

Terminology facing the Digital World



Which consequences
for ISO Standards?



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Digital World

- ▶ **New practices**
- ▶ **New needs**
- ▶ **New issues**
- ▶ **New perspectives**

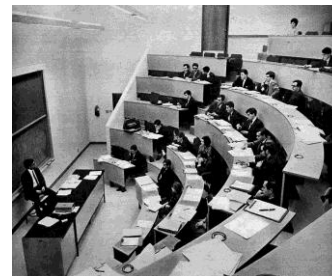


Terminology

Different objectives

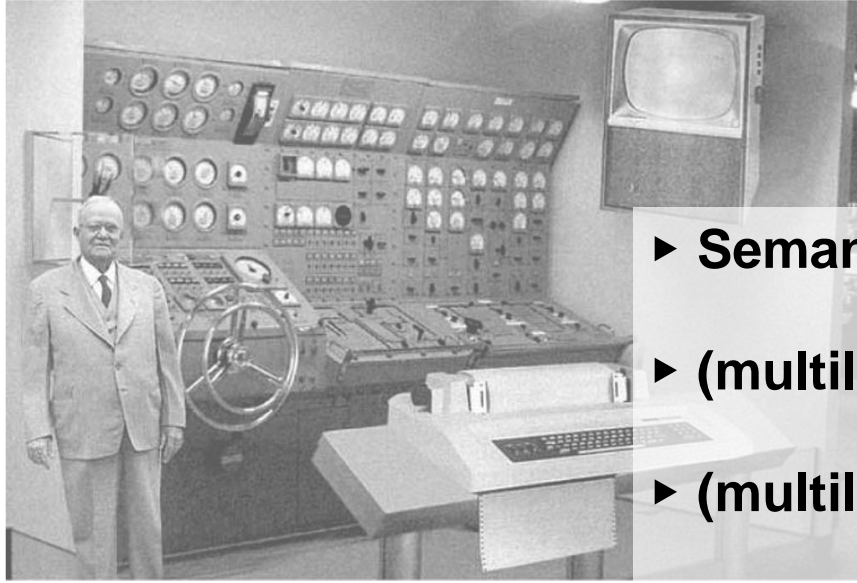
➔ Different approaches

➔ Different results



Choose the right approach accordingly to the objective

Information Technology



- ▶ **Semantic (& multilingual) Search Engine**
- ▶ **(multilingual) Content Management System**
- ▶ **(multilingual) Specialized Dictionary**
- ▶ **Knowledge Management**
- ▶ **Semantic Web**

Operationalization of Terminology



- ➔ **Computational representation of the conceptual system**


Multilingual Content Management System

<http://christophe-roche.fr/projects/content-management-system>

Exploration

Répartition

Texte



Contrôles

Recherche

Options


Conceptualization

Search on concept

French

Relevance


2 850 000 documents

 **Mechanism and modeling of nitrogen chemistry in combustion** +75 places

JA Miller, CT Bowman - Progress in Energy and Combustion Science, 1989 - Elsevier Our current understanding of the mechanisms and rate parameters for the gas-phase reactions of nitrogen compounds that are applicable to combustion-generated air pollution is discussed and illustrated by comparison of results from detailed kinetics calculations with ... Cited by 1434 - Related articles - All 4 versions

⊕ 4 concept(s)


English

 **Principles of heat transfer** +2 places

F Kreith, MS Bohn - 1986 - osti.gov The contents of this book include: Basic modes of heat transfer; Numerical analysis of heat conduction; Natural convection; Forced convection inside tubes and ducts; Heat exchangers; Heat transfer with change in phase; and Special topics. Cited by 1482 - Related articles - Cached - All 10 versions

⊕ 4 concept(s)

English

 **Introduction to combustion phenomena** +89 places

Specialized Dictionary

<http://christophe-roche.fr/projects/specialized-dictionary-2>

OSTermino v1.07 - 05/01/2009
Hydraulic_Turbine_Domain - 07/06/2009 23:31:00

Equipe **ondillac**

Spécialisation

Term list

- Alternator
- Guide vanes
- Hydraulic group
- Hydraulic turbine**
 - Francis hydraulic turbine
 - Kaplan hydraulic turbine
 - Pelton hydraulic turbine
- Hydraulic wheel
- Hydraulic_Turbine_Domain (Nom de domaine)
- Shaft
- Turbine blade

