

The WORLD CLASSIFICATION SYSTEM

<http://www.semanticWWW.com>

EIS Encyclopedic Intelligent Systems Ltd

The urgent necessity of a true knowledge society is mainly caused by the fact that the natural unity of world knowledge is badly destroyed by the modern system of scientific, formal research and education. For example, the harmful consequences of the greenhouse effect were predicted and explained by S. Arrhenius. Only because the fragmented learning could not be available to the right people in the right place at the right time, the phenomenon should be reopened again after a hundred year bringing almost irreparable consequences of worldwide reach.

Division of labor and increasingly narrowing specialization are making knowledge irreparably fragmented and scattered and thus producing a confusing multitude of disunited scientific and technological communities and associations, often duplicating the same R&D programs even within the same community, like the semantic web projects in the EU Framework Programs.

Due to modern information technologies and particularly the Net, there is a sea wealth of information recorded in gigantic databases. This may be mastered only by more advanced information technology, knowledge machines with a built-in common ontology framework, a single code of fundamental standards, principles, rules, and laws, suggesting a broad, integrated model of all the world things. This may alter the whole knowledge production system in an essential way, ending up in a radically new type of human society, the intellectual **knowledge society**, driven by the (reality)-centered semantic technology.

The major objective of standard ontology is to represent the world within a single framework of things, meeting the deep intellectual desire of the human mind for a single organic body of human knowledge and learning. But two sorts of natural desire seem to contend for the soul of human beings: the greed for material wealth and pleasure and the thirst for knowledge. Which desire will dominate may determine not only human personality but the whole future of human race. The current social structure is established on the never satisfied human wishing to acquire, possess and dominate: avarice, acquisitiveness, and possessiveness. Feeling unfulfilled and dissatisfied with where humanity is heading and what it is, increasingly we recognize the need for a radically new social organization, the society of knowledge and intelligence-based economy, politics, and culture. The sophisticated social structure is intended to be the sort of advanced social system mostly aiming to provoke the alertness of mind, to stimulate an unrestricted intellectual curiosity, to enkindle the spirit of inquiry, to arouse the desire to know about everything, thus motivating a mass participation of people in creative intellectual activities, engineering or artistic or literary or scientific.

By using most advanced information technologies, the knowledge society is expected to advance and boost the power of intelligent thought and perception of reality, where the economic growth and social progress and cultural dynamics are caused by the world aware knowledge artifacts, systems, technologies, processes, services, and products, the substantive base of an intellectual civilization, or **intelligent world**. And encoding human knowledge in such real life intelligent applications, using unifying world models and formal ontology languages, might be a crucial contribution to creating the advanced knowledge society technologies and semantic machines.

USECS®, ***Unified Standard Entity Classification System***

In line with such logical expectations, we proposed the World **Categorization** System as the universal standard entity classification system, or USECS®, published as a downloadable Adobe Acrobat 7.0 Document. To flesh out its **ontological skeleton**, the rich content of the largest online lexical reference, WordNet 2.1, was readjusted according to the UFO's worldview. Besides, the number of upper taxonomies and web ontologies are included, which can also be encompassed provided that the categorical schemes used are properly sorted out.

Besides its designated trade name, the USECS® product line might be also distributed under the exchangeable labels:

- **World Encyclopedia Vocabulary;**
- **World Stock List;**
- **World Knowledge Directory (Tree);**
- **Universal Scheme of Things;**
- **Universal Directory of Meanings;**
- **Meaning Searcher, or Sense Finder;**
- **Human Knowledge Digest;**
- **Global Catalog of Things;**

- **Universal Directory of Entities**
- **Global Nomenclature.**

As a single global classification system, the USECS® is targeted to typecast and define all the key things in the world, where all the meanings of words/terms (as the real content of conceptions or the essence of things) are integrated into one semantic body. Thus this ontology ware is virtually the semantic reference system serving as an all-entity classification, the world directory of entities and relationships, or a standard code of basic meanings and definitions, supported by the UFO foundation. Such a global catalogue or directory or reference of things is targeted to contribute to the grand cause of knowledge world by expanding the comprehension of human language and verbal intelligence and so increasing the breadth, largeness, and scope of human cognition and intellection. All higher cognitive processes such as search, knowing, thinking, decision making, problem solving, and language involve the profound understanding of verbal meanings; for to see the deep meaning of words and their associations is to have the substantial knowledge of things and their interconnections.

