



Taxonomy Made Easy

An Introduction to Taxonomies for the Accidental Taxonomist

By Heather Hedden

Outline



1. Introduction
2. Definitions
3. Purposes & Benefits
4. Applications & Examples
5. Creating & Wording of Terms
6. Hierarchical Relationships
7. Associative Relationships
8. Term Relationships
9. Indexing, Metadata, and Folksonomies
10. Resources

Heather Hedden's Background



- Taxonomy Consultant, Earley & Associates
- Freelance Indexer, Hedden Information Management
- Continuing Education Instructor, "Taxonomies & Controlled Vocabularies," Simmons College Graduate School of Library & Information Science
- Previously taxonomist with Viziant Corporation; senior vocabulary editor with Thomson Gale (now Cengage Learning)
- Author, *The Accidental Taxonomist* (Information Today Inc., 2010, www.accidental-taxonomist.com)
- Path to taxonomist: periodical database indexer

Introduction to Taxonomies



Differences among taxonomies:

- Different terminology/nomenclature
- Different applications & usage
- Different methods of indexing
- Different software/system implementations
- Different backgrounds of taxonomists

What's in common:

- Serving information “findability,” content retrieval, and organization
- Formerly paper-based, now mostly electronic
- Multidisciplinary team involvement

Introduction to Taxonomies



- Solo librarians are likely candidates for accidental taxonomists
- Taxonomists are often solo taxonomists within their organizations

Outline



1. Introduction
2. Definitions
3. Purposes & Benefits
4. Applications & Examples
5. Creating & Wording of Terms
6. Non-preferred Terms
7. Hierarchical Relationships
8. Associative Relationships
9. Indexing, Metadata, and Folksonomies
10. Resources

Definitions



Broad designations:

- Controlled Vocabularies
- Knowledge Organization Systems
- Taxonomies

Specific types:

- Term Lists
- Synonym Rings
- Authority Files
- Taxonomies
- Thesauri
- Ontologies

Definitions: Broad Designations



Controlled vocabulary, knowledge organization system, taxonomy

- An authoritative, restricted list of terms (words or phrases)
- Each term for a single unambiguous concept (synonyms/nonpreferred terms, as cross-references, may be included)
- May or may not have structured relationships between terms
- Policies/control for who, when, and how new terms can be added
- Usually to support indexing/tagging/metadata management of content to facilitate retrieval

Definitions: Broad Designations



Controlled Vocabulary (CV)

- Designation commonly used libraries, museums, archives
- Also in corporate digital asset management, records management
- Especially in indexing contexts
- Includes various types:
 - Term lists (pick lists)
 - Synonym rings
 - **Authority Files**
 - (Hierarchical) taxonomies
 - **Thesauri**(but not usually ontologies)

Definitions: Broad Designations



Knowledge Organization System (KOS)

- Designation commonly used in scholarly discourse, library school courses
- Collectively includes all types:
 - Term lists (including glossaries, gazetteers)
 - Authority files
 - Categorization and classification schemes
 - Hierarchical taxonomies
 - Thesauri
 - Ontologies and other semantic networks

Definitions: Broad Designations



Taxonomy

- Designation commonly used in corporate/enterprise applications and public web sites
- Includes various types:
 - Term lists (pick lists)
 - Synonym rings
 - Authority files
 - (Hierarchical) taxonomies
 - Hierarchical taxonomies
 - Ontologies

Definitions



Specific types:

- Term List
- Synonym Ring
- Authority File
- Taxonomy
- Thesaurus
- Ontology

Definitions: Specific Types



Term List

- A simple list of terms
- Usually alphabetical, but could be other logical order
- Lacking synonyms, it is usually short for quick browse
- Can appear in drop-down scroll boxes
- May be used for various metadata values (*document types, format types, job functions, source, department, etc.*)

