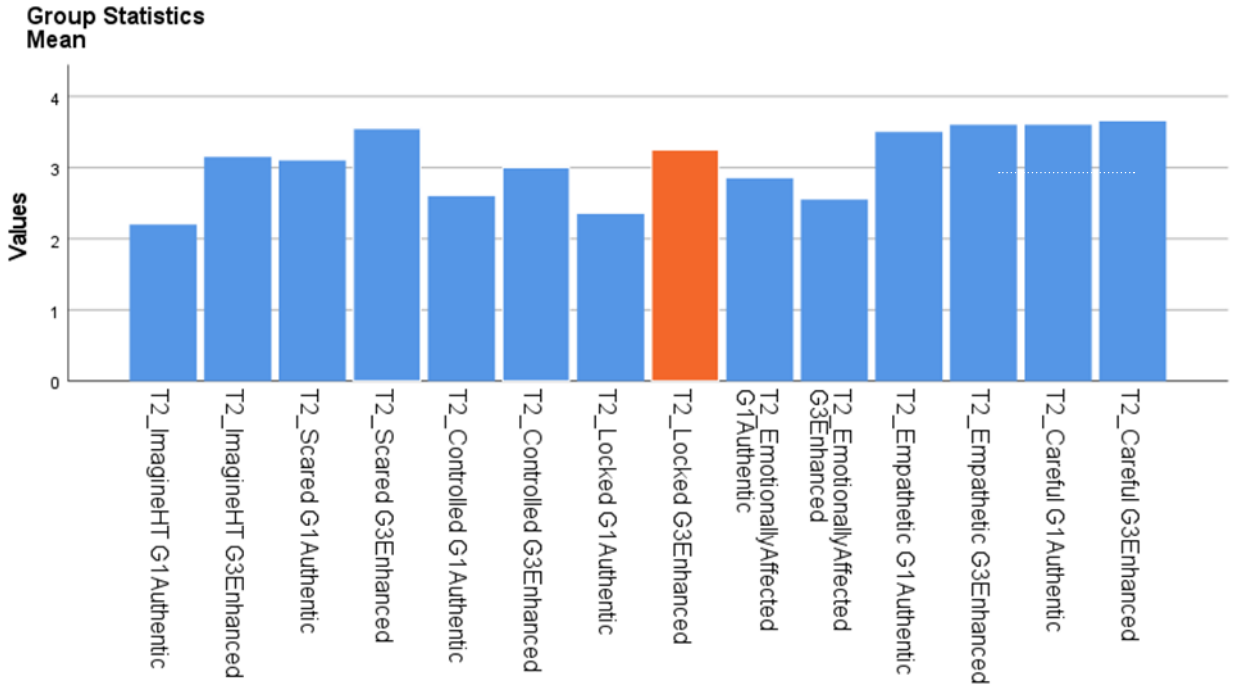


Figure 13. T2: *A–E* (G1 vs G3)

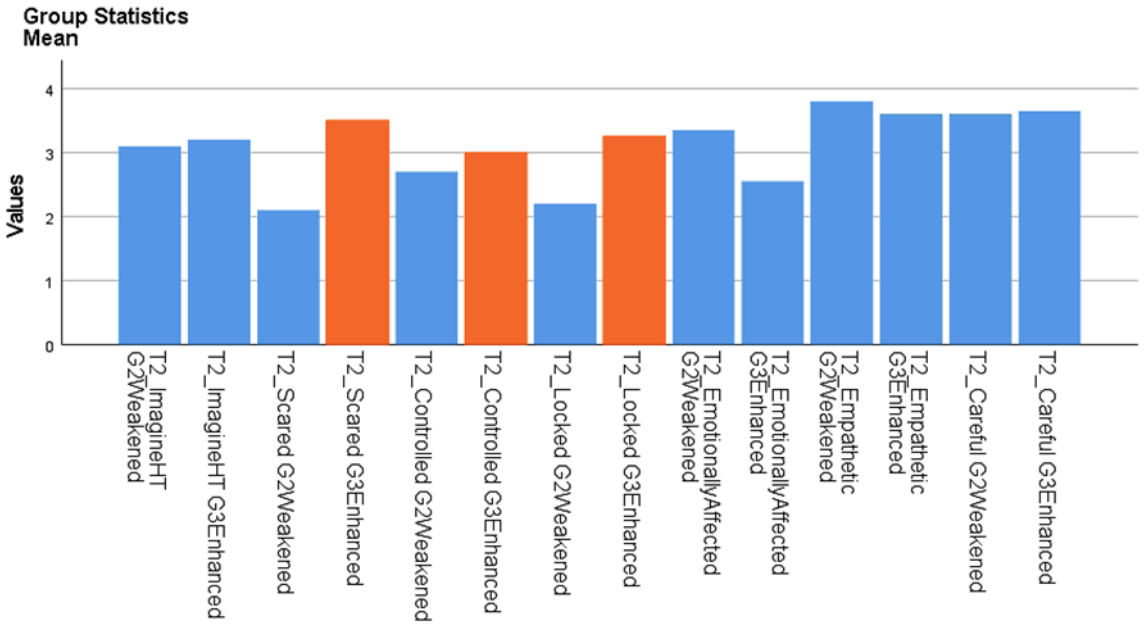


Figure 14. T2: *W–E* (G2 vs G3)

4.2.3. The Independent Sample T Test: T3

a) Under *A–W* conditions (G1 vs. G2), there were no significant differences between the responses of G1 and G2 to T3, p>0.05. The bars in Figure 15 show a slight increase or decrease in the degree of the reactions to T3 in two experimental groups. However, the result shows no considerable difference.

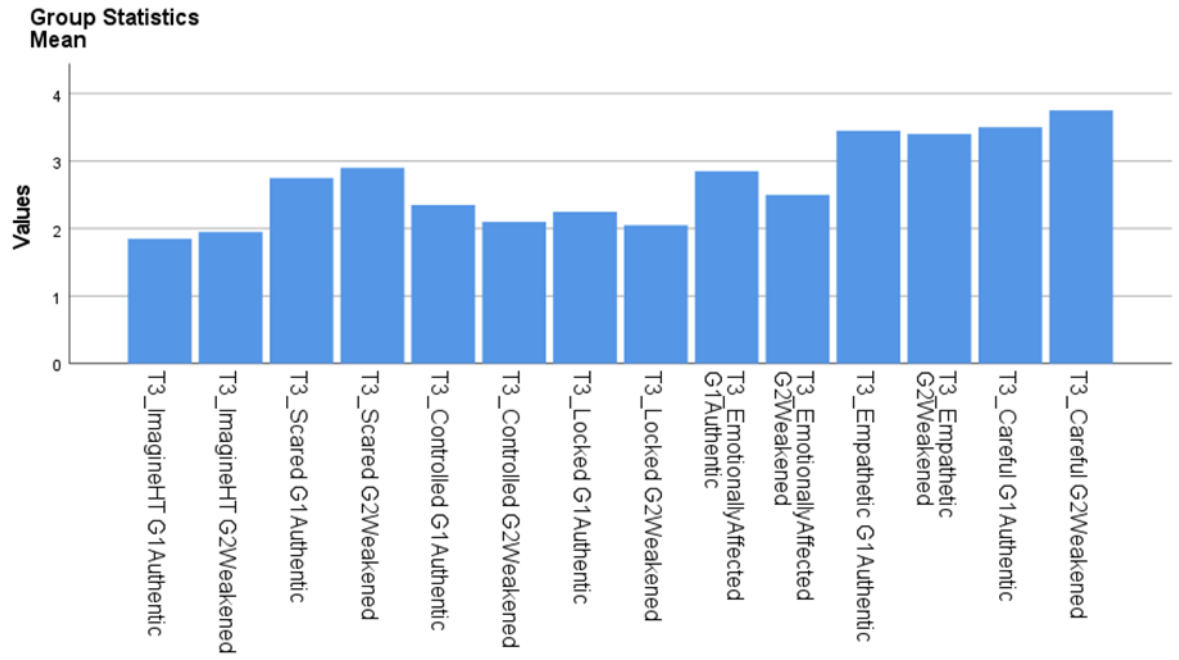


Figure 15. T3: *A–W* (G1 vs G2)

b) Under *A–E* conditions (G1 vs. G3), there was a significant difference between reading perceptions only for V8. The means values are 2.3500 – 3.3158, p=0.0035. This means that the participants experienced a higher degree of "the feeling of being controlled emotionally or physically or manipulated" in response to the manipulated metaphorically enhanced T3 rather than to the authentic one (Figure 16).

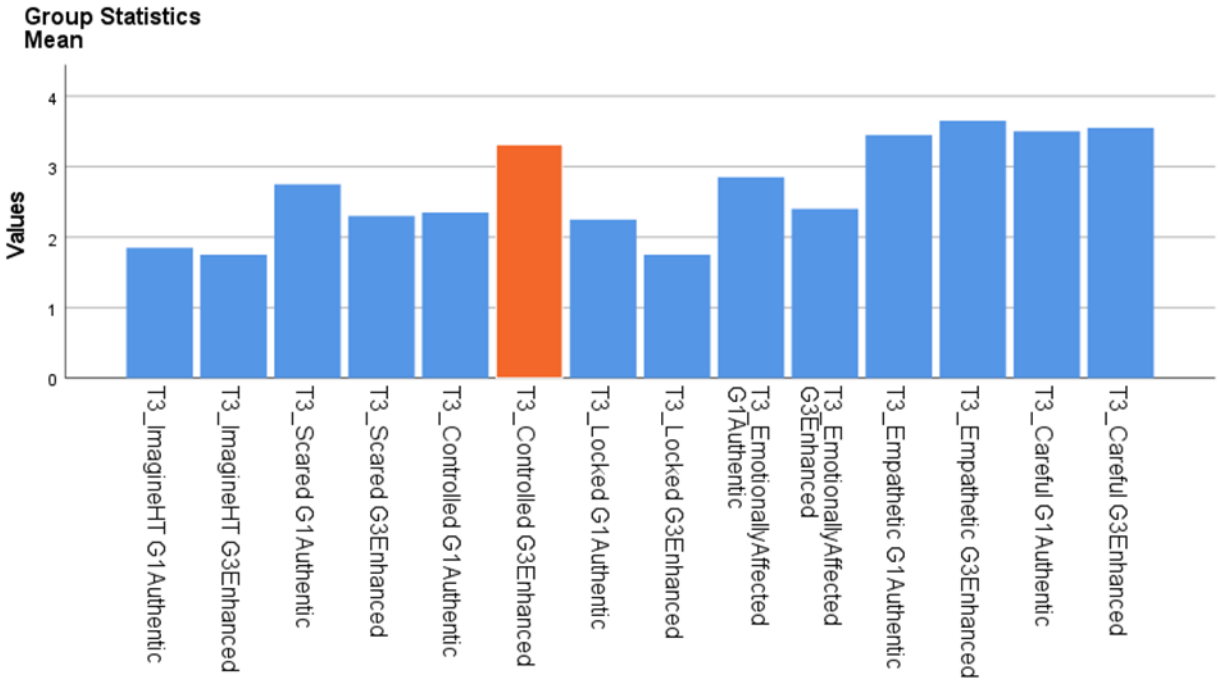


Figure 16. T3: *A–E* (G1 vs G3)

c) Under *W–E* conditions (G2 vs. G3), there was a significant difference between reading perceptions only for V8. The mean values are 2.2500 – 3.3158, p=0.0005. This means that the participants experienced a higher degree of "the feeling of being controlled emotionally or physically or manipulated" in response to the manipulated metaphorically enhanced T3 rather than to the weakened one (Figure 17).

