
A CONTRASTIVE ANALYSIS OF BODY-PART METAPHORS PRODUCTIVITY: A CASE STUDY ON *HEART* AND *CORE*

► GIUSY MAZZA

University of Calabria, Italy
giusy.mazza@unical.it

Abstract

As shown by the most recent studies investigating the phraseological domain through a cognitivist approach (Talmy 2000, Croft and Cruse 2004, Geeraerts and Cuyckens 2007, Langacker 2008), the presence of metaphorical structures referring to parts of the body is a fundamental feature of human linguistic expression (Lakoff and Johnson 1980, Gibbs 2006, Varela, Thompson and Rosch 2016, Kraska-Szlenk 2020) regardless of the historical, social, and linguistic context.

The purpose of this study is to show how the figurative conceptualization of the ‘heart’ assumes relevance among the embodied metaphors of the phraseological sphere: in English, alongside the form ‘heart’ (e.g. *break someone’s heart; eat your heart out; have a heart of stone*), the form ‘core’ is used in expressions like *the very core of; to the core; the core values*.

The study aims to investigate the productivity of the two terms in metaphorical phraseology, to examine how the connotation of ‘core’ –not strictly related to the human body domain– reduce its figurative productivity compared to its contextual synonym ‘heart’. This article proposes a contrastive analysis of the topic.

Keywords: embodiment, cognitivism, metaphor, phraseology, heart.

Introduction

To attempt a fundamental examination of metaphor would be nothing less than an investigation of the genesis of thought itself.

John Middleton Murry

Engaging with a complete study about metaphor would be difficult, an almost impossible task: “The ‘most luminous and therefore the most necessary and frequent’ (Vico) of all tropes, the metaphor, defies every encyclopedic entry” (Eco, 1986, p. 87). Despite this inherent difficulty, metaphorical thinking emerges as a cognitive and creative tool for the human interpretation of reality. This process arises from a conceptual network navigating the dialectic between the abstract and the concrete from which metaphor gains essence.

The assertion that “metaphor is primarily a matter of thought” (Lakoff and Johnson, 1980, p. 153) underscores its role as a framework for structuring concepts and grasping abstractions. George Lakoff and Mark Johnson, approaching metaphor from a cognitivist standpoint, posit that it transcends mere linguistic expression, aligning it more closely with the realm of thought. The endeavor to demarcate the boundaries between language and thought proves intricate, given that metaphor manifests itself through the medi-

um of language. Language assumes the role of a tool facilitating the exchange of ideas and emotions that cannot find expression in the relationship between signifier and signified. Metaphor serves as an instrument for generating new and meaningful content, emphasizing language's creative disposition intertwined with the cognitive essence of language (Coşeriu, 2000).¹ Through the fusion of linguistic and conceptual elements, metaphor creates new meanings, drawing from elements inherent in the human mind.

The human mind can categorize entities into prototypical categories, establishing an interaction between mental content and linguistic meanings. This phenomenon is realized in the concept of *embodiment*, which “focuses on the interaction between body and mind, body and environment, or environment and mind” (Varela, 2016, xlviii). Consequently, concepts and meanings derive from experiential and bodily roots, enabling the recognition of cognitive processes through a corporeal dimension. The body, as outlined by Lakoff and Johnson (1980), becomes a universal *target domain*, shaping abstract concepts in metaphorical expressions. In metaphor, however, language and culture show their relationship, so although physiology is the same –regardless of the language used– the way bodily experiences are interpreted and represented can be shaped by different cultural experiences, generating different metaphors and different figurative uses.

This article endeavors to illustrate how body parts consistently contribute to the construction of universal domains across different languages, with a specific focus on the figurative productivity and conceptualization of the ‘heart’. The analysis will focus on the terms ‘heart’ and ‘core’, delving into the relatively constrained semantic productivity of ‘core’ in metaphorical contexts. This limitation may be attributed to the term’s detachment from the bodily dimension, underscoring the central role assumed by the *embodiment* theory in the construction of metaphors.

Exploring the Embodied Mind in Cognitive Linguistics

Among the foundational assumptions of Cognitive Linguistics, there is the consideration of human language as the development of all the other cognitive faculties. The term ‘cognitive’ encapsulates the idea that language “is seen as a repository of world knowledge, a structured collection of meaningful categories that help us deal with new experiences and store information about old ones” (Geeraerts and Cuyckens, 2007, p. 5). Cognitivism challenges the Generativist perspective, particularly about the centrality of syntax: “Whereas Generative Grammar is interested in knowledge *of* the language, Cognitive Linguistics is so to speak interested in knowledge *through* the language” (p. 6).

Unlike the Generativist tradition, the Cognitivist perspective conceives language as the *embodiment* of meaning, fostering an alternative viewpoint known as the modular perspective, which underscores the autonomy of linguistic structures. Language, from this standpoint, is intimately linked to usage, opening to the mind, and becoming intertwined with it. In this context, imaginative and creative processes –such as metaphor and figurative language– are seen as rooted in human physical and social experiences. Figurative language assumes the role of organizing, creating, or recreating the entire conceptual system: “As their names suggest, Cognitive Linguistics and Cognitive Grammar view language as an integral part of cognition. Conceptualization is seen (without inconsistency) as

1. “Evidențierea caracterului fundamental de creație inerent esenței cognitive a limbajului” (Coşeriu, 2000, p. 20). “The highlighting of the fundamental creative character inherent in the cognitive essence of language”. (Author’s translation).

being both physically grounded and pervasively imaginative, both individual and fundamentally social” (Langacker, 2008, p. 539).

Since the 1990s, the concept of the embodied mind has undergone exploration from a neuroscientific perspective, affirming the hypothesis that concepts derive meaning through a foundation rooted in corporeal nature and a neural projection with metaphorical characteristics; a phenomenon further investigated by studies on neurons, neural maps, circuits, mirror neurons, and hemispheric lateralization (cf. Hampe, 2005).²

Concerning metaphor, the cognitivist field represents the culmination of an extensive body of studies and reflections on the cognitive significance of metaphor, considered as “A matter of thought and action and only derivatively a matter of language” (Lakoff and Johnson, 1980, p. 153). Linguistic expressions, in this context, serve as external manifestations of neuro-cognitive activities. Lakoff and Johnson highlight the existence of a system of metaphorical mappings³ that turn out to be fixed and conventional, insisting that the conceptual system exists in a way physically in our brains: “The human brain is structured by thousands of embodied metaphor mapping circuits that create an extraordinary richness within the human conceptual system. They largely function unconsciously. These mapping circuits asymmetrically link distinct brain regions, allowing reasoning patterns from one brain region to apply to another brain region” (Lakoff, 2014, p. 5). Stating therefore that “The mind is inherently embodied. Thought is mostly unconscious. Abstract concepts are largely metaphorical” (Lakoff and Johnson, 1999, p. 3). Language becomes a physical expression of the cognitive activity, not detached from other mental functions (like perception, memorization, reasoning, etc.):

Reason is not disembodied, as the tradition has largely held, but arises from the nature of our brains, bodies, and bodily experience. This is not just the innocuous and obvious claim that we need a body to reason; rather, it is the striking claim that the very structure of reason itself comes from the details of our embodiment. The same neural and cognitive mechanisms that allow us to perceive and move around also create our conceptual systems and modes of reason. Thus, to understand reason we must understand the details of our visual system, our motor system, and the general mechanisms of neural binding. In summary, reason is not, in any way, a transcendent feature of the universe or of disembodied mind. Instead, it is shaped crucially by the peculiarities of our human bodies, by the remarkable details of the neural structure of our brains, and the specifics of our everyday functioning in the world (p. 4).

