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For almost a decade my company has been doing research into ontology-based artificial systems with encyclopedic knowledge, branded after the name of the company as the Encyclopedic Intelligence Systems, the EIS. The EIS is purposed to be a single intelligent entity made up of the Universal Ontology Base, the Ontological Reasoning Mechanism, the Encyclopedic Knowledge Body, and the Machine-Minded Natural Language.

In lieu of premature focusing on ontology applications, its development, design, construction, and maintenance engineering functions, we zeroed in on the fundamental inquiry of a general theory of entities going by the methodological guidelines:

1. Construct ontology as an axiomatic, universal, and symbolic theory of reality grounded on the classical ontological research and investigation;
2. Consider it as the highest science giving the outlines of world knowledge and bringing under the major categories or genera of being or reality all the kinds of entities.
3. To subdivide the major genera and kinds up to the particular levels, develop a complete ontology as a union of universal ontology with regional, domain, and application ontologies;
4. Extract the contents and knowledge materials of applied ontologies from the special fields, branches, and departments of knowledge, considering that the sciences, basic or applied, are in essence nothing but special ontologies;
5. Represent a single, consistent and comprehensive conceptualization of the world in a machine-readable knowledge representation language conformable with scientific symbolism.

The results obtained are in the company's technical report: "A Standard Universal Ontology: Encyclopedic AI" comprising five parts: I. The Fundamentals of Universal Ontology; II. Ontological Semantics, Knowledge Representation, and Ontological Reasoning; III. Applied Ontologies: Nature, Mind, and Culture; IV. A Standard AI Ontology Language; V. An Encyclopedic Knowledge Base.

Among the theoretical results achieved: a standard universal ontology, built as complementary to the Great Ideas, first of all, to Aristotle's theory of being and category theory,

as well as to a general abstract formalism, lattice/set theory, to the fundamental sciences, to semantics, and to natural language.

Among the practical results: the significant part the Knowledge in Depth, the New Encyclopaedia Britannica, starting from Accounting to Writing, is digested and systematized, so as to comport with the derived universal taxonomy of entities.

In line with the standard universal ontology, it would then be possible to research and design the Semantic Web as the Onto-Semantic Web - a worldwide distributed lattice (web) of electronic contents and knowledge resources (programs, databases, Web pages, models, and sensors) communicating by intelligent information agents via a standard universal ontology language underpinning the Internet markup languages, schemas, logics.

Related Publications

Abdoullaev, A., Sh.: *Knowledge Base of Encyclopedic Artificial Intelligence*. VINITI, the USSR Academy of Sciences, Moscow (1989) (in Russian)

Novik, I.B., Abdoullaev, A.Sh.: *Introduction into Information World*. Nauka, Moscow (1991) (in Russian)

Abdoullaev, A.S.: *Theoretical (Mathematical or Symbolic) Ontology as a Foundation of Encyclopedic*

Intelligent Systems. In: Trappl, R. (ed.): *Cybernetics and Systems; Proceedings of the 11th European Meeting*. World Scientific Publishing Co., Singapore (1992)

Abdoullaev, A.: *Artificial Superintelligence*. EIS Encyclopedic Systems Ltd. Moscow (1999) *Encyclopedic Intelligence: Universal Ontology, the Great Ideas, and Artificial Intelligence*.

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