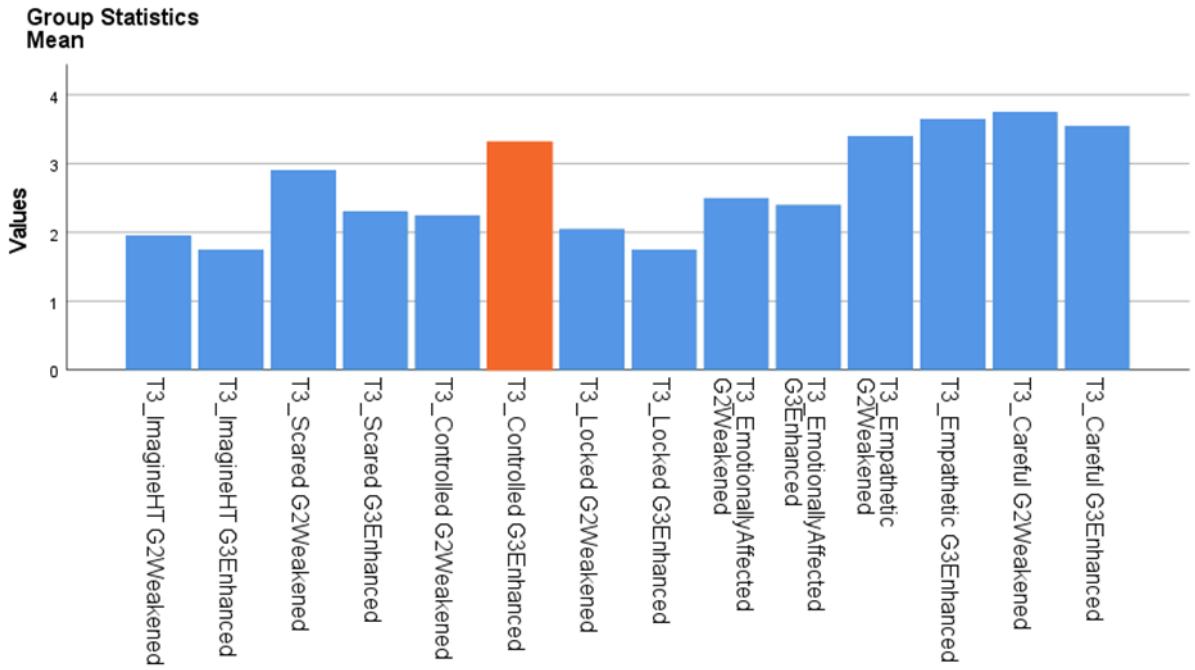


Figure 17. T3: *W–E* (G2 vs G3)

4.2.4. The Independent Sample T Test: T4

a) Under *A–W* conditions (G1 vs G2), the results were significant only for V10. The mean values are 2.9000 – 2.2500. This means that the participants of G2 showed a lower degree of "being emotionally affected" in response to the weakened T4, as shown in Figure 18.

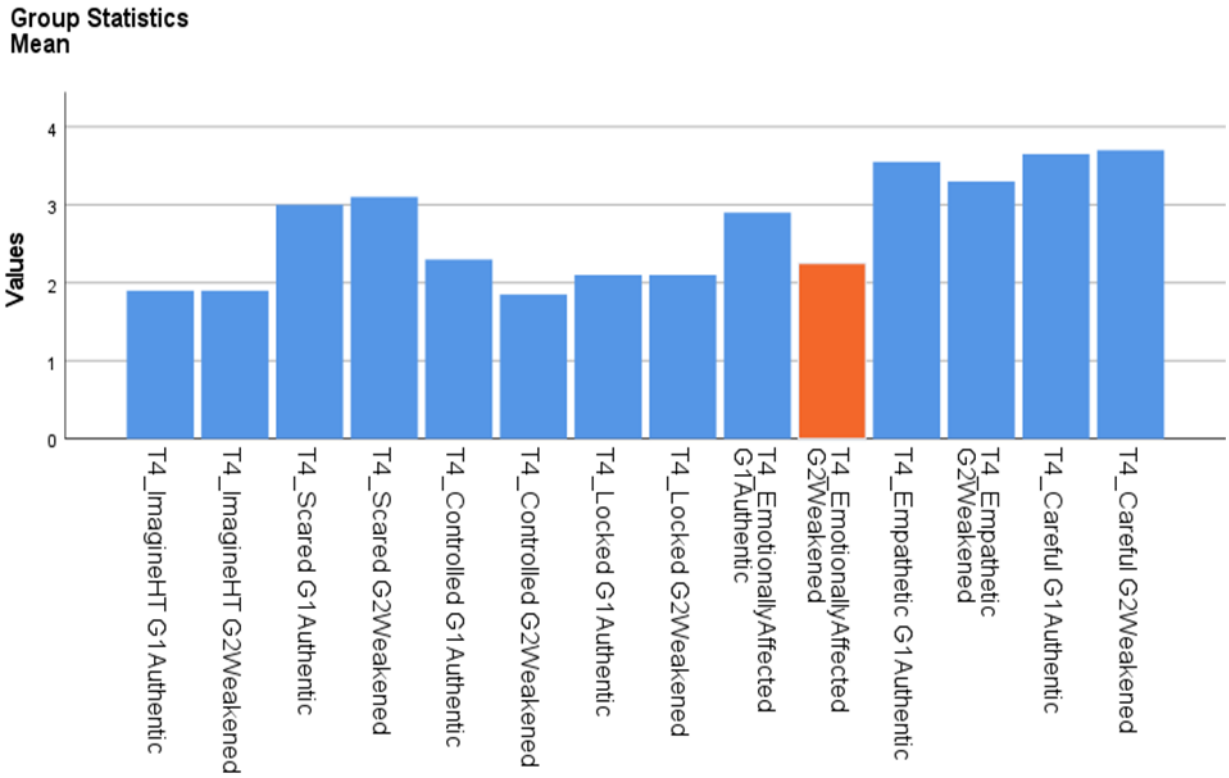


Figure 18. T4: *A–W* (G1 vs G2)

b) Under *A–E* conditions (G1 vs G3), the results were significant for V6 and V8. The mean values are for V6 (1.9000 – 2.6500, p=0,007) and V8 (2.3000 – 3.0000, p=0.0285). The participants of G3 experienced a higher degree of "imagining oneself being enslaved in the HT situation" and "the feeling of being controlled emotionally or physically or manipulated" in response to the manipulated T4 enhanced with metaphors (Figure 19).

c) Under *W–E* conditions (G2 vs. G3), there were significant results for V6, V8, and V10. The mean values are for V6 (1.9000 vs. 2.6500, p=0.006), for V8 (1.8500 to 3.0000, p=0.0005), and for V10 (2.2500 vs. 2.8500, p=0.0265). This means that the participants of G3 experienced a higher degree of "imagining oneself being enslaved in the HT situation", the "feeling of being controlled emotionally or physically or manipulated", and "being emotionally affected". The responses were considerably higher to the manipulated T3 enhanced with metaphors rather than to the weakened one (Figure 20).

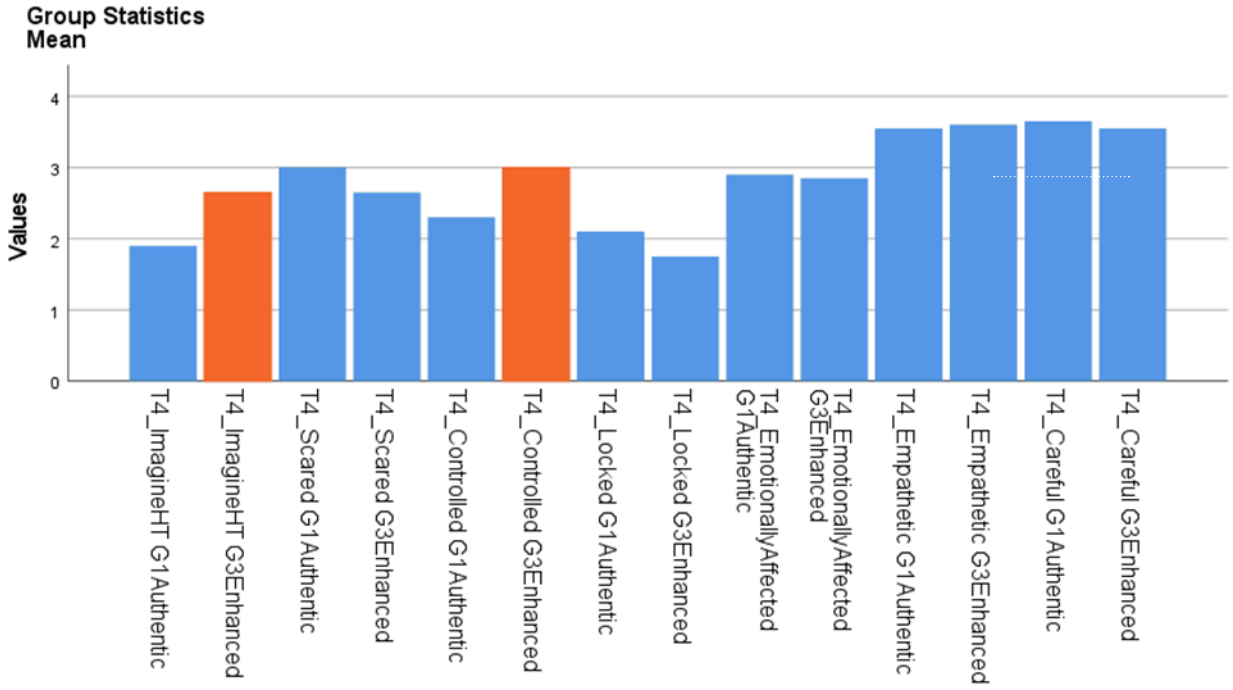


Figure 19. T4: *A–E* (G1 vs G3)