Generally, the conceptual metaphor is based on the existence of two different domains: the *source* one is generally more concrete while the *target domain* refers to an abstract concept. The *target domain* is metaphorically conceptualized in terms of the *source domain*, allowing the conceptual metaphor to become a linguistic manifestation of what we think. The *source domains* of metaphorical ideas are connected to bodily experiences, accentuating the metaphorical nature assumed by the human body and bodily experiences. The comprehension of metaphors depends on the context and the shared knowledge within a community of speakers, serving as a linguistic strategy enabling individuals to interlink abstract and concrete terms with meanings belonging to distinct semantic fields. This process gives rise to metaphorical extension, allowing a *source do-*

2. Is important the concept of schema, first elaborated by Frederic Bartlett in 1932 in some studies related to memory, then explored by Lakoff and Johnson in terms of image schema: “An image schema is a recurring, dynamic pattern of our perceptual interactions and motor programs that gives coherence and structure to our experience” (Johnson, 1987, xiv). Generally, image schemas are topological structures used to define spatial concepts, “Spatial inferences are characterized by the topological structure of image-schemas. [...] Image-schema structure is always preserved by metaphor”. (Lakoff, 1992, p. 10). In more recent years, some studies have demonstrated and focused on the Neural Theory of Language, confirming the idea that thought is the result of physical operation since the actions that the body performs are controlled by the brain (cf. Feldman, 2006).

3. “One prominent mechanism that generates polysemy over the course of history is metaphorical mapping (e.g., Lakoff & Johnson, 1980), whereby new word meanings are created by mapping an existing sense of a word from its own source domain to another target domain, based on structural similarities between the domains” (Xu, Malt, Mahesh, 2017).

4. As Giorgio Raimondo Cardona points out, “il corpo umano, nelle sue articolazioni e nella sua topografia, può costituire un modello a cui riferire e in base a cui caratterizzare fatti linguistici di vario ordine” (Cardona, 2006, p. 91). “The human body, in its articulations and topography, provide a model for characterizing linguistic facts across different orders”. (Author’s translation).

5. In the Anglo-Saxon tradition, the term *idiom* is widely used (Fraser, 1970; Fillmore, Kay, & O’Connor, 1988; Gibbs, 1993), while in the Romance and Germanic traditions, the form *phraseme* prevails (Burger, Buhofer, and Sialm, 1982; Burger, Dobrovol’skij, Kühn, and Norrick, 2007; Mel’čuk, 1995). Both terms refer to those expressions that are composed of more than one word, are fixed (in form and meaning), and are characterized by idiomaticity. The variety of lexical and semantic nuances that characterize these expressions makes it difficult to establish a unanimous taxonomy. Gibbs (2007, pp. 698-699), trying to define “different forms of idioms and formulaic language” distinguishes between sayings, proverbs, phrasal verbs, idioms, binomials, frozen similes, phrasal compounds, incorporating verb idioms, formulaic expression. (For more information about see Gibbs, 2007). The form ‘phraseological expression/unit’ will therefore be used in the article, referring to those expressions characterized by a fixed form and non-compositional meaning, characterized by idiomaticity and explicable through the domains (target and source) of the conceptual metaphor.

6. Cambridge Dictionary. Phraseology. In <https://dictionary.cambridge.org>. Retrieved January 22, 2024, from <https://dictionary.cambridge.org/dictionary/english/phraseology>.

main (linked to experiential and bodily aspects) to be affiliated with a *target domain* (more abstract, detached from direct experience) (Foley, 1997, p. 182). The body functions not merely as a mediator between the external world and the individual, but constitutes the same experience, assuming a central role in shaping our understanding of the world.⁴ Therefore, every cognitive capacity is structured starting from the body and its relationship with its surroundings:

The centrality of human embodiment directly influences what and how things can be meaningful for us, the ways in which these meanings can be developed and articulated, the ways we are able to comprehend and reason about our experience, and the actions we take. Our reality is shaped by the patterns of our bodily movement, the contours of our spatial and temporal orientation, and the forms of our interaction with objects. (Johnson, 1987, p. 19).

Embodiment aims to identify the bodily basis of thought and language, forcing a reinterpretation of the motivational aspect of the language system. *Embodiment* is considered as how human beings perceive and interact with their environment thereby influencing the creation of linguistic meaning, emphasizing the bodily basis in the formation of concepts and the structuring of metaphorical mappings. The consideration of embodied metaphors within phraseology is justified by their fixed structures, particularly due to the criterion of idiomaticity and non-compositionality that characterizes metaphors. As far as the ‘embodied’ nature of metaphors is concerned, the crucial aspect is the acknowledgment of the mind as immersed in a corporeal dimension. The abstract concepts presented by the metaphors under analysis are structured on concrete, corporeal *source domains*. The analysis focuses on the signifier facet collectively conveyed by embodied metaphors, particularly those containing the ‘heart’ domain. Additionally, it explores how the ‘non-corporality’ of ‘core’ diminishes its potential for extending metaphorical concepts.

Language Studies through a Cognitive Lens

Examining phraseological expressions through a cognitive lens facilitates the exploration of the distinctive features of phraseological units⁵ and provides insights into their cultural and social dimensions. Despite being a field seemingly in continual evolution, the phraseological sphere stands out as one of the most appealing aspects of language study. It focuses on elements deemed colloquial or idiomatic, established over time, and characterized by fixed and stable features that embody the creative essence inherent in natural historical languages. The term ‘Phraseology’ comes from Greek *φράσις* (phrasis), ‘way of speaking’, and *λογία* (logia), ‘study of’. It refers to stable phrases of a certain language, whose meaning transcends the sum of individual word meanings (Bally, 1951, p. 74), and refers also to the methodological approach of this linguistic domain remains challenging to encapsulate with a single, unambiguous definition. The *Cambridge Dictionary* vaguely describes phraseology as “the way in which language is used, especially in the choice of words and expressions”.⁶ To provide a more concrete understanding the definition offered by the *Diccionario de la Real Academia Española* (DRAE), referencing Gloria Corpas Pastor (1996, p. 17), is proposed:

fraseología: [...] 4. Conjunto de frases hechas, locuciones figuradas, metáforas y comparaciones fijadas, modismos y refranes, existentes en una lengua, en el uso individual o en el de algún grupo.

