

Ontogeny and Conceptual Geometry: Following Gärdenfors to Create an Analytics for Conceptual Analysis and Change

Joseph T. Tennis
University of Washington

In studying scheme change researchers must identify what is stable and what changes over time. In order to do this we must define the semantics of the systems under scrutiny. There are many arguments advanced for how we are to do this. They range from concept theoretical arguments (e.g., Dahlberg, 2006), to semiotic treatments (Mai, 2001; Friedman and Thellefsen, 2011). Following Bliss, Hjørland advocates for an educational consensus for analysis by asking members of a domain to verify or authenticate the meaning of concepts in schemes (Bliss, 1933; Hjørland, 2002). There is one argument that has not been advanced in knowledge organization, the theory of conceptual geometry advanced by Peter Gärdenfors (2000; 2014).

In the theory of conceptual geometry, Gärdenfors advances a topology of semantics that allows us to frame the semantic discussion in a novel and space-based way in the context of indexing languages. Following in the same line of thought as Lakoff (1987), Gärdenfors combines perception, cognition, and language with space. These four pillars of meaning map well onto the indexing language constraints of hierarchy, domain specificity, and comparative meaning through concept coordination and display.

In this paper I outline how Gärdenfors's unique contributions can add another, yet useful, argument of conceptual analysis in indexing languages. I then turn to how the study of subject ontogeny can benefit from a conceptual geometry outlined from this work. The paper closes with an understanding of benefits and tradeoffs from adopting this cognitive theory of semantics in an evolving document-like conception of indexing languages (Feinberg, 2008).

References

Bliss, H. E. (1933). *The organization of knowledge in libraries*. Holt.

Dahlberg, I. (2006). "Knowledge organization: A new science?" *Knowledge Organization*, Vol. 33 Iss. 1, pp.11-19.

Feinberg, M. (2008). *Classification as communication: Properties and design*. University of Washington.

Friedman, A. and Thellefsen, M. (2011). "Concept theory and semiotics in knowledge organization", *Journal of Documentation*, Vol. 67 Iss: 4, pp.644 – 674.

Gärdenfors, P. (2014). *The Geometry of Meaning: Semantics Based on Conceptual Spaces*. Cambridge, Mass.: MIT Press.

Gärdenfors, P. (2000). *Conceptual Spaces: The Geometry of Thought*. Cambridge, Mass.: MIT Press.

Lakoff, G. *Women, Fire, and Dangerous Things*. University of Chicago.

Mai, J-E. (2001). "Semiotics and indexing: An analysis of the subject indexing process," *Journal of Documentation*, Vol. 57 Iss. 5, pp.591-622.