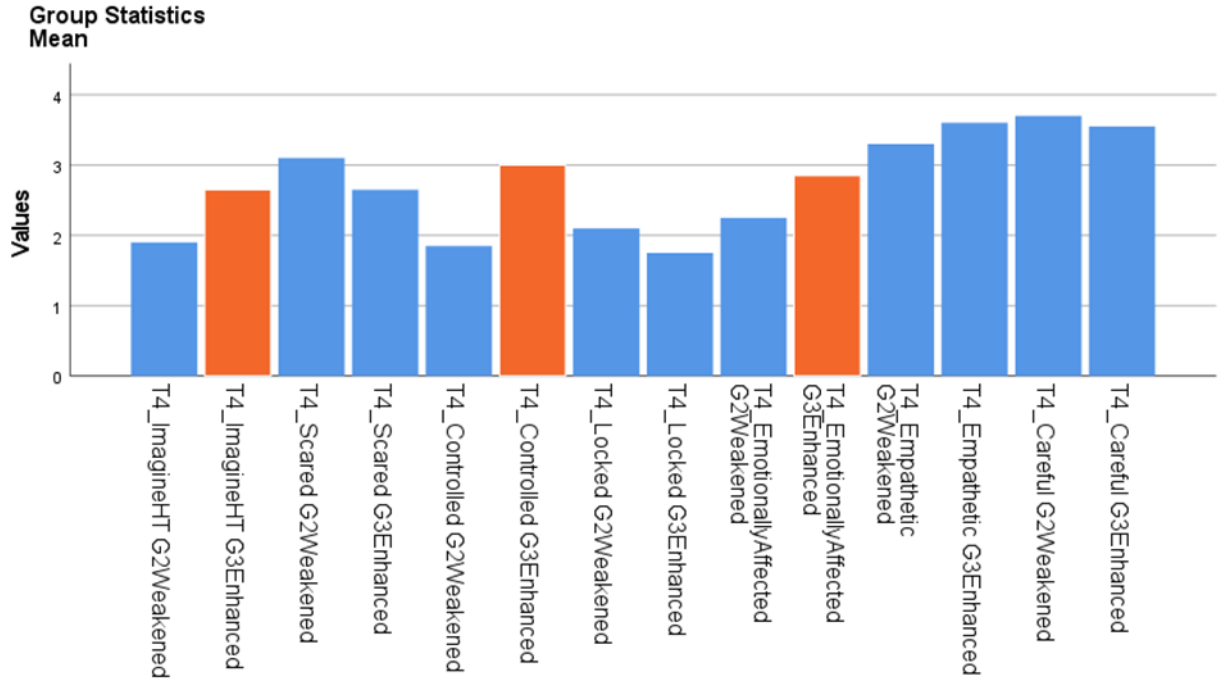


Figure 20. T4: *W–E* (G2 vs G3)

5. Discussion

What can be seen from the results of the statistical analysis is that both the Paired Samples *T* Test and Independent Samples *T* Test produce more significant values for the *Enhanced* (E) experimental texts used in G3. It is especially noticeable in contrast with

the *Weakened* experimental text (W), where there is a greater gap between implicit and explicit SPIDERWEB metaphor expressions, while the reaction to the *Authentic* (A) text, which was used as a control text, also yields a significant result in terms of the reader's response, which in turn points to the practical value of using authentic media on HT in classroom close reading activities.

Specifically, the variables used in the Paired Samples *T* Test were mainly meant to check the general emotional reaction of the respondents to the topic of HT and whether the media content was generally immersive. The participants of both G1 and G2 showed a significant response to one of five variables. They showed an increased post-reading reaction to V2 (*imagining oneself in the same situation*) within G1 and to V3 (*imagining the sounds related to HT*) within G2, while the respondents of G3 were more sensitive to four out of five variables: V1 (*identifying oneself with the victims*), V2 (*imagining being in the same situation*), V3 (*imagining the sounds related to HT*), and V5 (*being emotionally affected and general impressions*). An unexpected finding is that the respondents within two of the three groups showed their emotional and attitudinal reading experiences through the sensory acoustic perception, though the direct use of language units of auditory modality had not been identified in the preliminary linguistic and conceptual analysis. Therefore, it raises the question of further study, namely how representations of deprivation of HT victims' freedom could entail *imagining the sounds related to HT* (V3) in the reading process and whether there is an objective correlation between these parameters.

In a previous study (Paliichuk 2022) on the transportation effect of the sensory language in the survival stories of HT the manifestation of the visual, acoustic, and tactile sensory modalities in the media narratives and the respondents' reactions to the respective sensory language were revealed. Namely, in this study, it can be hypothetically assumed that sound imagery may refer to the representation of the victims' inability to voice their oppressed position under slavery conditions. However, the correlation between V9 (*feeling of being secluded and isolated*) and V3 (*imagining sounds related to HT*) should be verified in further research. If it is positive, therefore, a study on sensorial synergy in HT media narratives should be conducted. Another correlation should be done to trace the impact of the responses to V5 and V10 on V12. If there is a positive correlation between the degree of the emotional involvement of the readers in the HT problem described in the text and the decisions to be more careful about personal safety, further studies may focus on the emotive textual prerequisites of moderating respondents' behaviours for eliminating the risks of being trapped in an HT situation.

Moreover, the generalization of the Paired Samples *T* Test results refers to which parameters (variables) were most indicative of the respondents' overall immersion in the experimental texts. As the results showed, those were V2 (*imagining being in the same situation*) (twice out of the three cases) within G2 and G3 and V3 (*imagining the sounds related to HT*) (twice out of the three cases) within G1 and G3. Additionally, the

respondents of G3, who read the *Enhanced* texts, showed a higher response to V1 and V5, i.e., they were *identifying themselves with the victims* and *feeling emotionally affected* after reading. The sum of the results of the Paired Samples *T* Test encouraged the detailed exploration of the sensations experienced by the respondents to register the differences in the perceptions of the media content between the experimental groups.

The consolidated overview of the Independent Samples *T* Test results gives a bigger picture of the differences in respondents' perceptions of HT-related aspects. It can be noted that the comparison between two manipulated texts (T1) under the conditions of *W–E* (G2 vs G3) shows the largest number of variables in terms of significant results, while the comparison between *A–E* (G1 vs G3) also points to a greater response to the *E-text* than to the *A* text. As for T2, there is almost no difference in comparison between reactions to the *A* vs. *E* texts except for *the feeling of being controlled*, which is stable. However, the responses in the contrasting condition *W* vs. *E* show more differences, mainly in favour of the respondents' *feeling scared, controlled, secluded and isolated*. The responses to T3 show almost no significant differences except for *the feeling of being controlled*, which is increased in comparison between *A–E* and *W–E*. As for T4, a greater response is given in contrast to *A–E* and *W–E*. It should be noted that the texts were identical in content, but the conditions for the exposure to T4 were enhanced due to the one-minute video containing visual images of the SPIDERWEB metaphor used as social advertising against HT.

Overall, 27 out of 99 measurements proved significant, which represents approximately 30% of the feasibility of the use of the SPIDERWEB metaphor in the development of anti-trafficking content for classroom activities. This means that the verbal techniques of using the SPIDERWEB metaphor should refer to those parameters of the content writing that correspond to the variables with significant results. These are mainly V1, V2, V3, V5, V6, V7, V8, V9, V10, and V12. At the same time, both V5 and V10 refer to the emotional perceptions of the text. This parameter was used twice, in the Paired Samples *T* Test and the Independent Samples *T* Test for controlling the reader's emotional response throughout the experiment, because it was essential to monitor the change of the emotional state after reading or watching the HT media content in order to trace whether the pragmatic aim of providing a warning about HT danger could be achieved with the help of the authentic and manipulated media texts.

A peculiar regularity can be observed across the significant results, which should be verified for the existence of a negative correlation in further studies. When the respondents showed a significantly higher degree of *being emotionally affected* (V10), the parameters of the degree of *being careful about HT risks* (V12) were insignificant, and when a significantly higher degree of *being careful about HT risks* (V12) was revealed, there was an insignificant result of emotional involvement (V10). It follows that emotional pressure is not that critical for raising awareness. Instead, logically arranged information prompts the audience to think about their safety. On the other hand, there were

no significant results revealed in terms of *being empathetic to the victims of HT* in all the experimental conditions and cases. It may signify that the texts were reader-centred and targeted at the people to make them experience certain sensations rather than evoke empathy for victims, emphasising the fact that everyone can become a victim, so readers would imagine themselves being a potential victim and experience the feeling of being controlled, and locked in a closed space. This consideration works in favour of using the SPIDERWEB metaphor and related schemata-charged language when developing anti-trafficking warning content.

The limitations refer mainly to the restricted size of the sample from one university and to the fact that, currently, the students experience greater emotional pressure and stress living in danger and threats related to the war in Ukraine. This circumstance may overlap with the awareness of HT risks, even though the problem has become more acute since the outbreak of the full-scale war. However, the respondents constitute a homogeneous audience of young people aged 20, predominantly female respondents.

