

DEFINING THE NOTION OF CONCEPT MAPS 3.0

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Abstract. The aim of this poster is to present a proposal of how concept maps may be described, annotated and exposed on the Web of Data, also frequently known as the Semantic Web or Web 3.0. In doing so, the poster will first introduce the concept of concept maps 3.0 – that is, concept maps which utilize, and are enriched by, Web 3.0 technologies and resources. While concept maps 1.0 and 2.0 may be said to reflect earlier generations of the Web, the web of documents and the social web, the utilization of Web 3.0 technologies allows concept maps 3.0 to become machine-interpretable semantic web resources, and perhaps even semantic learning resources. This has several implications. One is that concept map discoverability can undoubtedly be improved through metadata annotation and the use of search engine interpretable vocabularies such as <https://schema.org/>. Also, a key feature of Web 3.0 is that it supports integration of data, and that it makes it possible to identify “meaning” of concepts with unique URL identifiers. By employing an open data repository like Wikidata (<https://www.wikidata.org>), which provides identifiers for all entities contained in it, it becomes possible to uniquely identify concepts and concept types in a map as well as integrate data about these same concepts found in external semantic web resources that make use of the same Wikidata identifiers. These are just some of the interesting possibilities of concept maps 3.0. Another possibility is the ability to generate varied and dynamic visualizations of integrated data automatically.

The second key aim of this poster is to define the notion of concept maps 3.0 by adopting an existing set of recommendations for publishing data on the Web, namely the Web Data Principles (<http://dret.github.io/webdata/>) and transforming these into fundamental requirements for concept maps 3.0 as data sets. These fundamental requirements are 1) Concept maps should be linkable, that is accessible via persistent or stable identifiers. This obviously applies to the concept map as a whole but preferably also to its constituent parts. In this way, external resources can point to specific entities or objects in the structure. 2) Concept map distributions should be represented in open formats that do not require proprietary software for processing and whose source code is open to inspection. 3) Concept maps should be annotated by metadata using “well-known” and/or “well-documented” vocabularies. 4) Concept maps should be linked to other resources to enhance their informational or learning value. Links should be typed if possible to signal their communicational purpose and/or the nature of their target and to enable automatic processing. Individual concepts should be linked to external resources to better determine their identity. 5) Concept maps should be labeled with a license to signify when, where, how and by whom they may be put to use and under what circumstances. (Johnsen, L., & Jensen, J. (2016): “Towards Concept Maps 3.0 Visual Learning Designs as Web Data”. Forthcoming)

Finally, the poster will provide simple code examples of how concept maps 3.0 might be marked up using the schema.org vocabulary.