Concept : <Hydraulic turbine>

Concept card

Définition

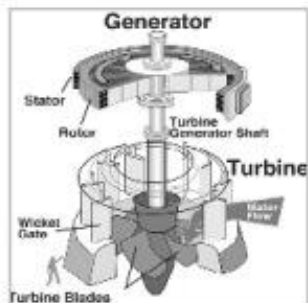
Définition formelle :

Composé de : <Hydraulic wheel>, <Shaft>, <Water in>, <Water out> ,

Élément de : <Hydraulic group> ,

Termes normés : hydraulic turbine ,

Termes d'usage : turbine ,



Terme d'usage : "turbine"

Term card

Définition

Réseau lexical

Signification : <Hydraulic turbine>

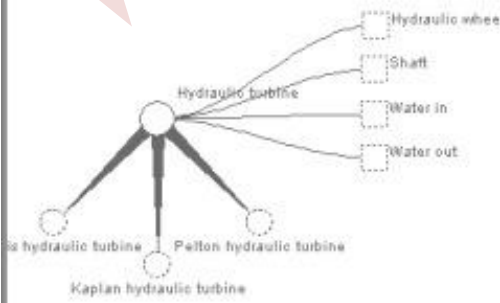
Définition : Hydraulic machinery is an essential element in the construction of a hydroelectric scheme. It is the first element that transforms hydraulic energy into mechanical energy, it is the key element that must bring together topographical, hydraulic and economic data.

Informations :

Synonymes : hydraulic turbine

Termes liés : hydraulic wheel, shaft, water in, water out, wheel

Ontology



Double dimension of Terminology

« ...puisque les mots sont les signes de nos idées... » E. B. de Condillac

“The Machine Tool: an Interlingual dictionary of basic concepts” E. Wüster

► Linguistic

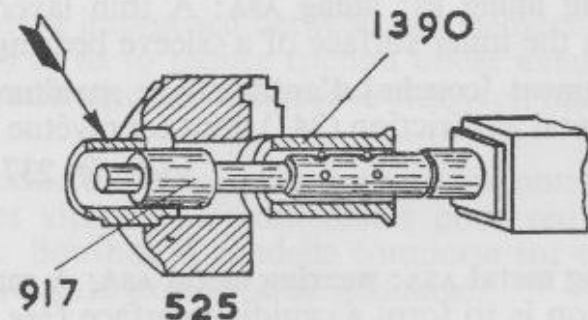
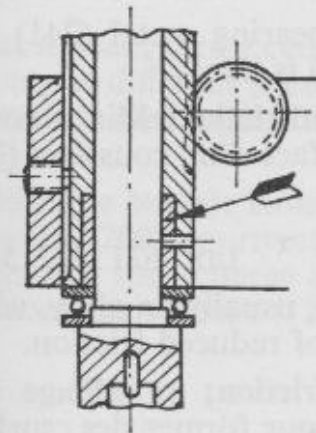
► Conceptual

236

UDC 621.822.5,1 f1

guide bush(ing); guiding bush: A bushing (234) serving as guide (547, 528) for a cylindrical rotary element (209) which is subjected to very small radial stresses.

douille de guidage; manchon pilote; bague de guidage: «Coussinet en une pièce (234) servant de guide (547, 528) à un élément (209) cylindrique en rotation et soumis à des efforts radiaux très faibles.



Vide spec. fig. 915



« There is no term without concept »

Operationalization of Terminology

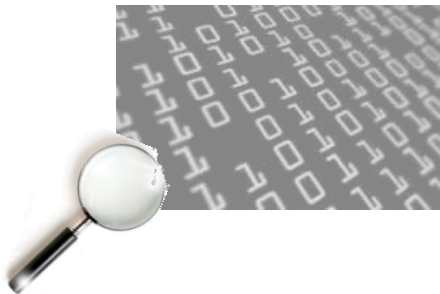
Terminologie

Linguistique

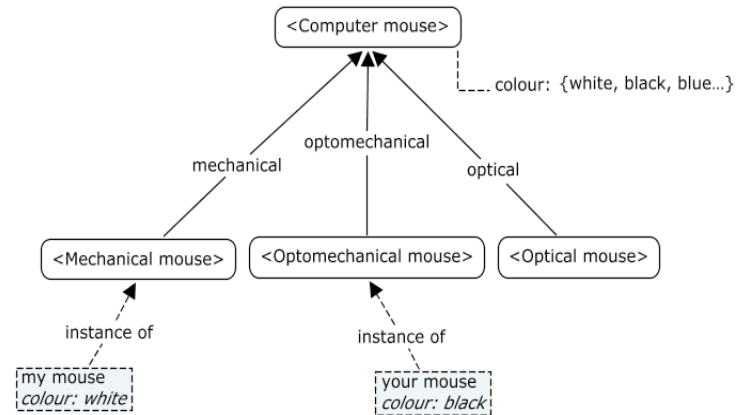
The History of the Computer Mouse

Today, the mouse is an essential input device for all modern computers but it wasn't so long ago that computers had no mouse and no graphical user interface. Data was entered by typing commands on a keyboard.