5. Parte de la lingüística que estudia las frases, los refranes, los

modismos, los proverbios y otras unidades de sintaxis total o parcialmente fijas.⁷

While the definition of phraseology is broad and generic, various studies suggest parameters for defining phraseological units. Below are listed some of the characteristics proposed by Andreas Langlotz:

- *Compositeness*: idioms are multi-words units that consist of two or more lexical constituents.
- *Institutionalisation*: the degree of convention and familiarity of an expression.
- *Fixedness*: denotes any syntactic and morphosyntactic restrictions and restricted collocability to capture paradigmatic constraints on the selection of the lexical items.
- *Non-compositionality*: the meaning of these constructions is not the derivational sum of the meanings of their constituents.
- *Pattern of figuration*: the relationship between an idiom's overall meaning and the sum of the meaning of the constituents.
- *Degree of idiomaticity* (Langlotz, 2006, pp. 3–5).

Additional crucial parameters in the study of phraseology include *variation, frequency of use, co-occurrence of constituent components, conventionalization, stability, lexicalization, and gradation* (Corpas Pastor, 1996, pp. 19–32).

Phraseology has assumed an increasingly prominent role in linguistic studies, and one notable development is the advent of the contrastive approach (Dobrovolskij 1999, Piirainen 2005) that seems to be particularly stimulating, as it concurrently addresses theoretical and practical considerations across different languages, examining various levels such as semantics, cognitive (with particular emphasis on metaphor), and syntax.

One of the main characteristics associated with phraseological expressions, independent of any structural constraints, is that of *idiomaticity* or *metaphoricity*. This denotes that the mental imagery evoked by the expression serves as a semantic bridge facilitating a simplified understanding of the overall meaning without recourse to its original literal meaning (Piirainen, 2012, p. 34). Within the extensive array of studies and approaches to metaphor theory, the emphasis should be placed on the cognitive approach, wherein metaphor plays an active role in the knowledge acquisition process. A foundational question arises: to what extent do mental contents interact with linguistic meanings? In Cognitive Linguistics this notion is expressed through the concept of *embodiment*, contending that the mind is not an abstract entity but is intricately immersed in a bodily dimension, inseparable from the physical body. Consequently, concepts and meanings are rooted experientially and bodily, facilitating the recognition of cognitive processes through the body.

The term *embodiment* originated within the Philosophy of Mind,⁸ aiming to transcend Cartesian dualism,⁹ which advocated the separation of a 'tangible' substance –*res extensa*– that is the physical reality, i. e. the body, from a 'non-tangible' one –*res cogitans*– the psychic reality, i.e. the mind: a process underlying our being in the world, leading to the development of awareness of our body.

While there is no direct correspondence between metaphors and set phrases, regularities emerge within specific idiomatic constructions, showcasing a notable presence of metaphors: "In the first place, not all set phrases correspond to metaphors. Most pragmatic or communicative set phrases such as routine formulae are not metaphorical. On the other hand, many metaphors are closely related

7. DRAE. Fraseología. In <https://dle.rae.es>. Retrieved January 22, 2024, from <https://dle.rae.es/fraseologia?m=form>. Phraseology:

4. A group of set phrases, figurative locutions, fixed metaphors and comparisons, idioms, and sayings, existing in a language, in individual or group usage. 5. The part of linguistics that studies set phrases, idioms, proverbs, and other wholly or partially fixed units of syntax. (Author's translation).

8. The "Philosophy of Mind" refers to the current of thought developed by philosophers, cognitivists, and artificial intelligence researchers, who argue that aspects of our cognition – like ideas, thoughts, categories, or concepts – are shaped and determined by the human body. Its philosophical roots undoubtedly lie in Immanuel Kant, *Universal Natural History and Theory of the Heaven* (1755) and Maurice Merleau-Ponty, *Phenomenology of Perception* (1945).

9. A theoretical concept based on the separation of mind and body, Descartes separates reality into *res cogitans* and *res extensa*: to the former attributes the qualities of freedom, awareness, and in-extension; to the latter those of limitation, unawareness, and extension.

10. “Minsheu conjectured ‘perhaps it hath its name from Latin cor the heart, because it lieth in the middle of the fruit’. Skinner pronounced it ‘from French cœur, Italian cuore, Latin cor’, which has been repeated by most etymologists since. But the original meaning does not agree with any sense of the Latin cor or French cœur, and it was not apparently till late in the 16th cent. that any one thought of associating it with the notion of ‘heart’. Moreover the Old French word was cuer, which in the end of 14th cent. gave place to cueur, latinized after the Renaissance to coeur, cœur. Other conjectures are that it represents French corps (Old French also cors) body, or cor horn. [...]; but the persistent final e of the English word is a great obstacle to any such derivation. The primary sense of core had formerly been expressed by colk n.1”. Oxford English Dictionary. Core. In <https://www.oed.com>. Retrieved January 24, 2024, from https://www.oed.com/dictionary/core_n1?tab=etymology&tl=true#8149554.

11. “IV. The central or innermost part, the ‘heart’ of anything. In some of these uses ‘heart’ is of much earlier occurrence; e.g. in heovene hert c1300; the herte of Fraunce, Palsgr. 1530; hert of Oke, Fitzherbert 1525. The employment of core in similar senses appears to have come from the etymological notion of identifying it with Latin cor, and thus with heart”. Oxford English Dictionary. Core. In <https://www.oed.com>. Retrieved January 24, 2024, from (https://www.oed.com/dictionary/core_n1?tab=meaning_and_use#8149652).

12. See Chevalier and Gheerbrant, (1997), pp. 479–481, for more details about the ‘heart’ symbolism.

13. For more information see: enTenTen – English corpus from the web | Sketch Engine.

to set phrases and there are numerous borderline cases” (Colson, 2008, 195). Our attention will be focused on those phraseological expressions containing metaphor, analyzable from the perspective of the conceptual metaphor theory, and containing body-part terms (particularly the heart) to emphasize the importance of embodiment in metaphorical structuring.

‘Heart’ and ‘Core’: Metaphorical Landscape

The metaphorical use of ‘heart’ and ‘core’ is deeply embedded in cultural expressions, idioms, and everyday language.