By its design, the whole content of the Global Catalog of Things is organized into two interrelated parts: Encyclopedic Knowledge Reference, or **World Encyclopedia Digest**, and the Catalogue of the World, or the Universal Directory of Entities. The Knowledge Reference is constructed as encyclopedic knowledge base dealing with the whole range of human knowledge as one totality and whole. Like general encyclopedias, it outlines various departments, fields, and domains of the universe of knowledge and learning by giving their main meanings and summary formulations open to further extension by relevant details and specific facts.

Guided by the general standard model, the World Catalogue (or Directory) splits the universe into few fundamental classes of things (substances, states, changes, and relationships) making up the skeletal frame of multilevel reality studied in diverse areas of knowledge, fields of learning, or universes of discourse. Following this guidelines, the Universal Directory of Entities comes in four complementary parts:

- the substantive catalog of objects;
- the state inventory of conditions, qualities and quantities;
- the full listing of changes, actions, activities, processes, and events;
- the comprehensive catalogue of relationships

The USECS is tended to be designed as a lattice-ordered structure of entities limited by the universal upper bound (Entity, Thing, or Being) and the universal lower bound (Nonentity, Nothing, or Nonbeing). All the world entities are arranged into two distinguishing levels: generic classes of things (substance, state, change, and relation taken in general, as mass nouns) and specific classes of things (objects, properties, events, and specific connections, as count nouns). The user can navigate it like as a distributive lattice of things of a finite length by ascending from the bottom element of Nothing (or some specific term) to the top generalization in several steps; or vice versa, by descending from general things to special domain meanings.

The USECS also suggests the meaningful Web search by explaining the senses of search words or topics, namely, what sort of entity they represent and how the terms are featured in the common classification of semantic classes. Representing the comprehensive hierarchy of entities and relationships, it identifies the basic words in natural language with their major meanings, semantic lines of descent, and offspring. Equipped with the meaning of the search word or the structure of the search subject or topic, the user can perform intelligent online quest for data, facts, or knowledge. Unlike some comprehensive dictionaries and encyclopedias, all the meanings of terms in the USECS follow the standard formula of defining having a rigid pattern of definition structure.

As the universal schema and single hierarchy of world entities, the USECS underpins the knowledge references, classifications, and light ontologies such as Britannica's subjects, Webster's Dictionary, the Great Ideas, Web Directories, the UN classifications of industry and products, Wikipedia's categories as well as the International Press Telecommunications Council Subject Reference System. Thus the USECS, as the base ontology, suggests the guidelines for constructing specific ontologies, models, schemas, vocabularies, terminologies, and catalogs in any domain of knowledge or practice or business.

A single hierarchy of things of every kind and sort

Implicitly or explicitly, the assumption of a single hierarchy underlies all profound reference works: encyclopedias (as Encyclopedia Britannica, the Outline of Knowledge), thesauri (as Roget's thesaurus), large lexical databases (as the Princeton WordNet 2.1), and general taxonomies (from Yahoo hierarchy to upper ontologies and web ontology languages).

For example, the largest human knowledge reference, Encyclopedia Britannica, tends to organize the world's collective knowledge as a single universe of discourse following the natural order of particular things: **substance** (matter and energy, from atoms to the universe), **Earth (Globe), life, human life, human society, and culture** (art, technology, religion, the history of mankind, and the branches of knowledge).