Definitions: Specific Types



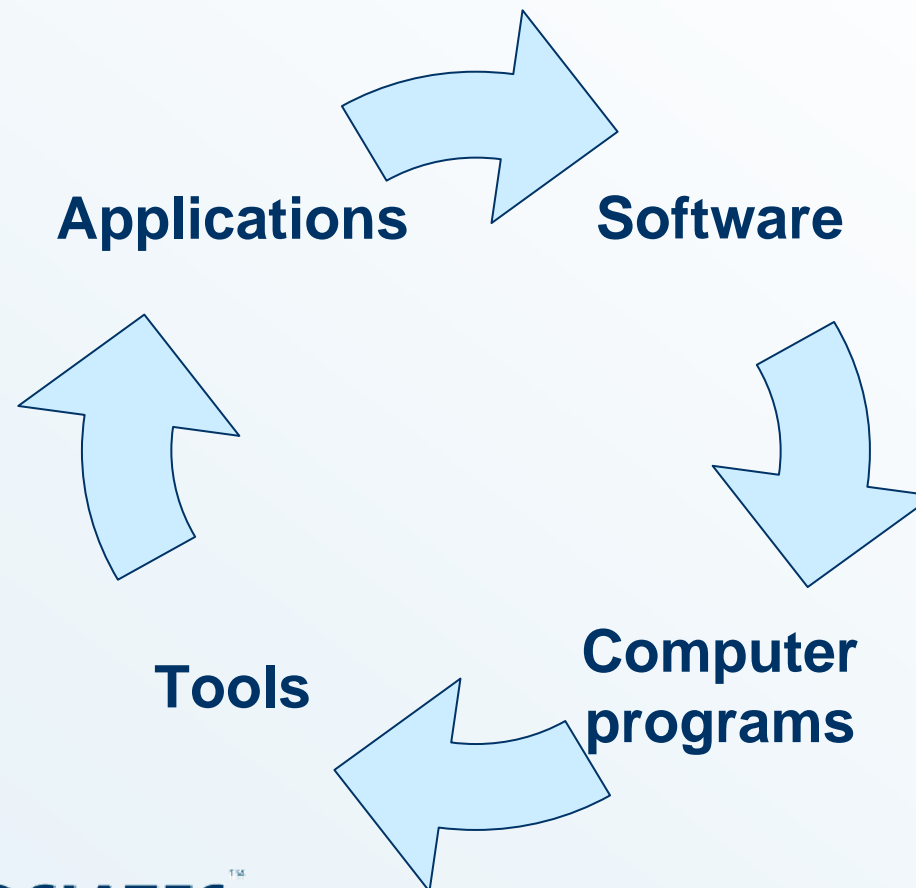
Synonym Ring

- A controlled vocabulary with synonyms or near-synonyms for each concept
- No designated “preferred” term: All terms are equal and point to each other, as in a ring.
- Usually just called a “controlled vocabulary”

Definitions: Specific Types



Synonym ring example



Definitions: Specific Types



Authority File

- A controlled vocabulary with synonyms (non-preferred terms) as cross-references pointing to preferred terms
- Typically also includes “authority” reference to source for each term
- Does not necessarily have any additional structure/relationships among terms
- A designation often used for named entity (proper noun) controlled vocabularies, but may also be used for subjects

Definitions: Specific Types
















(Hierarchical) Taxonomy

- A controlled vocabulary with broader term/narrower term relationships that include all terms to create a hierarchical structure
- An emphasis on categories and classification
- May or may not have associative term relationships or non-preferred terms

Definitions: Specific Types



Taxonomy example 1:

-  Ethnic groups
 -  Africans
 -  American indigenous peoples
 -  Asians
 -  East Asian ethnicities
 -  South and Central Asian et...
 -  Aimaks
 -  Altays
 -  Andamanese
 -  Assamese
 -  Baniyas
 -  Bashkirs
 -  Bengalis

Definitions: Specific Types



Taxonomy example 2:

Top Level Headings

- Business and industry
- Economics and finance
- Education and skills
- Employment, jobs and careers
- Environment
- Government, politics and public administration
- Health, well-being and care
- Housing
- Information and communication
- International affairs and defence
- Leisure and culture
- Life in the community
- People and organisations
- Public order, justice and rights
- Science, technology and innovation
- Transport and infrastructure

Leisure and culture

- Arts and entertainment venues
 - Museums and galleries
- Children's activities
- Culture and creativity
 - Architecture
 - Crafts
 - Heritage
 - Literature
 - Music
 - Performing arts
 - Visual arts
- Entertainment and events
- Gambling and lotteries
- Hobbies and interests
- Parks and gardens
- Sports and recreation
 - Team sports
 - Cricket
 - Football
 - Rugby
 - Water sports
 - Winter sports
- Sports and recreation facilities
- Tourism
 - Passports and visas
- Young people's activities

Definitions: Specific Types



Thesaurus

- A controlled vocabulary that has standard structured relationships between terms
 - Equivalence: preferred term (“use for” or “used for”)/non-preferred term (use) (USE/UF)
 - Hierarchical: broader term/narrower term (BT/NT)
 - Associative: related terms (RT)
- Also supports notes, such as scope notes (SN), for terms, as needed
- “Thesaurus” is most often used for controlled vocabularies used in indexing periodical literature

Definitions: Specific Types



Thesaurus

Created according to standards:

- ANSI/NISO Z39.19 (2005) *Guidelines for Construction, Format, and Management of Monolingual Controlled Vocabularies.*
- ISO 2788 (1986) *Guidelines for the Establishment and Development of Monolingual Thesauri*
- ISO 5964 (1985) *Guidelines for the Establishment and Development of Multilingual Thesauri*

Definitions: Specific Types



Thesaurus entry example 1:

Government lending

- >BT [Economic policy](#)
- >>BT2 [National policy](#)
- <NT [Veterans' loans](#)
- RT [Agricultural credit](#)
- RT [Federally-assisted loans](#)
- RT [Federally-guaranteed loans](#)
- RT [Government and business](#)
- RT [Government insurance](#)
- RT [Loans](#)
- RT [Student loan funds](#)
- UF American domestic economic assistance
- UF Federal aid to depressed areas
- UF Federal credit programs
- UF Federal domestic assistance programs
- UF Government loans

Definitions: Specific Types



Thesaurus entry example 2:

materials acquisitions

- UF acquisitions (of materials)
library acquisitions
- BT collection development
- NT accessions
approval plans
gifts and exchanges
materials claims
materials orders
subscriptions
- RT book vendors
jobbers
subscription agencies
subscription cancellations

Definitions: Specific Types



Ontology

- A complex thesaurus-type of controlled vocabulary, in which terms have specified attributes and relationships are further specified
- Relationships have meaning, are “semantic”
- Relationship types depend on the “classes” to which terms are assigned
- A form of “knowledge representation” Not just for indexing. It is often an end itself in representing a domain of information.

Definitions: Specific Types



Ontology

- Created according to W3C guidelines:
OWL Web Ontology Language Guide
W3C Recommendation 10 February 2004
<http://www.w3.org/TR/2004/REC-owl-guide-20040210>
- *“An ontology defines a set of representational primitives with which to model a domain of knowledge or discourse... ontology can be viewed as a level of abstraction of data models, analogous to hierarchical and relational models” -- Tom Gruber*
<http://tomgruber.org/writing/ontology-definition-2007.htm>