6. Conclusions

The results of the study uncover the properties of the SPIDERWEB metaphor in structuring the reading experiences within the contours of the spiderweb-like construal through the explicit use of lexemes such as *spiderweb* and respective thematic groups (*spider, spider's web, web, cocoon, prey, wrap, captured, catch,* etc.) and the implicit means, such as schemata-charged verbal expressions: *containment* (*in, into, inside, get into, captivity*, etc.), *links, process, path, light-dark, up-down, centre-periphery*, etc. The series of experimental procedures helped reveal the most prominent reactions of the readers to the media content on HT. It was established that authentic texts containing the verbal manifestations of the SPIDERWEB metaphor evoked the feeling of co-presence within the HT situation. The manipulated texts with weakened manifestations evoked less intensive emotional output in terms of the reader's reaction while the manipulated texts with metaphorically saturated phrases, deliberately inserted in the text, stimulated a greater response from the participants.

At the same time, the level of empathy for HT victims did not increase after reading the fragments of media texts used in the experiment. Instead, the respondents mainly experienced sensations of imaginary enslavement within the HT situation: being secluded and isolated, controlled, or manipulated, imagining the sounds representing their being in slavery, and being scared, which put them in a state of mind of being more careful about personal safety. Further studies will be mainly aimed at exploring the virtual domains of HT-related crimes, the possibility of using the Internet domain for recognising HT risks, and the development of immersive techniques based on the SPIDERWEB image metaphors for anti-trafficking preventive purposes. In particular, the SPIDERWEB metaphor of HT can be explored through the lens of Internet crimes and the dark and deep

net domains, which is a fusion of the real and cognitive world in a digital dimension. For instance, such research may seek to discover how the SPIDERWEB metaphor can be used in the development of a warning game about HT, such as a storytelling-based game for raising HT awareness (*Unity WebGL Player. ACT! Awareness Combats Trafficking*, n.d.) that already exists. It may also focus on "predator-prey" interactions (Ludwig et al. 2018) for the development of the trafficker's portrait and risk recognition skills among students.

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Understanding and evaluation: a cross-linguistic study of the evaluative collocates of English and Armenian verbs of understanding

Abstract. The paper studies the correlation between understanding and evaluation in the light of social interactions, and aims at exploring the metaphorical mapping of the process of understanding in the English and Armenian languages. The purpose of the paper is to analyze the two cognitive processes, based on the contrastive study of verbs of understanding in terms of the evaluative meaning of their collocates, thus explaining the dynamics of understanding-evaluation relations, fully manifested in the metaphorical patterns underlying the sense of the verb. It is shown that the evaluative meaning of the collocates plays a pivotal role in shaping how understanding is emotionally and rationally assessed. A corpus driven analysis of the English and Armenian factual material reveals the collocations that metaphorically confer different dimensions to the process of understanding and points out a clear tendency to mark understanding as positive when evaluated rationally and negative when evaluated emotionally. The research detects and determines three types of evaluation in the axiological system under study and classifies them as *emotional, rational* or *orientational*. Their relative positioning on the axiological scale correlates with the accepted norm viewed as the deictic centre (reference point) of the whole process. The main findings of the research make a novel contribution to the study of understanding-evaluation correlation, offering insights into the metaphorical nature of how understanding is perceived and evaluated in both English and Armenian.

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1. Introduction

The notion of understanding is believed to be closely connected with that of evaluation and determined by some other notions of the human mind. These two cognitive processes are not independent, but rather interact in a dynamic way: to effectively evaluate something requires a deep understanding of its content and arguments; at the same time evaluation from different perspectives provides a deeper understanding.

Several factors have been identified that contribute to the close interaction between understanding and evaluation. First, it has been shown that people tend to use their prior knowledge, schemas and beliefs to evaluate new information and integrate it into these schemas (Kuhn 1991; Graesser et al. 1994). Second, it has also been shown that evaluation involves the use of higher-order cognitive skills such as critical thinking, reasoning and problem-solving (Anderson 1993); one should be able to analyze the relevant domain of knowledge and through a consistent judgement draw reasonable conclusions to come up with some solutions.

Over the years, scholars have explored the relationship between conceptual metaphors and evaluations, examining how metaphorical expressions influence our judgements and assessments. This study, carried out in the light of Conceptual Metaphor Theory (CMT) (Lakoff & Johnson 1980), attempts to correlate the notions of understanding and evaluation taking into account the metaphorical nature of understanding and the role of evaluation in the metaphorical representation of understanding.

As known, conceptual metaphor research investigates how metaphorical language shapes our perception of abstract concepts through mapping them onto more concrete domains, onto more accessible and embodied experiences. Conceptual metaphors do not only structure our language but also enhance/refine our understanding of intangible notions and complex issues. They shape our reasoning and attitudes, and by outlining the cognitive, affective and social factors influence the process of communication in general and that of understanding in particular. G. Lakoff and M. Johnson's groundbreaking work on CMT, though not explicitly focused on evaluation, laid the foundation for subsequent research on the cognitive and affective dimensions of understanding taking into account its metaphorical nature.

The study of the English and Armenian language data which pertains to the linguistic expression of metaphorical representation of understanding suggests the presence of a consistent pattern. It appears that a verb of understanding having a metaphorical basis is frequently collocated with terms conveying evaluative meaning, with words or phrases which carry subjective emotional connotations, often associated with the

speaker's/writer's attitude, judgement or opinion towards either the object being understood or the very process of understanding itself. Accordingly, when speaking about the correlation between understanding and evaluation, two types of evaluative structures should be considered – assessment of the *material* to be understood and assessment of the *quality* of the whole process of understanding, that is the assessment of the level of understanding achieved. Drawing on these assumptions, the following research questions are addressed in the paper:

1. What is the target of understanding? Is it more often evaluated as something negative, positive or neutral?
2. How is the process of understanding evaluated (negatively, positively or neutrally)?

Consequently, two types of structure are under discussion in the paper:

a. verb of understanding + target of understanding evaluated;
b. verb of understanding + evaluation of the process of understanding.

Thus, we begin with a brief introduction on understanding, evaluation and metaphor, and provide a state of the art literature review. Then a special section specifies and delineates the methodology of the research and the main methods used. The Results and Discussion section presents metaphorical patterns revealed in the research, and identifies the set of systematic correspondences and differences between the two languages by specifying the target of understanding and defining the three types of evaluations: emotional, rational and orientational. The Conclusion succinctly summarizes the major findings and key discoveries of the research.

2. Theoretical background of the research

Evaluation is a crucial component of social communication. It is an inherent aspect of language use, conveyed through various linguistic resources (adjectives, adverbs, modality, intonation, metaphor). Evaluation enables us to express subtle shades of meaning and negotiate our position in relation to other speakers and writers, thus allowing people to position themselves and others in relation to various evaluative criteria. It is worth noting that metaphor is classified as one of the main linguistic resources comprising evaluative meaning. Metaphorical language is claimed to convey evaluations in various contexts (Gibbs 1994; Semino & Masci 1996; Kövecses 2005; Martin & White 2005; Burgers et al. 2016; Fuoli et al. 2021).

Evaluation is not a monolithic concept, but rather a complex and multifaceted phenomenon. The terms Target, Evaluator, Evaluation and Ground are widely accepted and used by many researchers and practitioners in the field of evaluation. The Target refers to the object or entity being evaluated, while the Evaluator refers to the speaker or writer who is making the evaluation. Evaluation refers to the judgement or opinion being expressed, and Ground refers to the criteria or standards that are being used to make the evaluation.

Evaluation is not only expressed through language but is also shaped by discourse context, social norms and cultural values. It is argued that the way evaluation is expressed can vary across different cultures, languages and social contexts.

In academic literature researchers have identified several fundamental concepts covering the pragmatic dimensions of speech, that is the discourse context in its broadest sense (dialogue, context of situation, knowledge/perception of interconnection between the elements of a system, intention, attitude, emotion, evaluation) as playing a crucial role in the whole process of understanding. These concepts are not separate aspects of understanding but are interconnected, with evaluations serving as markers of understanding.

As a dialogical process understanding implies at least two parties engaged in the communication process. As M. Bakhtin puts it, "…understanding presupposes two individual consciences, two subjects; understanding is always dialogical" (Bakhtin 1995: 78). The interaction between the speaker and the interlocutor suggests that understanding is correlated with a specific situation, that is in a broader sense, with a certain context.

The significance of the context in the characterization of the mental process of understanding is highlighted by most scholars. Specifically, they posit that understanding involves communication within a particular context, and that it presupposes the existence of a subject and a context for an action. In essence, understanding is contingent on the consideration of the context, situation and the underlying conditions, that is to say to grasp a particular phenomenon the subject must apprehend the situation and the underlying circumstances (Shchedrovitsky 1995: 481; Kelly et al. 1999: 589; Gadamer 2008: 10; Regt 2014: 377–396).

Thus, speech is construed within the contextual framework of a given situation. The primary objective of comprehension is to apprehend the implicitly expressed and embedded information. In this regard, understanding incorporates all relevant aspects of the communication process, encompassing both subjective and objective factors (Dilthey 2001: 512, 515; Gadamer 2005: 236; Gallagher 2008: 446, 449). In order to understand something, it is necessary to adopt a broader perspective and consider diverse factors.

Understanding, as commonly discussed in the literature, entails more than mere belief, acceptance or knowledge of discrete information. It pertains to the comprehension of the relationships between the constituent elements of the system. Essentially, it involves discerning the connections, interactions and interdependence between them, developing an appreciation of how they are interrelated and fit together, integrating the material under consideration with other relevant material. While it is possible to possess unrelated pieces of information, it is through their combination that comprehension emerges (Rosenberg 1981: 33; Kvanvig 2003: 192; Riggs 2003: 218; Lipton 2009: 43–63; Ylikoski 2009: 100–119).

At the same time, to understand is not only to perceive the interconnectedness of elements but also to comprehend the underlying reasons for their interconnectedness. Thus,

understanding involves providing an answer to the question of *how* and *why* different elements within the same system influence one another and fit together, constituting the intentional aspect of the understanding process which shapes an individual's personal attitude towards the information being conveyed (Baumberger et al. 2016: 29–30; Grimm 2016: 209–225).

Since understanding is determined by the agent's (evaluator's) attitude towards the target, it is worth noting that a positive attitude holds particular significance in the process of understanding – a favourable and positive approach facilitates and leads to comprehension. For achieving a comprehensive understanding it is necessary to perceive the intention or purpose behind the phenomenon as desirable, preferable, true and justified (Kvanvig 2003: 188; Grimm 2006: 515–535; Elgin 2007: 33–42; Grimm 2016: 209–225; Susen 2016: 69–70). By attributing desirability, preference, truth and fairness to the understanding process the speakers express their positive attitude.