The WWW classification schemas involve the subject categories such as Arts & Humanities & Literature, Business & Economy, Computers & Internet, Games, Health, Home, Kids & Teens, News & Media, Recreation & Sports, Reference, Regional, Science, Shopping, Society, and World.

Roget's thesaurus splits up all English lexicon into several classes of words as expressing the hierarchy of basic categories: abstract relations (existence or being or entity, relation, quantity, order, number, time, change, and causation); space; matter; the intellectual faculties; the voluntary powers; the sentiment and moral powers.

Discarding the principle of multiple hierarchies, the on-line lexical database WordNet 2.1 also puts entity first in the hierarchy of words (nouns) having as its heterogeneous subordinates:

- the realms of physical entity (**thing, object, causal agent, substance or matter, and physical process**);
- the realms of abstract entity or abstraction (**psychological feature, attribute, group, relation, communication, quantity, otherworld, and set**).

Still the above classifications reflect a habitual prejudice to divide everything into concrete entities (physical objects, agents, or processes, completed sometimes with groups, collections of concrete things) and abstractions (classes, states, qualities, quantities, and relations) or simply organizing information by pragmatic topics. Such widely practiced supposals have been the principal obstacles in describing the universe of learning as a whole totality.

The rationale for the all-thing catalog

In the great human enterprise of knowing and learning, one of the hardest tasks has been to determine the body of words in terms of which the language can effectively represent reality, express the mental experiences, and communicate information. Having such an all-embracing system of words to which one can refer for standard definitions of significant terms has always been considered as the most sought-after resource. But the main barrier to achieve the encyclopedic inventory of senses consisted in the wanting of the assumption to view the entire macrocosm of knowledge as a single universe of discourse. That is, the whole undertaking demanded the universal schema capable to represent everything in a single hierarchical order of things, from Everything to fundamental, domain-independent classes to domain-specific, particular individuals, to Nothing, as in:

**Thing, Entity, or Being (Everything, the World, or the Universe) > Anything >
> Something > Nothing (Nonentity, Nonexistence, Nonbeing)**

So to benefit the uniform catalog of things is possible only if our accounting of reality affords an exhaustive categorization of things applicable in every area of the universe, in all spheres of existence, at every grade and level of being. As a great reward, within the unifying scheme of world entities, the major knowledge and language resources (encyclopedias, lexical taxonomies, semantic thesauri, web directories, search engine subject indices, upper ontologies, domain terminologies, languages, and nomenclatures) will become integrated in a single consistent system of terms. In order to approach the target, the encyclopedic source of meanings should be constructed as addressing all significant information about natural, mental, social, cultural, and virtual domains. To meet this tall task, the **universal directory** of all the basic names of world things is created in the form of the **world knowledge wordbook**. In its substance, such a general nomenclature, terminology, or language of things is nothing but the digest (epitome, compendium, outline, abstract, or synopsis) of human learning covering all key domains of reality, subject areas, and fields of study.

Giving the systematized description of general entities, with kinds and instances, by defining their language, terms, names, and expressions, the USECS appears as an essential tool in transforming the World Wide Web into the **Meaningful Web** of words and constructions, a digital embodiment of human knowledge. Besides, providing the common language of things, it can be also viewed as a complement to the ISO international standards supplying the common reference frame and technological language for specific things: materials, products, technologies, processes, and services (<http://www.iso.org/iso/>)

Being drawn on the unified model of reality and aimed toward unity of standards, the entire content is divided into two parts:

1. the world catalogue of general classes of things such as **Substance** (substances and objects), **State** (states, conditions, qualities, quantities), **Change** (changes, events, and processes), and **Relationship** (relationships, connections, associations) with the standard formulas of defining their child classes, kinds, varieties, and instances.
2. the encyclopedic knowledge digest designed as a source of essential knowledge covering the main points of any significant subject area, domain of interest, or field of study.