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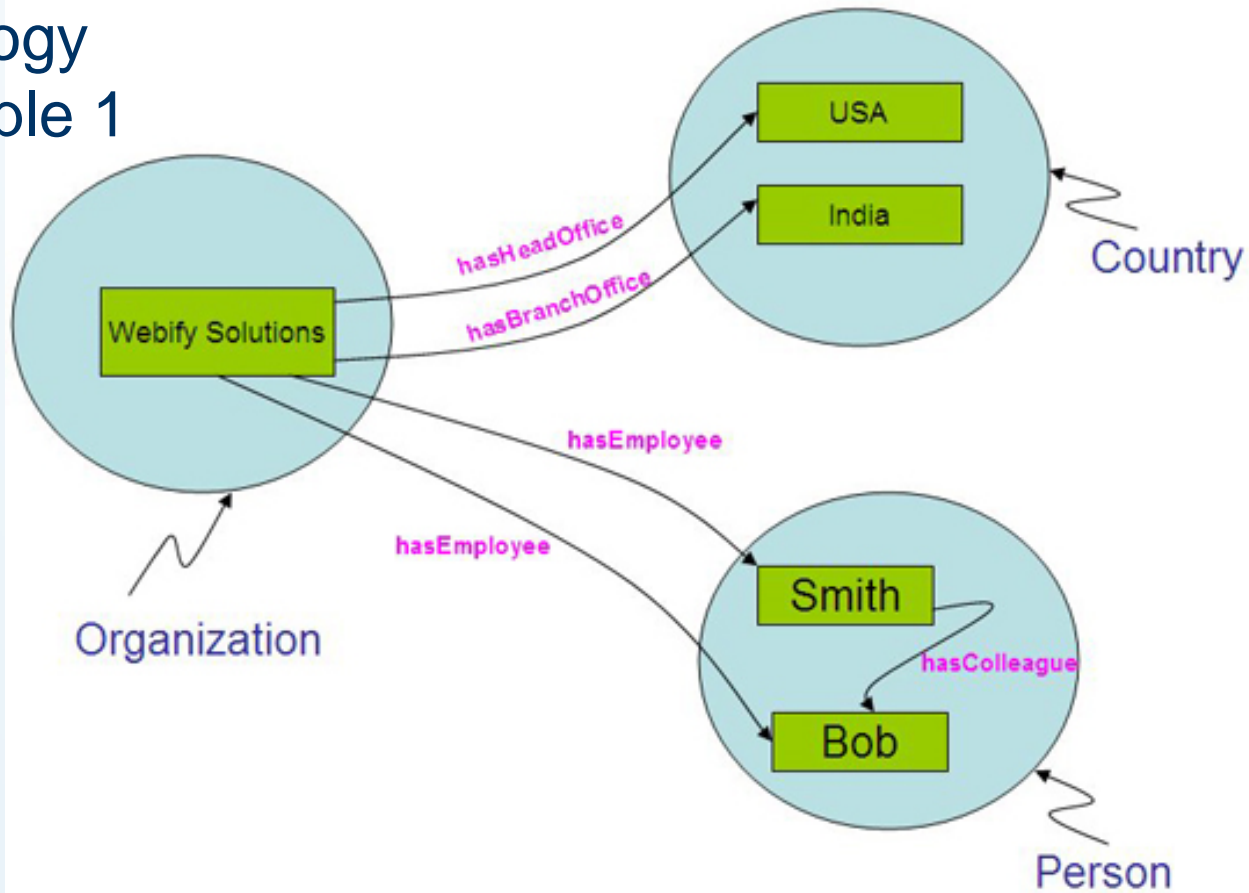
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Definitions: Specific Types



