

Chapter 8

Concept Science: Content and Structure of Labeled Patterns in Human Experience

ABSTRACT

This chapter describe the evolution of Concept Science that gave rise to Concept Parsing Algorithms (CPA). Concept Science developed ways to clarify conceptual content encoded in unstructured text that communicate context-specific knowledge in a sublanguage within a discipline. It was developed and tested since the early 1990s at the University of Toronto and Ryerson University in Toronto (Shafrir and Etkind, 2010). Concept Science lead to Pedagogy for Conceptual Thinking with Meaning Equivalence Reusable Learning Objects (MERLO) that offer a powerful tool for engaging and motivating students, and enhancing learning outcomes. This chapter describe some of Concept Science-based tools that provide new ways to discover, encode, and manage knowledge in large digital libraries of unstructured text in educational, governmental, NGO, and business organizations.

INTRODUCTION

Concept Science is an emergent discipline. Its content is the conceptual structure of content of different disciplines, and the different ways in which labeled patterns in human experience are encoded and communicated in different domains of knowledge. The challenge of Concept Science is not

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the construction of generic semantic tools for discovering literal meanings encoded in natural language. Rather, Concept Science strives to find ways to clarify conceptual content encoded in unstructured text that *communicate context-specific knowledge in a sublanguage within a discipline*: ‘Taking conceptual analyses seriously entails demonstrating in any research project as strong a concern for epistemological and ontological issues as for issues of study design, sample characteristics, measurement issues, data collection, and statistical analyses. Deep conceptual issues need to be understood as integral to, and constitutive of, the entire research process, not as peripheral addenda or convenient heuristics’ (Overton, 2015).

MAIN FOCUS OF THE CHAPTER

Issues, Controversies, Problems

Concept Science disambiguate meaning encoded in text, by recognizing the distinction between literal meaning of words in general language and the use of words as Lexical Labels of concepts: ‘the meaning of a word is its use in the language’ (Wittgenstein, 1967, §43); it explicates the role of ‘secret codes’ that are controlled vocabularies embedded in sublanguages that associate particular Lexical Labels of concepts with well defined meanings within specific contexts in a discipline. Systematic exploration of a controlled vocabulary in context in a discipline, guided by Concept Science principles, reveal the hierarchical and lateral links in the conceptual structure of the discipline, sometimes referred to as the *philosophy of the discipline*: ‘In philosophy, the concepts with which we approach the world themselves become the topic of enquiry. A philosophy of a discipline such as history, physics, or law seeks not so much to solve historical, physical, or legal questions, as to study the concepts that structure such thinking, and to lay bare their foundations and presuppositions. In this sense philosophy is what happens when a practice becomes self-conscious.’ (Oxford Dictionary of Philosophy, 2005).

On this view, Concept Science, whose goal is to examine knowledge by discovering and mapping the conceptual content and conceptual structure of individual disciplines, as well as to conduct comparative analyses of the conceptual structure of different disciplines, has goals that are similar to those of ‘*experimental philosophy*’ (Alexander & Weinberg, 2007; Kornblith, 2006).

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