The need to name human body parts likely emerged in early language development. Consequently, terms for essential body parts are usually of ancient origin, emphasizing their enduring significance across different cultures. The first lexicographic attestation of the word ‘heart’ can be traced back to Old English (pre-1150) form *heorte*, a word inherited from Germanic (OED). *Heorte* was used to refer to the organ in the chest that pumps blood and retained this meaning throughout the evolution of the English language. Over time, the lexeme has also acquired metaphorical and symbolic meanings related to emotions and feelings (e.g. *a kind heart*), courage and determination (*have a brave heart*), character and morality (*a good heart*), essence (*the heart of the matter*), spirit or enthusiasm (*with all your heart*), symbol of life (*heart and soul*), and generic love. The human body presents a distinctive duality –externally visible and internally felt– providing individuals with the capacity to perceive it both visually and sensorially (Enfield et al., 2006, p. 38). Frequently, names of body parts are extended to denote abstract concepts such as emotions, reasoning, social interactions, and values (Kraska-Szlenk, 2014).

‘Core’ first attestations are found in the Middle English period (1150–1500), of uncertain origin,¹⁰ probably from Old French ‘cor’ which meant the heart or the essence (OED).¹¹ The evolution of the term reflects a progression from describing the central or innermost part of an object to having broader applications, encompassing the essential elements of various entities. ‘Core’ is often used metaphorically, to indicate essential elements (e.g. *the core values*), strength and stability (*core strength*), centrale theme (*core message*), central part of a group (*core members*), and source or origin (*at the core of the issue*).

‘Heart’ appears significantly more productive, from a figurative point of view, than ‘core’. In numerous languages, the heart is metaphorically conceptualized as a container of emotions, symbolizing the centre of affectivity, and serving as the driving force behind the rhythmic vitality of our body. It encapsulates the essence of spirituality and is linked to a sacred dimension. Across various cultural traditions, the Heart is entwined with light, life, and the sun, establishing a shared assimilation in both Eastern and Western traditions. It serves as an emblem of creativity, love, unity, eternity, and intimacy. The heart represents the organ that allows metaphorical expression to explicit their deepest meaning because it is an organ of contradiction: it is connected with transparency, the virtue of heart par excellence, yet it cannot disregard its condition of a dark and deep cavity, that determines its being a contradiction.¹²

The analysis will explore various expressions, underlying the metaphorical transitions between domains, and will observe their high productivity, particularly concerning body parts. Metaphor productivity data will be quantitatively examined through the analysis of corpora on *Sketch Engine*.¹³ Subsequently, the expressions will

be analysed from a contrastive perspective with some Romance languages to confirm or not the hypothesis regarding the universality of body part terms as metaphorical domains.

Cognitive Schemas of the ‘Heart’ Metaphors

Before analysing some heart metaphors, we will observe two coordinates: the former pertains to *spatial orientation schemas*¹⁴ (table 1) as articulated by Lakoff and Johnson (1980), while the latter is associated with some *metaphorical functions*¹⁵ (table 2), as delineated by Judit Baranyiné Kóczy and Katalin Sipőcz (2023).

Table 1
Classifying the Heart Through
Metaphorical Schemas.

14. Although, according to the authors, “the division of metaphors into three types –orientational, ontological, and structural– was artificial. All metaphors are structural (in that they map structures to structures); all are ontological (in that they create target domain entities); and many are orientational (in that they map orientational image-schemas)” (Lakoff and Johnson, 2003, p. 265), they claim the existence of a kind of schematic subdivision, especially in relation to orientation metaphor. They identify different types of physical-perceptual bases, distinguishing three types of orientation planes (as indicated in the table as metaphorical schemas) defined for the biological configuration of the human being.
15. The term metaphorical function refers to some possible metaphorical extensions that the ‘heart’ as a metaphor can produce.
16. “Outside and inside form a dialectic of division, the obvious geometry of which blinds us as soon as we bring it into play in metaphorical domains. It has the sharpness of the dialectics of yes and no, which decides everything. Unless one is careful, it is made into a basis of images that govern

CONTAINER SCHEMA

The prevalent conceptual schema often employed is that of a container. Typically, this metaphor involves the analogy of a container filled with fluid or liquid, with the heart serving as the locus of emotions. Emotions, within this schema, can be described as possessing varying temperatures, such as hot or cold; they may surge, overflow the confines of the heart container, or undergo stirring dynamics. Furthermore, the metaphor extends to depict emotions as potentially manifesting within a fragile container, symbolically aligning with the concept of romantic heartbreak. In other culturally resonant metaphors, the metaphorical container of the heart is not merely a vessel for emotions but also encompasses secret thoughts, dreams, and mysteries, particularly residing in its profound depths (Lakoff and Johnson, 1980, pp. 29–32).

VERTICALITY SCHEMA

Central to this notion is the belief that the heart’s proper alignment, specifically situated in its position, signifies an individual in a state of emotional equilibrium. Conversely, any deviation from its regular location is interpreted as an emotional perturbation, often denoting a negative or intensely heightened emotional state (such as excitement), both of which are associated with physical discomfort. In this context, the predominant trajectory of the heart’s movement is along the vertical axis. However, in most instances, the heart is perceived to move up and down within the human body. This vertical movement is linguistically linked across diverse languages to the emotional spectrum of courage and fear. ‘Up/Down’ is another frequently proposed schematization, as articulated by Lakoff and Johnson (1980), characterized by the biological configuration of the human being and their capacity to perceive and define reality through the five senses. Particularly, is characterized by a relationship of asymmetry, due to the habitual perception and configuration of man and to the influence of the gravity force. “Up” is associated with a positive dimension (e.g. *feeling up*) while “down” with a negative one (e.g. *feeling down*) (pp. 19–21)

IN-OUT SCHEMA

This conceptualization commonly involves the metaphorical ingress and egress of emotions as ontological entities. Lakoff and Johnson (pp. 61–68) refer to this mental schema that emerges from the perception of the human body as a container, into which some things enter (e.g. *water*) and others leave (e.g. *blood*). This pattern is extended to the spatial sphere, considering places as parts of space into which one enters and out of which one leaves; here the “in” is associated with a positive dimension (e.g. *being in*, inclusion), while “out” with a negative one (*cutting out*, exclusion).¹⁶ This schema encapsulates the idea that emotions have a tangible presence, entering and departing from the ‘heart’ space.

HEART AS THE SEAT OF EMOTION	• Love (<i>possessing one's heart</i>) • Courage (<i>a fire heart</i>) • Happiness or Sadness (<i>happy heart</i>; <i>break the heart</i>). • Excitement (<i>to lift up a heart</i>) • Surprise (<i>with a palpitating heart</i>) • Anxiety (<i>heavy heart</i>) • Enthusiasm (<i>having a big heart</i>)
HEART AS A LIVING BEING	As a living entity, the heart can (like human beings), manifest qualities such as cheerfulness and unhappiness; it is also metaphorically attributed to the ability to breathe and speak (<i>his heart went excited</i> ; <i>to speak from the heart</i>).
HEART AS A PHYSICAL OBJECT	When conceptualized as an object, the heart is imbued with fragility and vulnerability (<i>break someone's heart</i>). The heart can be endowed with a spectrum of properties such as strength, weight, size, temperature, purity, and colour, each of which is employed metaphorically to represent and symbolize human qualities (<i>to touch the heart</i> , <i>heart of stone</i> , <i>warm-hearted</i> , <i>a heart of gold</i> ,).
HEART AS THE SEAT OF REASONING	"There are certain cognitive faculties which are sometimes expressed in connection with the heart, which does not reveal in the lexicographic study, but it becomes apparent in the discourse-level usage of the figurative 'heart' expressions. Such faculties include memory, thinking, understanding, opinion, decision and advice" (Baranyiné, J. K. and Sipőcz K., 2023, p. 96). As in the English expression <i>learn by heart</i> .