Computational representation



Conceptuelle

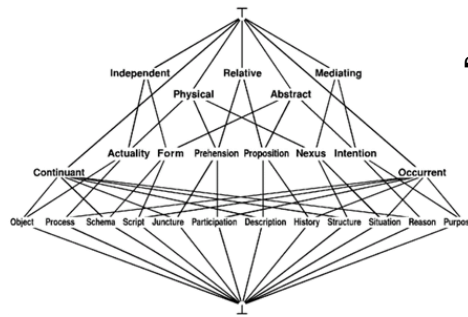


Specification of the conceptualization:

- Formal language understandable by human and computer

Operationalization of Terminology

► Ontology of Knowledge Engineering



“Formal specification of a conceptualization”
Gruber



A new approach to Terminology

Ontoterminology

- **Ontoterminology** : a terminology whose conceptual system is a formal ontology

www.christophe-roche.fr/ontoterminology

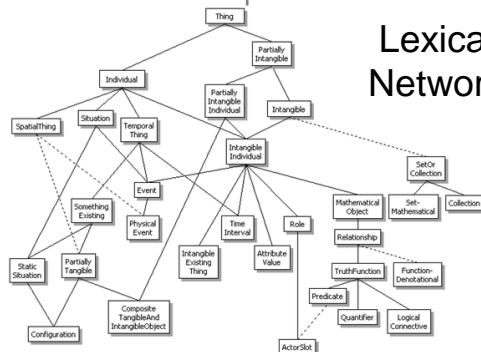
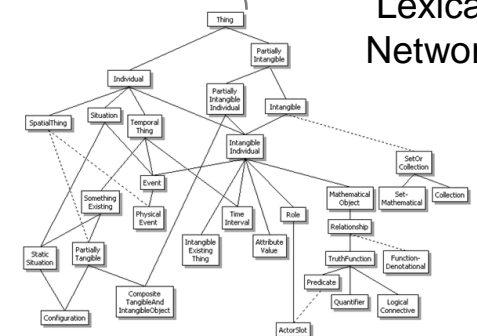
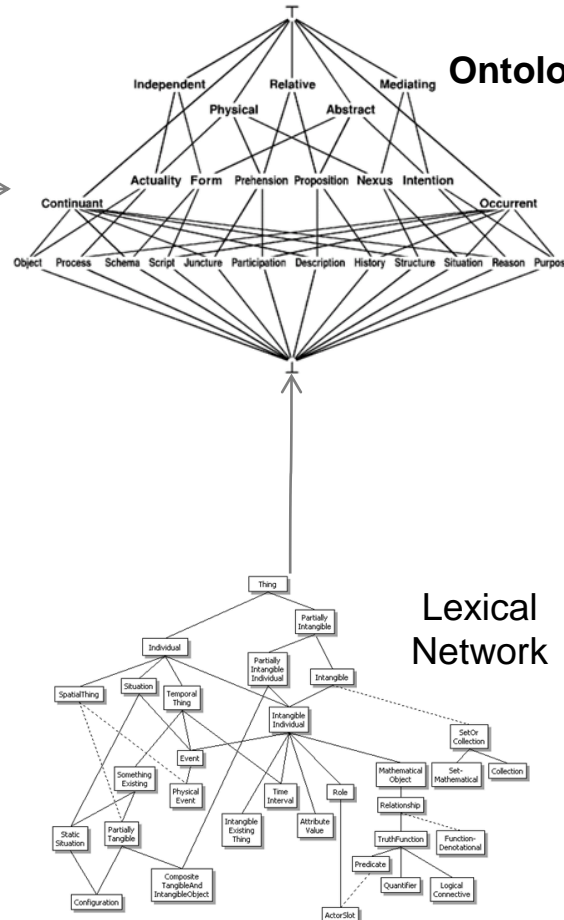
Logical properties

Ontology

Lexical Network

Lexical Network

Multilingualism



Operationalization & ISO Standards

“Terminology work is multidisciplinary and **draws support** from a **number of disciplines** (e.g. **logic, epistemology**, philosophy of science, linguistics, translation studies, **information science** and cognitive sciences)”

[ISO 704:2009]



- ▶ **Epistemology** : Knowledge Theory
- ▶ **Logic** : Consistent theory

Operationalization & ISO Standards

May we rely on ISO Standards for operationalization of Terminology?