Here it becomes obvious that at the heart of the understanding process lies the human factor as both the speaker and the interlocutor bring their opinions, emotions and feelings into the process of understanding, thus making the evaluation of the communicated material subjective. Positive and negative evaluations are on different sides of the axiological scale. At the same time, though being in different locations, they are determined in relation to some definite reference point, Norm or Origo.

In this regard, the Norm and the Origo are the two concepts closely associated with that of understanding studied from the perspective of values and the meaning conveyed. The Norm is seen as an axiological category, while the Origo is deemed a pragma-semantic category. The key distinction between the axiological Norm and the pragma-semantic Origo is determined by the claim that norms stem from shared community values and beliefs (Kecskes 2014), whereas the Origo is determined by individual speakers or specific communities. The Origo highlights the speaker as a reference point (Bühler 2011), which might deviate from normative/objective reference points. On the whole, we can argue that understanding and evaluation are both relative, that is to say, they are related to a specific point, a benchmark – the Norm or the Origo.

It is worth noting that people are capable of both underestimating and overestimating the comprehension of actions, facts, events, situations. According to some research, individuals tend to overestimate their understanding due to their prejudiced attitude towards the communicated material (Ylikoski 2009: 100–119). Therefore, it is crucial to determine which level of understanding can be considered as understanding proper, the understanding itself.

The discussion of the works of prominent scholars and researchers establishes a common thread between understanding, evaluation and metaphor. While evaluation serves as the lens through which we assess the depth and quality of our comprehension, metaphoricity of understanding enriches the context in which evaluation takes place.

3. Material and methodology

A dataset (15000 sample contexts containing English and Armenian verbs of understanding) derived from the British National Corpus (BNC), Corpus of Contemporary American English (COCA) and Eastern Armenian National Corpus (EANC) served as the basis for the research, out of which 1000 sample tokens comprising verbs of understanding along with their evaluative collocates were chosen for the analysis. The results of the study are analyzed both in quantitative and qualitative terms.

The BNC, COCA and EANC are large-scale corpora of English and Armenian: they provide a comprehensive data source for investigating lexical associations. To identify significant collocational relationships, the research methodology comprises the use of collocation extraction tools, which scan the corpus to identify evaluative collocates; the query involves a systematic analysis of the verb of understanding co-occurrence patterns within a specified span of words, within the immediate left (L8) and right (R8) contexts. R8 collocates are the 8 words that appear to the right of the target word, while L8 collocates are the 8 words that appear to the left of the target word.

The analysis of the data obtained from the relevant corpora enabled us to uncover patterns of verb usage, identify recurrent linguistic constructions, gain insights into their semantic and pragmatic dimensions, and explore the underlying linguistic principles that shaped word combinations and contributed to a deeper consideration of the cognitive organization of the concept of understanding in the languages under study.

The research methodology based on the corpus analysis tools is backed up by contrastive, distributional and componential methods of analysis.

The contrastive analysis contributed to identifying the correspondences and divergences in the process of understanding between the English and Armenian languages by studying the pragma-semantic potential of the verbs of understanding and creating a fuller picture of the whole process.

The distributional analysis enabled us to identify patterns of co-occurrence between linguistic units denoting understanding and evaluation. It was used to identify lexical and semantic relationships between the linguistic units under study, which helped to gain a deeper understanding of underlying structures and relationships that govern the language use.

The research focuses on analyzing a set of 28 English and 22 Armenian verbs associated with the concept of understanding, as presented in the table below.

Table 1. Verbs of understanding

English	Armenian
understand (260894)[2], *comprehend* (5611), *appreciate* (51392), *recognize* (50655), *acknowledge* (19747), *realize* (75685), *fathom, penetrate, bottom, dig, reach, get, follow, draw, see, view, envision, discern, make out, take, apprehend, seize, grasp, accept, perceive* (10578), *gather, empathize* (1271), *sympathize* (2067)	*հասկանալ* (78981), *ընկալել* (5354), *ըմբռնել* (3721), *թափանցել, կռահել* (3816), *գուշակել* (3199), *տեսնել, յուրացնել, գլխի ընկնել* (2461), *գլուխը մտնել* (49), *գլուխը մտցնել* (56), *գլխին հասնել* (28), *գլխին հասցնել* (13), *ուղեղին հասնել* (5), *ուղեղին հասցնել* (2), *խելքը կտրել* (17), *խելքը մտնել* (11), *խելքին մոտ գալ* (13), *խելքին հասնել* (4), *խելքին հասցնել* (4), *ականջը մտնել, ականջը մտցնել*

The selection of the English and Armenian verbs was based on a thorough analysis of their dictionary definitions, which were used to support the arguments and factual claims. A total of 30 authoritative English and Armenian explanatory dictionaries have served as a reliable and credible source of information about the meaning conveyed by the verbs under study. (The dictionaries immediately cited in the paper are listed in the references.)

The dictionary definition analysis involved two main steps: identification of the so-called *determiners* and *concretizers* through a methodology known as componential analysis. Upon examining the dictionary definitions, it became apparent that the verbs under study were defined in terms of the verbs *to understand* and *to comprehend* in the English language and *հասկանալ 'understand', ըմբռնել 'comprehend'* in the Armenian language, which determined the component being sought. This semantic tendency was confirmed by applying the technique of lexical transformation followed by step-by-step identification (e.g., the verb *recognize* is defined as ***perceive*** *to be something or someone previously known,* ***perceive*** *clearly;* in its turn the verb ***perceive*** is defined as *attain awareness or* ***understanding*** *of* (CALD)). Thus, the components of *understanding* and *comprehension* were considered to be the determiners in the semantic structure of the verbs under study.

The second step involved the setting of the concretizers, that is the words which concretized the determined meaning and introduced the potential of evaluation in the understanding verbs. Detection of concretizers was the main criterion used to determine whether the verb comprised evaluation of quality, i.e., the level of understanding, or not (e.g., *comprehend* – *understand* ***completely*** (CALD), *seize* – *understand* ***fully, clearly, distinctly*** (OALD, MWCD)).

All the methods and techniques used enabled a thorough exploration of the semantic intricacies of the verbs, their contextual preferences and English-Armenian cross-linguistic

2 Data derived from the corpora indicate the raw frequency of the verbs that primarily express the sense of understanding.

variations, contributing to a deeper comprehension of language-specific evaluative expressions and the cognitive organization and metaphorical embeddedness of the notion of understanding.

Thus, the process of understanding is a multifaceted cognitive phenomenon. On a linguistic level, this complexity is manifested in a variety of verbs used to convey the act of comprehending with different levels of penetrating into the subject of understanding.

In this paper we consider the notion of understanding in its broadest sense, presupposing any kind of "change" from *unknown* to *known* in the state of mind and incorporating evaluation. The analysis of the factual material confirms once again that metaphor is pervasive in language and thought by showing that the conceptual domain of understanding is embodied through the conceptual domain of movement in both of the languages. This yields a structural metaphor that underpins the process of understanding as *movement*. Since understanding is often conceptualized on the basis of movement terminology, it enables us to view this metaphorical process in the light of the pragma-semantic category of deixis. Defining deixis as a type of nomination through a marking off point in relation to which real world subjects, objects, phenomena, situations, actions and events are being characterized, we assume that the metaphorical movement is realized in relation to the Norm viewed as the Origo of the mental movement (Yerznkyan 2013).

It is argued that the destination point of this mental movement serves as a metaphorical reference point for the process of understanding, and that the process itself is primarily structured around the metaphorical movement. The language material is analyzed through the metaphor of conceptualizing knowledge as a journey or path through the mapping of the abstract notion of understanding onto more accessible and embodied experiences of exploring an unknown/unfamiliar space or environment. In this process of metaphorical movement evaluation plays a key role: it reveals the level of understanding achieved.

4. Results and discussion

The current study was pursued to show that metaphor powerfully conceptualizes the abstract notion of understanding through tangible references, imbuing varied evaluations. By considering the dimension of evaluations, we uncover the ways in which metaphors embody our cognition and influence the perception of the world around us. The main thesis we try to defend here is that understanding is metaphorically construed and often through the evaluation of this mental process.

4.1. Metaphoric construal of understanding

The language data extracted from contextual uses and dictionary definitions show that the level of understanding is expressed through various adjectives, adverbs and adverbial expressions, which reflect the speaker's evaluation of the limits of the understanding

process. The latter are more often than not rated/evaluated as *full(y), to the fullest degree, complete(ly), broad(ly), wide(ly), accurate(ly), deep(ly), high(ly), in detail* and the like. These evaluations are related to the norm accepted in the given culture/society and outline the extent to which the actual understanding has reached. The analysis suggests that full understanding occurs when the agent and destination coincide, and are thus immersed into each other.

It is worth noting that these evaluative markers/concretizers outweigh other alternative concretizers (such as *wrong(ly), the wrong way, erroneously, without full understanding/knowledge/proof/examination/verification/evidence/conviction/absolute certainty, ապուռ կերպով 'vaguely', մի կերպ 'somehow', հեռավոր կերպով 'remotely', etc.*) that connote lack of understanding, thus revealing the semantic asymmetry between *understanding* and *not understanding*. The polarity contrast marked by the evaluative concretizers supports our view that the mental process of understanding comprises some "depth" which detects the degree of understanding.

4.2. Evaluation of the target of understanding

The analysis of the semantic potential of the verbs of understanding demonstrates that most of them are targeted towards abstract phenomena incorporating the component of complexity in their semantic structures. The dictionary definitions imply that the target of understanding is something **challenging and complicated**: e.g., *fathom – understand (**a difficult problem) after much thought*** (OALD), *grasp – understand (something that is **complicated** or **difficult**)* (MWCD), *envision – form a mental picture of something that is **invisible** or **abstract*** (vocabulary.com), *discern – recognize or understand something that is **not obvious**, see/hear something, usually with **difficulty*** (OALD), *penetrate – achieve understanding of, despite some **obstacles*** (OALD). It is important to note that when we encounter something complicated, invisible, abstract or unfamiliar to us, we may need to invest more effort and cognitive resources to gain a deeper understanding.