Table 2
Classifying the Heart Through the Exploration of Metaphorical Functions.
A summary of the primary metaphorical functions associated with the 'heart' is shown in this table.
Baranyiné, J. K. and Sipőcz K., 2023, pp. 59–69.

all thoughts of positive and negative. Logicians draw circles that overlap or exclude each other, and all their rules immediately become clear. Philosophers, when confronted with outside and inside, think in terms of being and non-being. Thus, profound metaphysics is rooted in an implicit geometry which –whether we will or no– confers spatiality upon thought;" (Bachelard, 2014, pp. 132–133).
17. For this study, only these languages will be analysed. Nevertheless, regarding the universality numerous studies have substantiated the manifestation of this phenomenon across different languages (Kraska-Szlenk 2020; Baranyiné, J. K. and Sipőcz K., 2023).
18. In the context of translation equivalences, reference is made to

Exploring 'Heart' Metaphors: A Contrastive and Corpus Based Analysis

In the following section, an analysis will be conducted on seven representative expressions (in terms of *schemas* and *functions*) incorporating the metaphorical domain 'heart' as the *source domain*. Each expression will be examined and subsequently correlated with the cognitive schemas and metaphorical functions described in the previous section.

To affirm the metaphorical universality of the 'heart' body-*source domain*, these expressions will be compared with expressions in the primary Romance languages (French, Italian, Portuguese, Romanian, and Spanish).¹⁷ The analysis will prioritize a semantic perspective, particularly emphasizing the different types of *equivalences*.¹⁸

1. Break someone's heart.

The metaphorical structure originates from the *source domain* 'heart' that –through the verbal action of 'breaking'– conceptualizes the physical experience of the heart (since it can break, it can be considered as in the function HEART AS A PHYSICAL OBJECT) in an abstract one, not accessible in real terms, that relating to emotional pain. Since the 'container metaphor' sees the heart as a container for human emotion, the expression refers to the CONTAINER SCHEMA, with the function of HEART AS THE SEAT OF EMOTION, referring to the conceptualization of pain.

- (en) break someone's heart;
- (fr) briser le cœur;
- (it) spezzare il cuore;
- (pt) partir o coração;
- (ro) a (i se) rupe cuiva inimă;
- (es) romper/partir el corazón.¹⁹

The expression is characterized by a relation of *total equivalence* whose meaning refers to the dimension of negative emotion.

2. Have a heart of stone.

In this context, the 'heart' symbolizes physical and mental strength (e.g. *with a stone heart*, a strong person). The expression 'heart of stone' portrays the heart as a solid material (as such, refers to the function HEART AS A PHYSICAL OBJECT) preventing it from harboring anything within. This conceptualization characterizes an emotionally indifferent and cruel individual, a person with a 'stone heart' embodies both strength (either courageous or cruel) and lack of compassion. Being once again a metaphorical container of emotion, the metaphor refers to the CONTAINER SCHEMA including the function HEART AS THE SEAT OF EMOTION.

- (en) have a heart of stone;
- (fr) avoir un cœur de pierre;
- (it) avere il cuore di pietra;
- (pt) ter um coração de pedra;
- (ro) a avea o inimă de piatră;
- (es) tener un corazón de bronce/piedra.

The expression presents a relation of *total equivalence*. The metaphor, from the *source domain* 'heart', creates an association with 'stone' generating a negative metaphorical sense, referring to the act of being 'unkind or cruel'.

3. from the depths of the heart.

Referring to the 'in' domain, and thus relating to a positive value dimension, the metaphor refers to the IN-OUT SCHEMA. Drawing upon the CONTAINER SCHEMA (because it metaphorically contains emotion), the depth of the heart is identified as the locus of the most intense emotions. For this reason, it falls within the function HEART AS THE SEAT OF EMOTION.

- (en) from the depths of the heart;
- (fr) du fond du cœur;
- (it) dal profondo del cuore;
- (pt) do fundo do coração;
- (ro) din adâncul inimii;
- (es) desde el fondo de mi corazón.

This expression presents a relation of *total equivalence* both in terms of meaning and in terms of structure. It confirms the significance of 'heart' as a universal metaphor for feelings and emotions, regardless of the linguistic and cultural context, and which attributes a universal metaphorical power to the body part terms.

4. to touch the heart.

In this context, the heart is conceptualized as a delicate object susceptible to being broken, touched, poked, or hit (referring to the function HEART AS A PHYSICAL OBJECT). In terms of the *target domain*, is associated with the function HEART AS THE SEAT OF EMOTION, the reference schema is that of the CONTAINER. Lakoff and Johnson (1980) state that "We can conceive things in the world as being containers or not. [...] Being a container [...] is a property that we project onto it relative to the way we function with respect to it" (p. 161).

- (en) to touch the heart;
- (fr) toucher le cœur;
- (it) toccare il cuore;

Corpas Pastor (2014, pp. 205–211), where she delineates distinctions among: total equivalence, characterized by the formation of a translema consistently, implying reciprocal translation that aligns both semantically and syntactically. Partial equivalence, encompasses cases where a source language locution is translated into a target language locution exhibiting differences in denotative or connotative meaning or belonging to a distinct variety, whether diastatic, diaphasic, or diatopic. Null equivalence, encompasses expressions in the source language lacking a precise equivalent in translation, leading to what is commonly referred to as lexical gaps.

19. All the expressions are examined in the following dictionaries: Cambridge Dictionary (<https://dictionary.cambridge.org>) and Collins Dictionary (<https://www.collinsdictionary.com>), for English; Dizionario della lingua italiana De Mauro, for Italian (<https://dizionario.internazionale.it>); Dicționarul explicativ al limbii române, for Romanian (<https://www.dex.ro>); Diccionario de la Real Academia Española, for Spanish (<https://dle.rae.es>), Larousse and Le Robert, for French (<https://www.larousse.fr/dictionnaires/francais>; <https://dictionnaire.lerobert.com>.) and Dicionário Priberam da Língua Portuguesa and Dicionário Online de Português, for Portuguese (<https://dicionario.priberam.org>; <https://www.dicio.com.br>).

- (pt) tocar o coração;
- (ro) a atinge inima;
- (es) tocarle a alguien en el corazón.