USECS and the World Wide Intelligent Web

There is now an urgent necessity to rationalize both the web keyword search and the web directories browsing. The World Wide Web or the **Web** is an **information space** of software agents (servers, search engines, spiders, browsers, proxies, multimedia players) and **resources** (documents, graphics, sounds or audios, and videos or animation) identified by URI's (Uniform Resource Identifiers) and interconnected by hypertext links via the Internet protocols (as the HTTP - Hypertext Transfer Protocol). There are two ways to navigate the information space of internet sites providing textual documents, images, animation and sound: either by browsing the Web Directories organizing the Web content as a tree-like hierarchy of subjects or topics and subtopics or by means of the Search Engines (software programs) entering keywords or key phrases or a piece of text. As a result, the keyword searches, basic or advanced, retrieve all the occurrences of the keyword in the Web pages which are listed in the search engine index.

Despite such sophisticated tricks of trade as relevancy rankings, using statistics and heuristics, refined search, Boolean operators, and indexing metatags, both the subject-based queries and the keyword search engine enquiries are often ended up with a multitude of irrelevant information, promptly bringing a jumble of useless URLs.

Considering this, the World Directory of Things as the **Meaning Finder** suggests the meaningful Web search by explaining the senses of search words or topics; namely, what sort of entity they represent and how the terms are featured in the common classification of semantic classes. Representing the comprehensive hierarchy of entities and relationships, the Universal Directory of Meanings identifies all the basic words in natural language with their major meanings, semantic lines of descent, and offspring. Equipped with the meaning of the search word or the structure of the search subject or topic, the user will be capable to perform more relevant and coherent online quest for data, facts, or knowledge. Unlike most basic dictionaries and encyclopedias, using different ways and techniques of definitions for various sorts of words, the Universal Directory follows a single standard uniform formula for defining key words in a language, so that a primary meaning is enlarged and extended by such a variety of special meanings where the basic sense stays as the determining content and underlying element.

What the user can get from USECS

Nowadays there are many special services and applications offered at one's fingertips, from electronic banking services to funny AI agents. But hardly ever someone has been proposed to have the solid and integral content which affords:

WHAT CLASSES OF THINGS CAN BE IN THE WORLD AND WHAT KINDS OF RELATIONSHIPS THE THINGS MAY HAVE TO EACH OTHER;

ALL-EMBRACING HIERARCHICAL FRAMEWORK OF TERMS AND MEANINGS;

DISCOVERING WHAT IS BEHIND AND BEYOND ANY SIGNIFICANT WORDS OR NOTIONS;

DEEPENING THE CONSCIOUSNESS (AWARENESS, KNOWINGNESS, COGNIZANCE, UNDERSTANDING) OF REALITIES WITH THEIR CONNECTIONS;

THE OUTLINES OF HUMAN KNOWLEDGE ABOUT THE WORLD, COVERING VIRTUALLY ALL SUBJECT AREAS AND DOMAINS;

ONE OF THE RICHEST VOCABULARIES AND LEXICONS OF REAL WORLD THINGS;

THE SENSE FINDER AND MEANING SEARCHER COMPLEMENT FOR MEANINGFUL WEB SEARCH

How to use the world entities reference

To browse the World Directory content of entities or relationships covering the references and meanings of key words in a language and navigate through the search results, the user can apply either the Find Dialog Box or the Search PDF Window. Pressing Ctrl + F (Windows) or Command + F (Mac OS) opens the Find toolbar. Pressing Shift + Ctrl + F or Shift + Command + F (Mac OS) opens the Search PDF Window (for more details, see Adobe Essentials, search for words in a PDF document). The whole procedure asks for the following simple steps. Click the button Search; set a search preference, basic search options or advanced search options while looking for central senses and primary meanings employ a case-sensitive and whole words only options. CAPITALIZE your search, write in capital letters, in case you are looking for general things or classes such as ENTITY, PROCESS, SUBSTANCE, OBJECT, CHANGE, ACTION, RELATION, MATTER, MATERIAL, CAUSE, BEING, EVENT, LIFE, ANIMAL, HUMAN, PERSON; or knowledge domains and subject areas, such as Science, Mathematics, Language, etc.