In the examples given below the verbs of understanding are all used along with terms which serve as targets of understanding. The language data extracted from the corpora by applying collocational frequency tools confirm that the speakers are making judgements and try to understand certain abstract notions and concepts. The most frequent collocates are listed here: *UNDERSTAND meaning/complexity, COMPREHEND text/mind, RECOGNIZE need/importance, GRASP meaning/reality/direness, APPRECIATE help/offer, EMPATHIZE inability/pain, SYMPATHIZE plight/victim, ACKNOWLEDGE existence/reality, SEIZE opportunity/moment, APPREHEND individual/danger, REALIZE potential/mistake, ԸՆԿԱԼԵԼ հարցի էությունը/խնդրի կարգավորումը 'perceive the essence of the issue/the regulation of the problem', ԸՄԲՌՆԵԼ բնույթը/իրավիճակը 'comprehend the nature/situation', ԳԼՈՒԽԸ ՄՏՑՆԵԼ մտքեր/հիմարություն 'put wild thoughts/nonsense into the head', ՈՒՂԵՂԻՆ ՀԱՍՑՆԵԼ այս անհեթեթությունը 'bring this nonsense to the brain', ԿՌԱՀԵԼ գաղտնի պատմություններ/հեռին*

մտքերը ‘guess the secret stories/second thoughts’, ՅՈՒՐԱՑՆԵԼ նրբություններ/գաղտնիքներ ‘assimilate subtleties/secrets’, ՏԵՍՆԵԼ նման վտանգ ‘see such a threat’.

The following data extracted from the corpora summarize the quantitative correlation between abstract and concrete targets of understanding.

Table 2. Quantitative analysis of abstract and concrete targets of understanding in English

Types of Targets	**Abstract Targets**		**Concrete Targets**	
Number of Tokens	644 (92%)		56 (8%)	
Types of Evaluated Targets	Negative	Positive	Negative	Positive
Frequency of Evaluated Targets	48 (7.45%)	596 (92.54%)	3 (1.68%)	53 (94,64%)
Total	700			

Table 3. Quantitative analysis of abstract and concrete targets of understanding in Armenian

Types of Targets	**Abstract Targets**		**Concrete Targets**	
Number of Tokens	272 (90.66%)		28 (9.33%)	
Types of Evaluated Targets	Negative	Positive	Negative	Positive
Frequency of Evaluated Targets	20 (7.35%)	252 (92.64%)	1 (3.57%)	27 (96,43%)
Total	300			

As can be inferred from the figures provided in Table 2 and Table 3, in total 91.6% of contexts reveal abstract targets of understanding, while 8.4% of contexts reveal concrete targets of understanding. Negatively evaluated targets are more typical of abstract targets. In total negatively evaluated targets of understanding make up 7.2% of the contexts studied. The quantitative analysis results indicate that there is a nearly identical correlation between concrete and abstract targets of understanding in both languages. However, it is worth noting that negatively evaluated concrete targets in Armenian (3.57%) exhibit a higher frequency of usage in comparison to English (1.68%).

The closer examination of the collocability tendencies reinforces our claim that understanding is targeted towards abstract phenomena often implying semantic negativity (see such “targets” as *plight, frustration, inability, danger, direness, nonsense, etc.*). Data collected from the corpora show that the English and Armenian verbs under study often collocate with words (adjectives, adverbs and verbs) conveying some negative connotation. The number of occurrences of the most frequent terms is indicated in the brackets:

refuse (3095), *difficult* (2668), *fail* (2596), *rarely* (2099), *hard* (1138), *unable* (972), *reluctant* (320), *impossible* (201), *դժվար 'difficult'* (1276), *հազիվ 'hardly/barely'* (267), *բարդ 'complex/complicated'* (82). The association of these specific words with the verbs of understanding is consistently observed in a wide range of contexts.

This significant collocation pattern indicates a strong semantic bond between the words given above and the verbs, shedding light on how they are commonly used together to mark that in the process under study the component of negativity is prevailing.

It should be mentioned that the Armenian material includes verb phrases as well, akin to compound multi-word verbs. Notably, unlike English, the Armenian compound verbs themselves embody some negativity and convey the speaker's negative attitude (e.g., *գլուխը մտցնել* means *'to forcibly put into the head'*). In contrast, the negativity of the English verbs of understanding is not so explicitly expressed. Instead it is revealed and identified through the analyses of contextual uses, as presented in the examples above.

On the whole, the discussion above demonstrates the abstract character of the target of understanding, pointing out the complexity and variability of the process, as well as the necessity of overcoming obstacles and difficulties in order to effectively handle challenging situations. Thus, it is argued that understanding involves evaluation of the complex target phenomena requiring empathy and understanding, which incorporates a certain degree of negative evaluative value as well.

4.2.1. Emotions as targets of understanding

Having a definite impact on the cognitive process of understanding and being inherently linked to it, emotions (positive and negative) also serve as "targets" of this process. The examples given below prove that the verbs of understanding often collocate with terms denoting emotions. The ratio between negative emotions and positive emotions is 1.5:1 correspondingly, with 60 and 40 tokens revealed.

Viewed from the perspective of negative and positive polarity, the language data present a series of different emotions. The negative emotions include *sadness, frustration, disappointment, anger, fear, grief, concern, hurt, anxiety, etc.: empathize with one's* ***despair/pain****, sympathize with one's* ***frustration/disappointment****, understand* ***sorrow/anger****, comprehend* ***frustration****, acknowledge* ***shame/fear****, fathom* ***grief/confusion****, appreciate* ***concern****, recognize* ***anxiety/disappointment****,* the positive emotional evaluations include *contentment, enthusiasm, relief, joy, etc.: understand* ***contentment/happiness****, comprehend* ***admiration/happiness****, appreciate* ***enthusiasm/excitement****, acknowledge* ***relief/elation****, recognize* ***joy/pleasure****.*

Regarding the interaction between understanding and emotions, our analysis reveals that understanding can either "soothe" someone's negative emotions or "facilitate, enhance" their positive ones. The speaker's understanding of the other person's negative emotions comes to calm them down and ease their negative emotions.

On the whole, as can be inferred from above, the analysis of the target types suggests that the process of understanding implies something like "problem-solving". Handling challenging and difficult situations and grasping complex abstract issues is a vital cognitive skill, reflecting critical thinking, creativity and problem-solving. Moreover, the process of understanding can speak of our capacity for empathy and compassion. By seeking to understand difficult phenomena, we may gain insight into the experiences and perspectives of others, as well as cultivate greater empathy and compassion for them.

4.3. Evaluation of the process of understanding: emotional and rational evaluation

Understanding is a cognitive process comprising emotional and rational evaluations. Though they closely interplay and are not mutually exclusive, the distinction between emotional and rational evaluations can be considered through the following key criteria:

Semantic structure. Rational evaluations lack the component of feeling, while emotional evaluations inherently include the *feeling* component, vividly expressed in dictionary definitions.

Consistency. Rational evaluations remain consistent across individuals and contexts, relying on such objective and measurable criteria as quality or efficiency. Emotional evaluations lack consistency and stem from subjective factors like personal preferences and emotional appeal.

Evidence. Rational evaluations involve systematic analysis and comparison of data and relevant evidence for conclusions. Emotional evaluations rely on personal experiences and feelings without necessarily following a structured process.

As our analysis shows that understanding involves the evaluation of conveyed information, with emotional and rational evaluative overtones, it is reasonable to assume that the information being perceived is situated on an axiological scale. The extent of understanding includes the intensity of attitudes, evaluations and emotions spanning the positive-negative polarity spectrum. (It is to be noted that the differentiation between negative and positive evaluations involved the manual review of the evaluations to label the negative-positive polarity.) The act of understanding occurs when this type of comparative positioning is achieved, thus pointing out the deictic nature of understanding, substantiated in light of axiology.

Based on the examination of English and Armenian contexts (in total 177), it has been observed that the perception of understanding is generally viewed in a positive light when evaluated rationally, but tends to have a negative connotation when evaluated emotionally. Table 4 illustrates this contrast in the evaluation of understanding and highlights the significance of recognizing the interplay between emotional and rational elements in the process of understanding in the English and Armenian languages.

Table 4. Emotional and rational evaluation of the process of understanding

Evaluation of the Process of Understanding	**Number of Tokens in English**	**Number of Tokens in Armenian**	**Total**
Negative Emotional Evaluation	20 (83.33%)	7 (46.66%)	27 (69,23%)
Positive Emotional Evaluation	4 (16.67%)	8 (55.33%)	12 (30.77%)
Total of Emotional Evaluation	**24 (15.79%)**	**15 (60%)**	**39 (22.04%)**
Negative Rational Evaluation	42 (32.82%)	6 (60%)	48 (34.78%
Positive Rational Evaluation	86 (67.18%)	4 (40%)	90 (65.22%)
Total of Rational Evaluation	**128 (84.21%)**	**10 (40%)**	**138 (77.96%)**
Total of Negative Evaluation	**62 (40.78%)**	**13 (52%)**	**75 (42.37%)**
Total of Positive Evaluation	**90 (59.22%)**	**12 (48%)**	**102 (57.63%)**
Total	152	25	177
Grand Total	177		177

The comparison of emotional and rational evaluations shows that rational evaluations are much more frequent than emotional evaluations, making up 77.96% of the tokens analyzed. The analysis hints that emotional evaluations of the process of understanding only make up 22.04% of the tokens.

It is worth noting that out of all the tokens analyzed, negative evaluations of the understanding process account for 42.37%, while positive evaluations constitute 57.63%.

4.3.1. Emotional evaluation of the process of understanding

It is claimed that positive emotions are more closely associated with the attainment of the agent's understanding rather than the process of understanding itself. Once we have gained understanding of a "target", we may experience positive emotions as a result of the sense of accomplishment.

For instance, the English language uses the metaphor of *vision and tactile perception* to depict the accomplishment of understanding evaluated through such positive emotions as *sympathy, interest* and *satisfaction: view more sympathetically/with much interest/with satisfaction, grasp eagerly/readily, etc.* In Armenian, the agent's understanding is metaphorized through *tactile perception* and *assimilation,* suggesting a positive attitude towards understanding and incorporating new information: *ընկալել գոհունակությամբ/խնդության մի զգացումով/մեծ հետաքրքրությամբ 'perceive/grasp with satisfaction/a sense of*

joy/great interest', յուրացնել ոգևորությամբ/մեծ ցանկությամբ/ագահաբար/ստեղծագործաբար 'assimilate with enthusiasm/great desire/greedily/creatively', etc.