The expression is characterized by a relation of *total equivalence*. In a figurative sense, it refers to pity, to be deeply moved. Again, the metaphorical domain of the heart – real, concrete – through the action of ‘touching’ conceptualizes an abstract experience (of being moved by) through a concrete and accessible linguistic domain (the heart), confirming its universality.

5. *open-hearted*.

Still embodying a container of emotion, it refers to the CONTAINER SCHEMA. However, although in Lakoff and Johnson (1980) there is no precise reference to the open/closed spatial opposition: “we spatialise linguistic form. Spatial metaphors apply to linguistic form as it is spatialized” (p. 126), an additional classification is introduced for this analysis. This dichotomy could be associated with positive or negative values concerning the general sensory perception of the human being. Consequently, ‘open’ might denote a positive dimension (e.g. *with open arms*, in a very friendly way) while ‘closed’ could be linked to a negative dimension (*at the close of*, the end of something; *a close atmosphere*, stuffy). This metaphorical framework allows the *source domain* ‘heart’ to ‘open up’ and conceptualize a positive metaphor relating to someone’s behavior.

- (en) open-hearted;
- (fr) à cœur ouvert;
- (it) a cuore aperto;
- (pt) abrir o coração;
- (ro) a avea inima deschisă;
- (es) a corazón abierto.

At the semantic level, it is characterized by a relation of *total equivalence*, embodying sincerity and honesty in a person.

6. *lift up the hearts*.

The expression refers to the VERTICALITY SCHEMA, particularly to the dichotomy of Up/Down. The correlation between the heart and the spatial orientation of ‘up’ carries connotations of courage or encouragement. Consequently, the metaphorical interpretation refers to the positive values aligned with the ‘Up’ dimension. Being a dynamic entity, that can be ‘lift up’, it refers to the function HEART AS A PHYSICAL OBJECT.

- (en) lift up the heart;
- (fr) élevez les cœurs;
- (it) in alto i cuori;
- (pt) corações ao alto;
- (ro) sus inimile;
- (es) arriba los corazones.

In terms of meaning, it is characterized by a relation of *total equivalence*. Generally, it is used in a religious context.

In all these expressions the ‘heart’ serves as the utmost representation of emotions, but it can also metaphorically represent the symbolic center of affectivity and the driving force behind the vital rhythm of the entire body, an element that aligns with the significance of centrality in human perception.

7. *the heart of the matter*.

In this context, the anatomical placement of the heart within the hu-

man body serves to broaden the conceptualization of the term ‘heart’ to denote the central or inner essence of a given entity. While the metaphorical and semantic expansion of ‘heart’ from its corporeal denotation to the emotional domain has been conspicuously predominant in the previous expressions, a subsequent semantic evolution allows the *source domain* ‘heart’ to extend beyond the emotional dimension to the abstract sphere associated with ‘centrality’. Such transition signifies a departure from a tangible *source domain*, referring to the bodily dimension, towards a more abstract and conceptually distant *target domain*. Body parts serve as cognitive faculties through which humans engage with their environment and construct their perception of the world. Among these bodily components the heart, considered a fundamental organ, is widely regarded as one of the most important. The body is not only an instrument of expression through gestures or words but is a direct expression and suggestion of how humans represent, depict, and define their being in the world. Actions and concepts are understood through the body, moving from the abstract field of thought to the concrete field of bodily concepts and physical actions. Such shifts, from the conceptual to the corporeal, are almost universal and constitute an important part of what Lakoff and Johnson identify as ‘ontological’ or ‘structural’ metaphors.

Within this section, an examination will be directed toward some expressions containing ‘core’: *core value/belief/issue; core principle; core strength; core competence; core element; core of the matter; to the core; core of innovation*.

‘Core’ does not have a connection to the emotional dimension nor does it engage with the expression of feelings. Its semantic scope is primarily confined to defining the central aspect of an entity. Notably ‘core’ does not exhibit symbolic attributes and consequently, it does not extend in a metaphorical sense. Its semantic use remains delimited precluding its extension in a metaphorical sense. In the context of ‘core’ metaphors the focus shifts to collocations, albeit falling within the realm of idiomatic and phraseological expressions.

The term ‘core’ preserves its fundamental significance as denoting the central aspect or nucleus, leading to a notable dissociation from ‘heart’. This semantic narrowing and detachment from the corporeal realm, while refining and reinforcing the notion of centrality, simultaneously result in a diminution of metaphorical productivity within the phraseological domain.

Table 3
Sketch Engine.
ENTENTEN21 Corpus.

Core	Heart
AS NOUN: 2,596,756-word sketch NUMBER OF HITS PER MILLION TOKENS: 42.16 CORPUS SIZE (TOKENS): 61,585,997,113	AS NOUN: 9,037,606-word sketch NUMBER OF HITS PER MILLION TOKENS: 109.7 CORPUS SIZE (TOKENS): 61,585,997,113
AS ADJECTIVE: 1,539,158 NUMBER OF HITS PER MILLION TOKENS: 24.99 CORPUS SIZE (TOKENS): 61,585,997,113	AS VERB: 109,209 NUMBER OF HITS PER MILLION TOKENS: 146.75 CORPUS SIZE (TOKENS): 61,585,997,113
AS VERB: 53,701 NUMBER OF HITS PER MILLION TOKENS: 0.87 CORPUS SIZE (TOKENS): 61,585,997,113	AS ADVERB: 39,301 NUMBER OF HITS PER MILLION TOKENS: 0.64 CORPUS SIZE (TOKENS): 61,585,997,113

From both quantitative and qualitative perspectives, it is evident that the lexeme ‘heart’ demonstrates a pervasive presence across various constructions, encompassing both metaphorical and literal contexts: ‘heart’ is frequently used as a noun, as verb and more rarely as an adverb. While ‘core’ is moderately frequently as a noun, less frequently as an adjective and very rarely as a verb. Within this lexical domain some verbs, such as ‘break’ and ‘touch’, employ ‘heart’ as a direct object, while others involve prepositional phrases like ‘heart of stone’ or ‘heart of the matter’. Additionally, in some expressions, the ‘heart’ functions as a predicate adjective, as exemplified by ‘open-hearted’. Conversely, observing the lexeme ‘core’ it is noteworthy that all the expressions analysed are nouns modified by ‘core’.

Moreover, an essential consideration is the relative frequency of these two lexemes. Specifically, for every million tokens analysed, the prevalence and distribution of ‘heart’ and ‘core’ contribute to confirming their differences in use:

CQL	Number of hits per million tokens
BREAK + HEART	2,24
HEART + OPEN	0,67
HEART + TOUCH	0,62
HEART + MATTER	0,29
HEART + STONE	0,06
HEART + LIFT	0,03

CQL	Number of hits per million tokens
CORE + PRINCIPLE	0,14
CORE + BELIEF	0,12
CORE + STRENGTH	0,11
CORE + ELEMENT	0,08

Table 4
Insights from Sketch Engine.
ENTENTEN21 Corpus.