While searching on a topic or subject, the user gets as the results the outlines or summary of the subject: its central meaning, basic concepts and principles, classification, content, and relationships with other subjects.

When looking for key words, the user will get their basic senses, semantic relatives and family lines traced as deep as from the universal term of entity, like in:

DATABASE < INFORMATION < MESSAGE < COMMUNICATION < SOCIAL RELATION < RELATION < ENTITY; or

SEARCH ENGINE < COMPUTER PROGRAMM < SOFTWARE PROGRAM < COMPUTER CODE < CODING SYSTEM < WRITING < WRITTEN COMMUNICATION < COMMUNICATION < RELATION < ENTITY.

Under the headword DATABASE, its offspring or special types are enumerated in boldface or italic (list, listing; electronic, on-line, computer database; sub-data base), all with their issues as well. Having constructed the most general meanings and senses, the user can proceed with searching the Internet putting into service the search engines such as Ask Jeeves, Yahoo, and Google or the web directories as Open Directory Project, Yahoo Directory, or Google Directory, which are inbuilt features of the World Directory. Additionally, for Encyclopedia Britannica's on-line subscribers, there is the opportunity to browse the rich electronic content by Britannica's categories and subjects.

A close utility of having the USECS is that the user can create a domain classification in any field of knowledge, kind of activity, or sort of practice. To show how to create and develop domain ontologies, there are use cases in the fields of:

- ❖ Medicine;
- ❖ Business (Commerce);
- ❖ the World Countries

Audience

To meet the human thirst for encyclopedic knowledge and intelligence, the content is particularly committed to digesting, systematizing, and encapsulating the human knowledge into a naturally ordered scheme retaining the most essential things. As the world knowledge digest and all-meaning language resource, the USECS content is addressing all people desiring to know: students and scientists, programmers and engineers, intellectuals and laymen, politicians and artists, presidents and housewives, managers and workers, technologists and theoreticians. Its audience includes all who seek to understand the world and its worlds of words from a single outlook of reality, in one standard comprehensive way, within the unifying schema of things. While having at his fingertips the universal directory of meanings and definitions, the user can perform a meaningful searching for specific information on requested words, phrases, subjects or topics, occurring in the wider context of web pages. The existing possibility of enlarging the basic content and meaning of entity terms with specific facts and information makes the USECS a valuable contribution in building the Intelligent World Wide Web, the information foundation of Global Knowledge Society.

USECS 1.0 (Universal Standard Entity Classification Systems) <http://www.encyclopedic-intelligence.com/>

Contents

The Meaning of Definitions

THE CATALOG OF THE WORLD

- THE WORLD CATALOGUE OF SUBSTANCES
- THE WORLD CATALOGUE OF STATES
- THE WORLD CATALOGUE OF CHANGES
- THE WORLD CATALOGUE OF RELATIONS

The Encyclopedic Knowledge Base of VIRTUAL ARISTOTLE

File Attachments:

Open Directory Project <http://dmoz.org/>

Yahoo! Directory <http://dir.yahoo.com/>

Google Directory <http://directory.google.com/>

Britannica Categories and Subjects <http://www.britannica.com/eb/subject>

International Standard Industrial Classification of All Economic Activities (ISIC)
<http://unstats.un.org/unsd/cr/family2.asp?Cl=17>

Central Product Classification (CPC) <http://unstats.un.org/unsd/cr/family2.asp?Cl=16>

The United Nations Standard Products and Services Code[®] (UNSPSC[®]) <http://www.unspsc.org/>

UK Standard Industrial Classification of Economic Activities (UK SIC)
http://www.statistics.gov.uk/methods_quality/sic/default.asp

Wikipedia <http://wikipedia.org/>

International Press Telecommunication Council Subject Reference System http://www.iptc.org/NewsCodes/0.0/documentation/SRS-doc-Guidelines_3.pdf