The same tendency of metaphorical mappings is observed in the case of negative emotional evaluations. Thus, *vision* is metaphorically linked to such negative emotions as *rage, contempt* and *alertness*: *view with considerable anger/great disdain/alarm*. The verb *apprehend* is defined in the dictionaries as ***grasp*** *with the understanding,* ***grasp*** *mentally, anticipate with dread, anxiety, worry, fear and uncertainty* (AHDEL, CCALD, MWCD). As can be seen, *tactile perception (grasp)* serves as a source domain to conceptualize negative emotional response to understanding. The Armenian language data show the same tendency as in the case of positive emotional evaluation, with *tactile perception* and *assimilation* serving tangible source domains: *վրդովմունքով/հիվանդագին/ագրեսիվ ընկալել 'perceive/grasp resentmentfully/morbidly/aggressively', պարտադրաբար յուրացնել 'assimilate forcibly'*.

Thus, sensory (*vision, tactile perception*) and physical experiences (*assimilation)* through which negative and positive emotional evaluations are embodied play an important role in emotion-understanding interaction.

Being expressed through metaphors, understanding introduces a nuanced layer of emotional connotations that sway our evaluations towards the negative end of the evaluative spectrum. The ratio between negative emotional evaluations (27 revealed tokens) and positive emotional evaluations (12 revealed tokens) is 2.25:1. There are probably several reasons why negative emotional evaluations of the process of understanding are more numerous than positive emotional evaluations.

Firstly, understanding can be tough, especially with complex or abstract concepts, fostering negative emotional evaluations like confusion, anxiety or stress, outweighing curiosity and excitement.

Secondly, confronting new information often challenges prior beliefs, triggering discomfort, dissonance and some negative attitudes towards the information or the person conveying it.

Thirdly, negative emotional evaluations are often more impressive and memorable due to the negativity bias in human cognition, which gives negative events stronger emotional impact.

All these factors contribute to the higher frequency of negative emotional evaluations of the process of understanding.

4.3.2. Rational evaluation of the process of understanding

The study shows that speakers evaluate understanding based on their own reasoning and logic, incorporating values and beliefs with reference to the axiological norm. Overall, the language data suggest that understanding and evaluation are closely intertwined, as speakers use their understanding of a situation to make rational evaluations based on accepted values and beliefs.

The collocations in our data are grouped into two categories: positive rational evaluations and negative rational evaluations.

Consider some examples of positive rational evaluations: *see as preferable, view as innovative, accept as fundamental, perceive well enough, conceive distinctly, comprehend well, seize most fully, grasp clearly, assimilate thoroughly, absorb from cover to cover, digest all, ընկալել որպես խրախուսանք 'perceive as encouragement', ճիշտ/լավ ըմբռնել 'comprehend/grasp truly/well', հիանալի/հեշտությամբ/հաստատորեն յուրացնել 'assimilate perfectly/easily/firmly'.*

The second category includes collocations that involve negative rational evaluations, once again pointing out the complexity of the process of understanding: *see as a threat, view as dismal/incompetent/impossible, take as an act of aggression, ընկալել որպես դավաճանություն/պարտություն 'perceive/grasp as a betrayal/defeat', ընկալել որպես անորակ/անիմաստ/անհեթեթ 'perceive/grasp as substandard/meaningless/absurd', ըմբռնել որպես սպառնալիք 'comprehend/grasp as a threat'.*

As we see, our ability to express and process rational evaluations relies on the same metaphorical language as in the case of emotional evaluations: evaluation of understanding is argued to be grounded on concrete domains of *vision, tactile perception* and *assimilation*.

The ratio between negative rational (48 revealed tokens) and positive rational evaluations (90 revealed tokens) is calculated as 1:1.87. The results of the study are explicated by the following claims.

The statistical data confirm that positive rational evaluations of understanding dominate in the material under study due to enhanced clarity, offering satisfaction and empowerment. Overcoming challenges fosters accomplishment and achievement, especially when clarifying previously uncertain or confusing aspects.

Moreover, individuals prioritize benefits of understanding over challenges, recalling and sharing positive outcomes more than negative ones. Besides, understanding itself can be intrinsically rewarding, driven by curiosity, exploration and discovery.

Lastly, social desirability bias may prompt positive understanding evaluations, as individuals conform to norms, accentuating positives and downplaying negatives, potentially resulting in an overestimation of understanding.

These factors contribute to the increase in the occurrence of positive rational evaluations of understanding.

To sum up this section, we can state that the conceptual patterns revealed shape the process of understanding through emotional and rational evaluations. Although the emotional and rational evaluations have distinct features, both of them rely on the same basic source domains in the languages under study. We metaphorically *see*, *grasp* or *assimilate* notions, ideas, etc., thus signifying the process of mentally incorporating new information into existing knowledge structures and extending our ability of understanding.

It is important to note that though these metaphorical mappings conform to the generally accepted view that conceptual metaphor is based on the transition from concrete to abstract domains, here the pattern is a bit different, as evaluation and understanding are both abstract concepts: the more abstract domain of evaluation undergoes further metaphorization through the less abstract domain of understanding. In other words, we have metaphorical connections between "less" abstract understanding and "more" abstract evaluation.

4.4. Orientational evaluation of the process of understanding

A total of 823 datasets are analyzed in terms of orientational evaluations. The notion of understanding is also metaphorically conceptualized through vertical and horizontal spatial orientations. Below, we consider the two main metaphors: *Understanding is deep and high* and *Understanding is far and close.* Table 5 provides quantitative data concerning the metaphorical evaluations of understanding in English and Armenian by means of spatial orientations like *deep, high, far* and *close.*

Table 5. Embodiment of understanding through orientational metaphors

Orientational Evaluation	**Number of tokens in English**	**Number of tokens in Armenian**
Understanding is deep	325 (59.3%)	103 (37.45%)
Understanding is high	30 (5.47%)	121 (44%)
Total of Vertical Embodiment	**355 (64.78%)**	**224 (81.45%)**
Understanding is far	56 (10.22%)	21 (7.63%)
Understanding is close	137 (25%)	30 (10.9%)
Total of Horizontal Embodiment	**193 (35.22%)**	**51 (18.55%)**
Total	548	275
Grand Total	823	

In English *Understanding is deep* accounts for 59.3%, signifying a predominant usage, whereas in Armenian it is used to a lesser extent. *Understanding is high* tends to be more typical for the Armenian language, with a frequency of 44%. When indicating *Understanding is far,* English employs it in 10.22% of cases, while Armenian uses it slightly less frequently at 7.63%. In contrast, the metaphor *Understanding is close* is utilized in English at a rate of 25%, whereas in Armenian it is employed to a lesser degree, at 10.9%. These statistics reveal both shared and divergent patterns in the use of expressions related to

the depth, height, proximity and distance of understanding in the English and Armenian languages.

4.4.1. Understanding is deep and high

Upon scrutinizing the verbs of understanding in both of the languages, it becomes evident that they embody the aspect of verticality and are intimately linked to the concept of depth. This suggests that the metaphorical structuring of movement underlies the whole process of understanding, associating it with the notion of depth: *empathize deeply, fathom the depth of love, bottom the depth of human stupidity, reach the poetic depth, penetrate the depth, dig deep, see its deeper meaning, read her soul in depth, etc.* in English and *հասկանալ/ըմբռնել ամբ(ողջ) խորությամբ 'understand/comprehend in its (whole) depth', ընկալել/կռահել ողջ խորությունը 'perceive/guess the whole depth', տեսնել մեծ խորություններ 'see big depths', թափանցել մտքի խորությունը 'penetrate into the depth of the mind', etc.* in Armenian.

These examples demonstrate that understanding is conceptualized as a vertical downward movement implying different degrees of cognitive engagement with special reference to the notion of depth. Notably, the very notion of depth is itself shaped by the concept of understanding. To be more exact, the notions of understanding and depth are mutually definable. The term *deep* conveys the meaning of understanding: *deep – not easy to* ***understand*** (CALD)*, difficult to* ***understand*** (OALD), *difficult to* ***penetrate*** *or* ***comprehend*** (MWCD). On the whole, the intricate interplay between these terms underscores the multifaceted nature of the notion of understanding, wherein the depth is the element that influences and is influenced by the process of comprehension.

The corpus analysis of the English and Armenian verbs of understanding has also revealed some instances of the *Understanding is shallow* metaphor: *understand things in surface terms, view it as superficial or of little relevance, grasp surface features only, հասկանալ/ընկալել/յուրացնել մակերեսորեն 'understand/perceive/assimilate superficially', հասկանալ մակերեսային ստրատեգիան միայն 'understand the surface strategy only', ընկալել միայն մակերեսային շերտը 'perceive the surface layer only', տեսնել ամենամակերեսային նշանակությունը 'see the most shallow meaning'.* As can be inferred, limited understanding (inappropriate understanding) which lacks a sufficient degree of depth is associated with superficiality/shallowness.

Still, though in such English expressions as *understand/dig/discern/get/see beneath the surface, under the surface, beyond the surface, through the superficial* understanding is characterized in terms of superficiality and shallowness, a metaphorical mental movement towards some depth is marked here too, that is to say we observe that *understanding is going beneath/under/beyond the surface,* which implies some "deepening" and highlights the pivotal role of the fundamental concept of depth in revealing the metaphorical conceptualization of understanding.

Thus, a closer look at the factual material reveals that the metaphor *Understanding is deep* is more prevalent and conceptually stronger in both of the languages. This once

again confirms that understanding is more frequently conceptualized as deep, bringing about some quantitative asymmetry between the metaphors *Understanding is deep* and *Understanding is shallow*.

The asymmetry between *deep understanding* and *shallow understanding* can be attributed to various factors such as cognitive processes, linguistic conventions and cultural influences.

Firstly, depth is a fundamental concept used to describe various aspects of knowledge, perception and comprehension. It is related to the exploration of complex ideas and notions.

Secondly, human cognition often associates greater depth with greater knowledge and insight. The metaphor taps into this cognitive mapping, as individuals typically perceive a deeper understanding as a more valuable and comprehensive form of knowledge: the metaphor is more likely to occur in linguistic expressions to describe an advanced level of comprehension.