In the corpus, six ‘heart’ metaphors have been analysed. From a quantitative standpoint, the limited productivity of ‘core’ is consistently affirmed, not only within metaphorical expressions but also in its general usage. This data is influenced by the significance of *embodiment*, by the inherent connection between mind and body that enables our cognitive processes to be more recognizable to expressions related to body parts. In metaphorical terms, these expressions allow us to frame more abstract concepts, which are more challenging to grasp, in terms of concrete and bodily concepts.

Conclusion

Body part terms productivity in the so-called embodied metaphors highlights how language reflects and conveys conceptual schemas rooted in bodily and perceptual experience, helping to shape either meaning and emotional valence of words or expressions and

confirming the universality of body part terms even in different languages. In fact, all the expressions analysed from a contrastive perspective with the ‘heart’ domain are characterized by a relation of *total equivalence*. This process shows how meanings metaphorically extend, and how language is concretely connected to conceptual schemas based on bodily and perceptual experience, emphasizing the capacity that meanings possess in metaphor, that of extending gradually, giving metaphor the possibility of making up “The great body of the language among all nations” (Author’s translation).²⁰ In the specifics of this analysis, the word ‘heart’ represents an eloquent example of linguistic productivity in the phraseological and metaphorical context, becoming an extremely functional vehicle by expressing a wide range of emotions, moods, and concepts.

The analysis confirms several parameters of phraseological units, including the *orthographic*, according to which certain word sequences are recognized as lexical units due to their fixed structure. These expressions are characterized by strong idiomaticity facilitating the transition of meaning from a non-figurative to a figurative domain confirming the parameters of *idiomaticity*, *stability*, and *expressive function* – wherein an expression implies emotional attitudes from the speaker or interlocutor.

As far as metaphor is concerned, a crucial aspect lies in the dynamic interplay between mental contents and physical realization of linguistic phenomena, an inherent fusion between mind and body realized in the concept of linguistic *embodiment*. The conceptualization of the ‘heart’ (or any other bodily organ) as the locus of emotions is deeply rooted in the ontological metaphor: *emotions are things*. This metaphor engenders various image schemata linked to the attributes commonly associated with ‘things’, encompassing their quantification, as positive or negative entities, and their spatial location, given that ‘things’ occupy a specific place. The transformation of emotions into conceptual ‘things’ links with their *embodiment*, identifying a specific site within the person (the body) where these ‘things’ are localized.

This study aims to investigate the productivity of ‘heart’ and ‘core’ in metaphorical phraseology. The analysis shows how the connotation of ‘core’, not strictly related to the human body domain, reduces its figurative productivity: in all the expressions analysed ‘core’ refers to the idea of centrality and does not have the metaphorical capacity – which characterizes body-part metaphors – to extend and conceptualize more abstract concepts. Its contextual synonym ‘heart’ presents different characteristics, and this is influenced by the *embodiment* theory: the body serves as a universal framework shaping abstract concepts into tangible structures.

As the body functions as a universal domain, the ‘heart’ metaphor as a *source domain* can extend and conceptualize more abstract ideas. These abstract ideas generally fit with the realm of emotions, e.g.: in *break someone’s heart* the ‘heart’ conceptualizes emotional pain; in *have a heart of stone* ‘heart’ conceptualizes strength and lack of compassion; in *from the depths of the heart* the ‘heart’ conceptualizes the locus of emotions etc., while in the *heart of the matter* the ‘heart’ conceptualize the idea of centrality.

The results of this analysis reveal a notable contrast in the productivity of the words ‘heart’ and ‘core’, both in terms of semantic and metaphorical extension and in quantitative representation within the analysed corpus. Indeed, the metaphor productivity data extracts from *Sketch Engine* confirm the hypothesis concerning the

20. “Generalmente la metafora fa il maggior corpo delle lingue in tutte le Nazioni” (Vico, 2013, p. 956).

21. See https://www.oed.com/dictionary/core_n1?tab=meaning_and_use#8148389 for more details.

centrality of metaphorical embodiment since the heart, as indicated by the tables data, is most frequently used.

While the precise etymology of 'core' remains elusive, with multiple uncertain origins,²¹ the two terms are characterized by a synonymic relationship. This relationship may find its basis in the etymological dimension of 'core', particularly if it is derived from the Latin *cor* (meaning heart). In this instance, the restricted use of 'core' could be attributed to a kind of semantic and productive blockage due to the entrenched presence of the term 'heart' –both in diachronic terms and in relation to its high frequency of use– not allowing 'core' to establish itself as a synonym in a strictly corporeal sense. Conversely, if the etymology of 'core' is traced back to *colk*, the synonymy between 'heart' and 'core' may already manifest in a metaphorical sense. In that case, given to the rich metaphorical potential of 'heart' as a term strictly related to the human body, 'core' metaphorical dimensions merely continue to designate the notion of centrality, without extending to further concepts. In this contextual sense –although the etymology is different– 'core' can be considered a synonym of 'heart' since "it was not apparently till late in the 16th that any one thought of associating it with the notion of 'heart'",²² as exemplified by expressions like *the heart/core of the argument* or *the heart/core of the matter*: these linguistic constructions emphasize a shared connotation of centrality and essentiality and confirm the productivity assumed by the term 'heart'. This limitation in the extension of meaning has fostered the coexistence of 'core' and 'heart' within some linguistic expressions, as exemplified by constructions like 'the core heart'.²³

The observed phenomenon is argued to be significantly influenced and substantiated by the prominence of cognitive science, particularly the role played by *embodiment* in shaping our cognitive processes and linguistic expressions. *Embodiment*, as a guiding principle in our interaction with the world, allows our thoughts to manifest themselves linguistically through the body.

References

21. See https://www.oed.com/dictionary/core_n1?tab=meaning_and_use#8148389 for more details.

22. Oxford English Dictionary.

Core. In <https://www.oed.com>. Retrieved February 5, 2024, from https://www.oed.com/dictionary/core_n1?tab=etymology#8148389.

23. In a report published by 'The New Yorker', an American journalistic magazine, the expression 'core of my heart' is documented (<https://www.newyorker.com/magazine/2016/07/25/martha-nussbaums-moral-philosophies#>). Furthermore, within the pages of *The Spectator*, a poem authored by Dorothea Mackellar is titled 'Core of My Heart' (5 September 1908) (<https://www.australianculture.org/core-of-my-heart-dorothea-mackellar/>).

Aviv, R. (2016). The Philosopher of Feelings. *The New Yorker*, <https://www.newyorker.com/magazine/2016/07/25/martha-nussbaums-moral-philosophies>.

Bachelard, G. (2014). *The Poetics of Space*. Penguin Books. (Original work published 2006).

Bally, C. (1951). *Traité de stylistique française*. Klincksieck.

Baranyiné, J. K., Sipőcz K. (2023). *Embodiment in Cross-Linguistic Studies. The 'Heart'*. Brill.

