Ontologies in Knowledge Organization

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Within the knowledge organization systems (KOS) set, the term "ontology" is paradigmatic of the terminological ambiguity in different typologies. Contributing to this situation is the indiscriminate association of the term "ontology", both as a specific type of KOS and as a process of categorization, due to the interdisciplinary use of the term with different meanings. We present a systematization of the perspectives of different authors of ontologies, as representational artifacts, seeking to contribute to terminological clarification. Focusing the analysis on the intention, semantics and modulation of ontologies, it was possible to notice two broad perspectives regarding ontologies as artifacts that coexist in the knowledge organization systems spectrum. We have ontologies viewed, on the one hand, as an evolution in terms of complexity of traditional conceptual systems, and on the other hand, as a system that organizes ontological rather than epistemological knowledge. The focus of ontological analysis is the item to model and not the intentions that motivate the construction of the system.

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In the knowledge organization (KO)/information science (IS) community several authors, such as [1][2][3][4][5], see the work on ontology coming from the computation field as a kind of reinvention of the wheel or an etymological issue, as it concerns classification and other well-known aspects of knowledge organization processes. This situation was reflected in the different views regarding the typology of ontologies as representational artifacts, also known as knowledge organization systems (KOS). Considering the different technical, structural and functional characteristics of KOS, Mazzocchi [6] presents as a common denominator the function for which these "semantic tools" were designed: supporting the organization of knowledge and information, in order to facilitate their management and recovery.

Within the KOS set, the term "ontology" is paradigmatic of the terminological ambiguity in different typologies. Pieterse and Kourie [7] (p. 227), e.g., state that the term "ontology" refers to "a KOS that can be classified as a relationship list in Hodge's classification [and] which is classified as a thesaurus in our classification." Unlike these authors, Biagetti [8] (Section 3.1) considers that "ontologies are a kind of KOS that present the highest degree of semantic richness, as they allow to establish a great number of relations between terms, and provide attributes for each class." Hjørland [9] (Section 3.3) also sees ontologies as a different kind of KOS "more general and more abstract" than other "traditional" KOS but, for the author, these "may just be understood as being restricted kinds of ontologies." Contributing to the latter position will be the indiscriminate association of the term "ontology", both as a specific type of KOS and as a categorization process, the latter considered by Smiraglia [10] to be a pillar in the development of any KOS. Though the association of the term "ontology" with the artifact and the process is founded, its indiscriminate use is not advised by Souza and others [11] (p. 187): "it might be asserted that all KOS are the products of some kind of ontological modeling, but using the term 'ontologies' arbitrarily can cause

confusion." In addition to the KO/IS and computer science areas, another area, philosophy, is necessary to bring to the debate to understand why the term "ontology" is also used as a categorization process.

Given the interdisciplinary nature of this topic, terminology issues are of vital importance for proper communication between different communities. In this context, we aim to present a systematization of the perspectives of different authors of ontologies, as representational artifacts, seeking to contribute to terminological clarification. This paper, in addition to this introduction, contains three more sections. In the second section, we present a brief historical contextualization of the term "ontology", for a better understanding of the interdisciplinary issue. Then, in the third section, we present the systematization referred to above, focusing on the intention, semantics and modulation of ontologies, based on the two major approaches detected in the different perspectives. Finally, in the fourth section, we synthesize the insights of the present work.

References

1. Gilchrist, A. Thesauri, Taxonomies and Ontologies—An Etymological Note. J. Doc. 2003, 59, 7–18.

2. Vickery, B.C. Ontologies. J. Inf. Sci. 1997, 23, 277–286.

3. Soergel, D. The Rise of Ontologies or the Reinvention of Classification. J. Am. Soc. Inf. Sci. Technol. 1999, 50, 1119–1120.

4. Currás, E. Ontologies, Taxonomies and Thesauri in Systems Science and Systematics; Chandos Publishing: Oxford, UK, 2010; ISBN 978-1-84334-612-8.

5. Dahlberg, I. What Is Knowledge Organization? Knowl. Organ. 2014, 41, 85–91.

6. Mazzocchi, F. Knowledge Organization System (KOS). Encycl. Knowl. Organ. 2019. Available online: http://www.isko.org/cyclo/kos (accessed on 29 November 2020).

7. Pieterse, V.; Kourie, D. Lists, Taxonomies, Lattices, Thesauri and Ontologies: Paving a Pathway Through a Terminological Jungle. Knowl. Organ. 2014, 41, 217–229.

8. Biagetti, M.T. Ontologies (as Knowledge Organization Systems). Encycl. Knowl. Organ. 2020. Available online: https://www.isko.org/cyclo/ontologies (accessed on 29 November 2020).

9. Hjørland, B. Knowledge Organization (KO). Encycl. Knowl. Organ. 2019. Available online: http://www.isko.org/cyclo/knowledge_organization (accessed on 29 November 2020).

10. Smiraglia, R.P. The Elements of Knowledge Organization; Springer International Publishing: Cham, Switzerland, 2014; ISBN 978-3-319-09356-7.

11. Souza, R.R.; Tudhope, D.; Almeida, M.B. Towards a Taxonomy of KOS: Dimensions for Classifying Knowledge Organization Systems. Knowl. Organ. 2012, 39, 179–192.

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