Lastly, many cultures have a tradition of valuing depth and profundity in knowledge acquisition. Philosophical and intellectual traditions often prioritize thorough understanding, which contributes to the metaphor's prominence in language usage. This cultural bias towards depth as a desirable quality further reinforces the prevalence of the metaphor *Understanding is deep.*

The concept of understanding can also be interpreted as high ('up'). This orientational metaphor is more prominent in the Armenian language, e.g., *հասկանալ նրա բարձր նշանակությունը 'understand its high significance', հասկանալ այն բարձր սերը 'understand that high (elevated) love', ընկրոնել մի բարձր գաղափար 'comprehend a high idea', հասկանալ բարձր իդեալները 'understand high ideals', ընկալել ավելի բարձր արժեք ունեցող երևույթներ 'perceive higher value phenomena', ընկրոնել լեզվի բարձր արժանիքները 'comprehend the high merits of the language', etc*. The *"high"* metaphor is less typical for the English language, though a few instances of such usage were found in the corpus, e.g., *understand the high importance, follow this idea up, reach the highest of ideals/the height of poetic expression, grasp the higher spiritual truth.*

The examples provided demonstrate that concepts like *significance, importance, love, idea, ideals, phenomena having value, merits of the language, poetic expression, spiritual truth* are depicted as *high*. In other words, they are metaphorically placed at a certain elevated position. To put it in metaphorical terms, to comprehend these concepts one should undertake an upward movement.

Upon analysis, it becomes evident that as physical orientations, *deep and high* denote significant spatial relations when it comes to understanding. They refer to a specific deep or high point that requires a downward or an upward movement to reach which will eventually mark the actual understanding. Thus, understanding as a cognitive process involves both downward and upward movements.

At this point, it is essential to note that the degree or level of understanding, which can be measured in terms of depth or height, is relative to a psychological zero point. In such instances, the norm or the so-called "normal state of being" is marked as the deictic centre (Yerznkyan 2018: 13–20). In relation to this norm, we can classify the level of understanding as *surface*, *deep* or *high*. Therefore, the depth/height of understanding can be determined through a metaphorical scale, inherent in people's cognition, and the downward/upward orientation specific to the English and Armenian cultures.

4.4.2. Understanding is far and close

The study shows that the mental process of understanding is conceptualized not only as a vertical movement but also as a horizontal movement. Thus, the analysis of the dictionary entry reveals the component of linearity in the English verb *to follow,* as indicated in the illustrations to the definitions: *if you follow something such as a* ***line*** *of argument, that means you understand it* (vocabulary.com)*, understand the sense or logic of (as a* ***line*** *of thought)* (MWCD)*, keep the mind upon while in* ***progress*** (NWADEL)*, discover or ascertain the* ***course*** *of development of something* (WordNet 3.0)*, etc.* The lexical transformation of such terms as *line, progress* and *course* implies the meaning of *'a horizontal row of written or printed characters'* (MWCD)*, 'a forward or onward movement (as to an objective or to a goal)'* (MWCD)*, 'movement forwards and towards a place'* (OALD), and enables us to assume that although horizontality is not explicitly structured in the semantics of the verb *to follow,* it implicitly incorporates horizontal orientation.

The English verbs *view, perceive, get, discern, reach, penetrate, take,* as well as the Armenian *հասկանալ 'understand', գուշակել 'guess'* also imply horizontality. Here are some other instances of verb collocations where this argument is supported by other markers denoting distance: *view* ***broadly/widely****,* ***widely*** *perceive, get* ***closer*** *to the truth, get as* ***near*** *the truth as possible, discern how* ***far*** *they use the arguments (****far*** *– by a* ***broad*** *interval:* ***widely*** *(*MWCD*)), reach/penetrate* ***further****, take the idea* ***further****, հասկանալ* ***լայնորեն*** *'understand* ***widely****',* ***հեռավոր*** *կերպով գուշակել 'guess* ***remotely****', etc.* It should be noted that the Armenian multi-word verbs of understanding *խելքը մտնել* literally translated as *'enter the mind', խելքին հասնել 'reach the mind', գլուխը մտնել 'enter the head', գլխին հասնել 'reach the head', ականջը մտնել 'enter the ear', խելքին մոտ գալ 'come closer to the mind'* also integrate the component of horizontality since the Armenian verbs *մտնել 'enter', հասնել 'reach', (մոտ) գալ 'come closer'* denote horizontal movement towards the destination point (Aghayan 1976: 214, 829, 1027, 1033).

Such horizontal conceptualization of the notion of understanding is grounded by the claim that the concept of distance is often associated with horizontal spatial orientation and horizontal movement in particular, as we typically move horizontally across a plane or surface. Thus, understanding is conceptualized in terms of both *far* and *close* orientational spatial relations, eventually delivering the same and not opposite senses when it

refers to understanding. We argue that UNDERSTANDING IS FAR (when the trajectory of the mental movement is correlated with the starting point) and UNDERSTANDING IS CLOSE (when the trajectory of the mental movement is correlated with the final destination point).

An obvious inference can be drawn from the above that the extent of understanding is evaluated on the basis of the distance covered vertically or horizontally. It is noticeable that verticality and horizontality are not only intrinsic to, but also indispensable elements of the semantic structures of the verbs in question. The notion of vertical movement denotes a *descent* or *ascent* towards a greater *depth* or *height*, while horizontal movement denotes a progression towards a greater horizontal distance – *far* or *close*. They both indicate the level of comprehension achieved.

Thus, the process of understanding is metaphorically embodied as a mental movement implying a direct reference to a definite point of origin as well as some destination point that makes the whole cognitive process basically deictic. Our analysis proves that understanding is conceptualized as a downward as well as an upward movement where the level of its depth or height serves as an explicit evaluative marker of the degree of understanding. The linear progression to a greater distance which can be evaluated as *far* and *close* specifies the limits of the mental movement. To put it metaphorically, the object of understanding is located either at a certain deep/high level or at a certain far/close point from/to the deictic centre and is embodied in the following metaphors: UNDERSTANDING IS DEEP and UNDERSTANDING IS HIGH; UNDERSTANDING IS FAR and UNDERSTANDING IS CLOSE.

The table below summarizes how emotional, rational, and orientational evaluations are distributed within the analyzed contexts.

Table 6. Distribution of evaluative tokens in English and Armenian

Evaluation	**Number of Tokens in English**	**Number of Tokens in Armenian**	**Total**
Emotional Evaluation	24 (3.42%)	15 (5%)	39 (3.9%)
Rational Evaluation	128 (18.29%)	10 (3.33%)	138 (13.8%)
Orientational Evaluation	548 (78.29%)	275 (91.67%)	823 (82.3%)
Total	700	300	1000

Emotional evaluations, overall, account for 3.9% of all contexts examined. In English they represent 3.42% of the total, while in Armenian this figure is higher at 5%. Rational evaluations make up 13.8% of the contexts under study. In English they constitute a larger portion at 18.29%, whereas in Armenian rational evaluations are lower at 3.33%. Notably,

orientational evaluations dominate the majority of the analyzed contexts, accounting for 82.3% overall. In English this category represents 78.29% of the contexts, while in Armenian it comprises a significant 91.67%. These data reveal shared patterns in the dominance of orientational evaluations across both languages, but they also highlight the contrast in the prevalence of emotional and rational evaluations, with English and Armenian showing distinct proportions in these categories.

5. Conclusion

The paper is an attempt to study the cognitive process of understanding and its evaluation from the perspective of semantics, pragmatics, cognitive linguistics and axiology. The relation between the two cognitive processes (understanding and evaluation) revealed as a result of the study of verbs of understanding in English and Armenian in terms of the evaluative meaning of their collocates is analyzed for the first time here.

The paper attempts to expand the boundaries and contribute to the theories of metaphor, deixis and evaluation, as well as shed light on the multilayer cognitive process of understanding taking into account the data from such an understudied language as Armenian, thus verifying and making the results of the study more complete.

Our findings suggest that although English and Armenian have distinct linguistic structures and characteristics, in terms of the conceptualization of the cognitive process of understanding they share a lot of similar features.

The results of the research show that evaluation is deeply rooted in the process of understanding and has a direct impact on social communication. The analysis of the factual material demonstrates that understanding itself and the close interconnection between understanding and evaluation is metaphorically construed.

The concept of understanding is framed as a virtual mental movement which incorporates a distinct point of origin, that is to say a clear reference to a specific starting point, and a destination as the endpoint of the virtual process. Viewing understanding as a metaphorical mental movement allows us to reveal the deictic nature of understanding.

The paper detects three types of evaluation – *emotional, rational* and *orientational* – which also reveal the deictic nature of the process of understanding, with the axiological Norm and the Origo viewed as the deictic centre (reference point) of the whole process.

The research shows that the rational evaluations of the process of understanding tend to be positive, while emotional evaluations are likely to be negative.

The positive evaluations mark the attainment and the realization of the understanding process; negative evaluations indicate the complexity and variability of the process of understanding.

In the Armenian language positive emotional evaluations are predominant, while in the English language negative emotional evaluations tend to prevail. However, in English positive rational evaluations are more frequent, whereas in Armenian negative rational

evaluations tend to be more common. Considering that on the whole a significant portion of evaluations regarding the process of understanding are negative, we claim that our findings based on the metaphoricity of understanding and its evaluative potential reveal that metaphorical evaluation is often more negative than non-metaphorical evaluation.

The consideration of understanding as a metaphorical abstract movement and its analysis from the perspective of the orientational evaluation comprising verticality and horizontality enables us to reveal the level of understanding on the basis of the notion of distance: deep/high, close/far, to/from the reference point. The level of understanding has also been revealed with reference to evaluative markers.

In the evaluation of understanding through an orientational lens, English predominantly favours the concept of "deep", signifying a profound level of understanding. In contrast, in the Armenian language, the prevailing orientational evaluation of understanding leans heavily towards "high", indicating a significant emphasis on elevated understanding. Our findings highlight a distinctive linguistic nuance in how depth and height are conceptually associated with understanding in these two languages. On the whole, vertical conceptualization of understanding is more typical of the languages under study than horizontal conceptualization.

The research on evaluation and metaphorical representation of understanding may have significant implications for communication and social interaction as it highlights the importance of the role of evaluative language and metaphor in communication: evaluations shape how we perceive the world and how our comprehension is linked to a series of evaluative responses.

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