Burger, H., Buhofer, A., and Sialm, A. (1982). *Handbuch der Phraseologie*. De Gruyter.

Burger, H., Dobrovolskij D., Kühn, P., and Norrick, N. R. (Eds.). (2007). *Phraseologie: Ein internationales Handbuch zeitgenössischer Forschung*. De Gruyter.

Cardona, G. R. (2006). *Introduzione all'etnolinguistica*. UTET.

Chevalier, J. and Gheerbrant, A. (1996). *Dictionary of Symbols*. Penguin Books.

Colson, J.-P. (2008). Cross-linguistic phraseological studies. In S. Granger and F. Meunier (Eds.) *Phraseology: An Interdisciplinary Perspective*. John Benjamins.

Corpas Pastor, G. (1996). *Manual de fraseología española*. Editorial Gredos.

- Corpas Pastor, G. (2014). *Diez años de investigación en fraseología: análisis sintáctico-semánticos, contrastivos y traductológicos*. Editorial Vervuert.
- Coşeriu, E. (2000). *Lecții de lingvistică generală*. Arc.
- Croft, W., Cruse, D. A. (2004). *Cognitive Linguistics*. Cambridge University Press.
- Dobrovol'skij, D. (1999). On the Cross-Linguistic Equivalence of Idioms. In C. Beedham (Ed.), *Langue and Parole in Synchronic and Diachronic Perspective*. Pergamon.
- Eco, U. (1986). *Semiotics and the Philosophy of Language*. Indiana University Press. (Original work published 1984).
- Enfield, N. J., Majid, A., Van Staden M. (2006). Cross-linguistic categorisation of the body: «Introduction». *Language Sciences*. Elsevier. 28.
- Feldman, J. (2006). *From Molecule to Metaphor: a Neural Theory of Language*. MIT Press.
- Fillmore, C. J., Kay, P., and O'Connor, M. (1988). Regularity and idiomatity in grammatical constructions: The case of *let alone*. In *Language*, 64 (3), 501–538.
- Foley, W. A. (1997). *Anthropological linguistics: an introduction*. Routledge.
- Fraser, B. (1970). Idioms within a transformational grammar. In *Foundations of Language*, 6 (1), 22–42.
- Geeraerts, D. and Cuyckens, H. (2007). *The Oxford Handbook of Cognitive Linguistics*. Oxford University Press.
- Gibbs, R. W. (1993). Why idioms are not dead metaphors. In Cacciari C. and Tabossi P. (Eds.), *Idioms: Processing, structure and interpretation*. Lawrence Erlbaum Associates.
- Gibbs, R. W. (2006). *Embodiment and Cognitive Science*. Cambridge University Press.
- Gibbs, R. W. (2007). Idioms and Formulaic Language. In D. Geerets e H. Cuyckens (Eds.). *The Oxford Handbook of Cognitive Linguistics*. Oxford University Press.
- Hampe, B. (2005) *Image schemas in Cognitive Linguistics: Introduction*. De Gruyter.
- Johnson, M. (1987). *The body in the mind: the bodily basis of meaning, imagination and reason*. The University of Chicago Press.
- Kant, I. (2009). *Universal Natural History and Theory of the Heaven*. Richer Resources Publications. (Original work published 1755).
- Kraska-Szlenk I. (2020). (Eds.), *Body Part Terms in Conceptualization and Language Usage*. John Benjamins.
- Kraska-Szlenk, I. (2014). *Semantics of Body Part Terms: General Trends and a Case Study of Swahili*. LINCOM.
- Lakoff, G. (1992). The Contemporary Theory of Metaphor. In Ortony A. (ed.) *Metaphor and Thought*, Cambridge University Press.
- Lakoff, G. (2014). Mapping the Brain's Metaphor Circuitry: Metaphorical Thought in Everyday Reason. *Frontiers in Human Neuroscience*, 8.
- Lakoff, G. and Johnson, M. (2003). *Metaphors We Live By*. University of Chicago Press.
- Lakoff, G. and Johnson, M. (1980). *Metaphors We Live By*. University of Chicago Press.
- Lakoff, G. and Johnson, M. (1999) *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought*. Basic Books.
- Langacker, R. W. (2008). *Cognitive Grammar: A Basic Introduction*. Oxford University Press.
- Langlotz, E. (2006). *Idiomatic Creativity: A Cognitive-Linguistic*

- Model of Idiom- Representation And Idiom-Variation in English*. John Benjamins.
- Mackellar, D. (1908, October 24). Core of My Heart ["My Country"]. *The Register*, 13. <https://www.australianculture.org/core-of-my-heart-dorothea-mackellar/>. (Original work published in *The Spectator*, 329).
- Mel'cuk, I. (2012). Phraseology in the language, in the dictionary, and in the computer. In *Yearbook of Phraseology*, 3.
- Merleau-Ponty, M. (2011). *Phenomenology of Perception*. Routledge. (Original work published 1945).
- Murry, J. M. (1936). *Metaphor*. Jonathan Cape.
- Piirainen E., (2012). *Widespread idioms in Europe and Beyond. Toward a Lexicon of Common Figurative Units*. Peter Lang Publishing.
- Piirainen, E., & Dobrovol'skij, D. (2005). *Figurative Language: Cross-cultural and Cross-linguistic Perspectives*. Elsevier.
- Talmy, L. (2000). *Toward a cognitive semantics*. MIT Press.
- Varela F. J., Thompson E., Rosch E. (2016). *The Embodied Mind, Cognitive Science and Human Experience*. MIT Press.
- Vico, G. (2013). *Principi di Scienza nuova*. In M. Sanna and V. Vitiello (Eds.), *La scienza nuova. Le tre edizioni del 1725, 1730 e 1744*. Bompiani.
- Xu, Y., Malt, B. C., Srinivasan, M. (2017). Evolution of word meanings through metaphorical mapping: Systematicity over the past millennium. *Cognitive Psychology*, 96, 41–53.

Consulted Dictionaries and Corpus

- Cambridge Dictionary. <https://dictionary.cambridge.org>.
- Diccionario de la Real Academia Española. (DRAE). <https://dle.rae.es>.
- Dicionário Online de Português. <https://www.dicio.com.br>.
- Dicionário Priberam da Língua Portuguesa. (<https://dicionario.priberam.org/>).
- Dicționarul explicativ al limbii române. <https://www.dex.ro>.
- Dizionario della lingua italiana De Mauro. <https://dizionario.inter-nazionale.it>.
- Larousse Dictionnaire. <https://www.larousse.fr/dictionnaires/francais-monolingue>.
- Le Robert Dictionnaire. <https://dictionnaire.lerobert.com>.
- Oxford English Dictionary. (OED). <https://www.oed.com>.
- ENTENTEN21. Sketch Engine. <https://www.sketchengine.eu>.