

Introduction

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Metaphor and science, the theme of this volume, are areas of human experience which, for a long time were, and still are, approached as being antagonistic. In the western tradition, science, seen through the lens of objectivism, and mostly supported by Kant's rationalist perspective and Locke's empiricism, was in frank conceptual opposition to metaphor. In other words, in the objectivist perspective, "meanings are objective and specify conditions of objective truth. They are, by definition, ways of characterizing the world as it is or could be". (LAKOFF and JOHNSON, 1980, p. 209). Objective truth conditions simply do not provide ways of seeing one thing in terms of another. Thus, objective meanings could not be metaphorical. In this way, metaphor, being understood as a linguistic adornment with a fundamentally poetic or rhetorical function, would not offer the necessary univocity to science. After all, according to Hobbes (2005, p. 8), giving voice to the objectivist view, "every metaphor is, by its very nature, equivocal".

The paradigm shift represented by the cognitive approach to metaphor, which introduced and formalized the notion of "conceptual metaphor", has shown that science, both in its advancement and in its discourse (if this dichotomy is possible), is not "metaphor-free". In this new view, metaphors, in addition to extending their domain from language to thought, are everywhere and are not exclusive to certain fields of human experience; they are used not only to communicate results in a more simplified way, but also as tools to understand and develop worldviews. Some of the contributions in this volume, which are detailed below, precisely address the role of metaphor in science from this perspective.

This new dimensioning of metaphor has led research in this area to seek methodological tools which could account for both the linguistic-discursive and the conceptual levels of metaphor, aiming at an articulation between both levels. In other words, developing science as a pursuit of knowledge construction in metaphor studies is now a very fertile field, and one that is also thematized by some of the articles presented in this volume.

Micaela Rossi's article, *Metaphors in scientific discourse: some observations on a Nobel lectures corpus*, describes the role and the different manifestations of metaphor in scientific discourse, distinguishing between creative and conventional metaphors. It is with a focus on the continuum between the two poles between creativity and convention that the researcher conducts an exploratory study of the metaphors present in the speeches delivered by Nobel Prize winners. The author identifies and analyzes linguistic evidence that shows that scientific discourse tends to privilege conventional metaphors.

Sergio Martinez Muñoz, in *What makes a good metaphor in science?*, discusses and empirically explores, with examples, the question concerning the role of metaphors in science. The author tackles the tension between the ornamental vision of metaphor, which attributes a cognitively irrelevant role to figuration, and the hypothesis that metaphor would have epistemic force, thus playing a significant part in the very advancement of science. The article addresses this tension and suggests how contemporary theories of embodied cognition can help overcome it.

In their article entitled *Cyber attacks: The war metaphor in computer science*, Gustavo Paiva Guedes Silva and Lilian Ferrari, based on data taken from academic articles published in conference proceedings in Computing or Engineering, investigate the role of metaphorical conceptualizations in the development of scientific theorization in the area of Computer Science and, more specifically, in the subarea of “Cybernetic Security”.

In *Metaphor and argumentation in tweets on Covid-19 prevention measures*, within the scope of research in progress, Maity Siqueira, Caroline Ferrari, Felipe Tota, and Vinicius Tavares analyze the arguments around preventive measures against COVID-19 produced by Brazilian popularizers of health science. Online data, collected from questionnaires and Likert scales, point to the cognitively structuring role of metaphorical language.

With the aim of analyzing the functioning of metaphors and frames in online discourse, Naira de Almeida Velozo and Sandra Bernardo, in the article *Denialism and scientism in cartoons: frames in competition and situated metaphors*, investigate the (counter) discourses that address the role of (anti)science in human thought and actions. To this end, the researchers adopt an inductive and interpretative methodology to analyze the data.

In *“My faith is in science”: an ecocognitive study on metaphors of science in a denialist discourse*, Marcos Rodrigues and Paulo Henrique address the construction of meaning of the concept of SCIENCE, from the perspective of the “flat earth movement” in Brazil. The analysis focuses on an interview given by the leader of this movement to a YouTube channel. This interaction is understood, by the authors, as a language game in which “cognitive-ecological linguistic individuals” establish a movement of construction and modification of the frame of SCIENCE.

Aurelina Ariadne Domingues Almeida, in *Science on Twitter and the ecological construction of meaning: enemies between defense and attack, between victory and defeat, when we can live by the metaphor of war*, discusses the role of the WAR metaphor in the conceptualization of science. To this end, the author analyzes a corpus consisting of linguistic expressions collected from posts published on Twitter between 2020 and 2022, using a descriptive and interpretative methodology.

Monica Carneiro, Ana Lourena Moniz, and Cassius Guimarães Chai, in *Metaphors about maternity: a cognitive-discursive analysis in second degree decisions about parental removal actions*, analyze the cognitive-discursive aspects of metaphor present in the discourse about motherhood, in judgments handed down by the Court of Justice of the State of Maranhão. The authors resort to the *Approach to Discourse Analysis in the Light of Metaphor* to identify and classify metaphorical vehicles found in the corpus. The research points both to the interdisciplinary dimension of metaphor studies, and to the scientific perspective that articulates, theoretically and methodologically, discourse and cognition.

Following the methodological procedures known as *Metaphor Identification for Gesture Guidelines* (MIG-G), Maíra Avelar, André Lisboa, and Victor Lima describe, in their text entitled *Verbo-gestural metaphors and metonymies in narratives of a TEDx speech on Science in Brazil*, the verbal-gestural metaphors and gesture metaphors identified in five samples of narratives produced by the scientist Nathalia Pasternak at the TEDx USP conference. They investigate the role and relevance of these metaphors in the construction of meaning in multimodal narratives.

In the article entitled *Better is forward: frame conflicts underlying our conception of evolution*, Dalby Dienstbach analyzes metaphorical expressions in two corpora: the first is composed of the entries “Lamarquism” and “Darwinism” in the *Wikipedia*; and the other is a spontaneous corpus with manifestations of the notion of ‘evolution’. The results are discussed in the light of the three main conceptual metaphors identified in the analysis, which conceptualize EVOLUTION in terms of a journey, travel detours, and the place of arrival.

In their theoretical essay *Other bodies in health education: towards an intersectional perspective of the patient in idealized cognitive models*, Aline Aver Vanin and Maitê Moraes Gil discuss whether aspects of the conceptual field of health education would have material consequences in the perspective assumed by future professionals.

Finally, Décio Rocha explores, in *Utterances of potential metaphoricity: the said and the implicit*, the metaphoricity of an utterance (“*ruining Easter*”), in its formation, during an authentic verbal exchange. To this end, the author follows two methodological procedures: the *Metaphor Identification Procedure* (MIP) proposed by the Pragglejaz group (2007) and the analytical tool developed by Voloshinov (1981[1926]) for the study of intonation and gestures. The theoretical background of the research lies in the contributions of *Conceptual Metaphor Theory* (CMT) and the cognitive-discursive approach to metaphor. The author discusses the methodological contributions of these procedures – and their possible limitations – and explores the idea of the potential metaphoricity of the phrase under analysis and its political effects in real situations of language use.

We hope the reading of these articles is both productive and inspiring.

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