ISO 1828 Health informatics

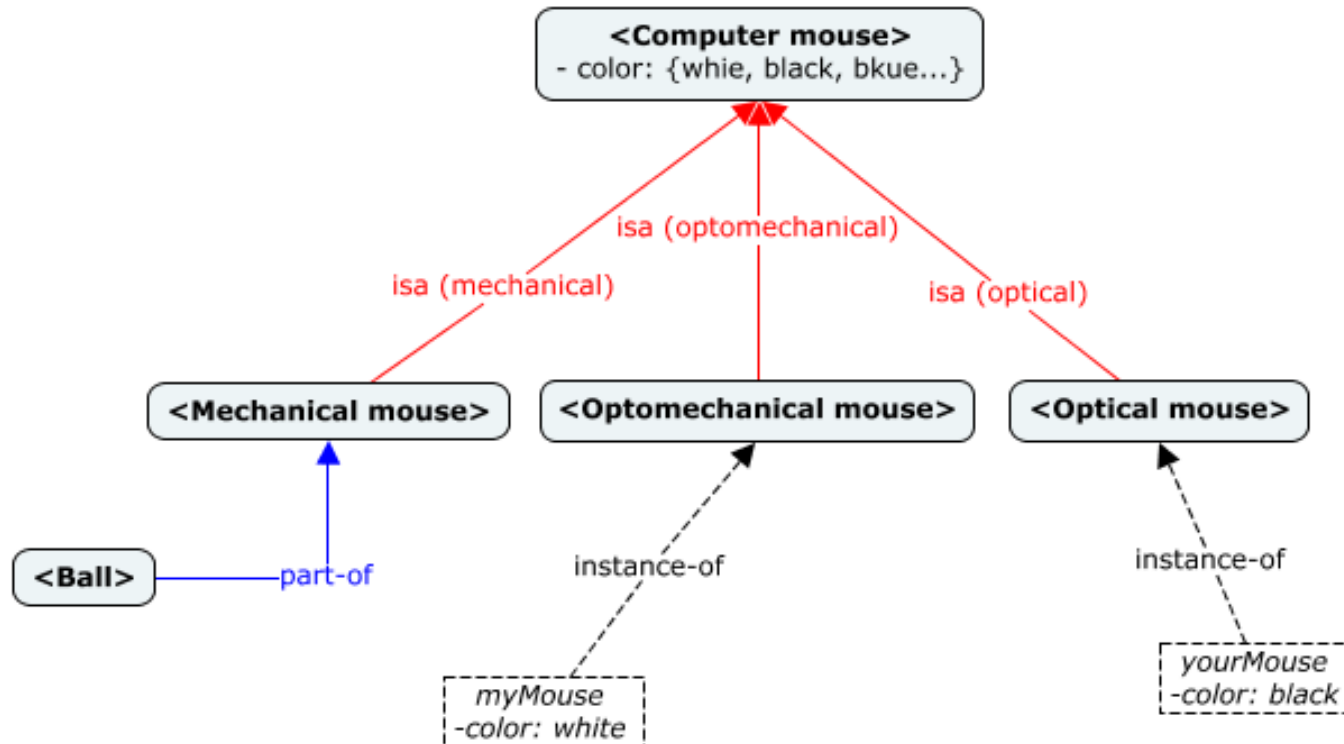
Categorial structure for terminological systems of surgical procedures

"The preparation of **this International Standard brought to light an urgent need to review the family of terminological standards ISO 704, ISO 1087, ISO 17115 and EN 12264 in order to clarify the relations between concept, generic concept, specific concept, object, class, instance, designation and formal representation.** This also applies to the forthcoming edition of ISO/TR 24156 (all parts)."

Operationalization & ISO Standards

■ Computational representation

- ✓ Object
- ✓ Essential characteristic & descriptive characteristic (valued attribute)
- ✓ Concept



Conclusion

■ Terminology should be able to be operationalized

- ▶ Search Engines
- ▶ Content Management
- ▶ Specialized Dictionaries
- ▶ Knowledge Management
- ▶ Semantic Web



A new ISO standard is required for operationalization of Terminology