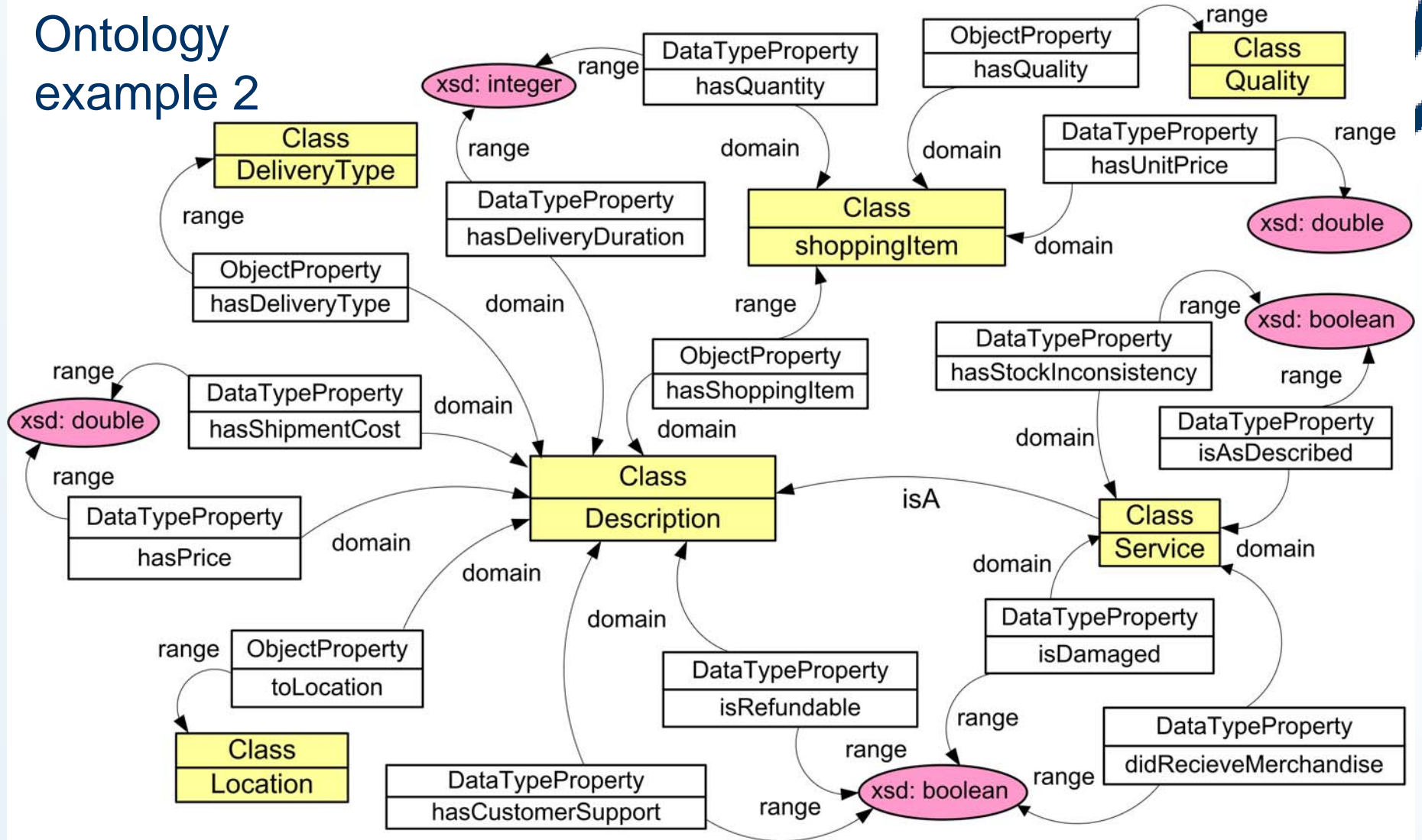
Ontology example 1



Definitions: Specific Types



Ontology example 2



Definitions: Summary



Term List/ Pick List	Synonym Ring	Authority File	Taxonomy	Thesaurus	Ontology
Ambiguity control	Synonym control	Ambiguity control Synonym control (preferred & non- preferred terms)	Ambiguity control Synonym control Hierarchical Relationships	Ambiguity control Synonym control Hierarchical Relationships Associative Relationships	Ambiguity control Synonym control Semantic Relationships Classes

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Purposes & Benefits



1. **Controlled vocabulary (CV):**
Brings together different wordings (synonyms) for the same concept and disambiguates terms
 - Helps people search for information by different names
 - Helps people retrieve matching concepts, not just words
2. **Hierarchical taxonomy or thesaurus:**
Organizes information into a logical structure
 - Helps people browse or navigate for information

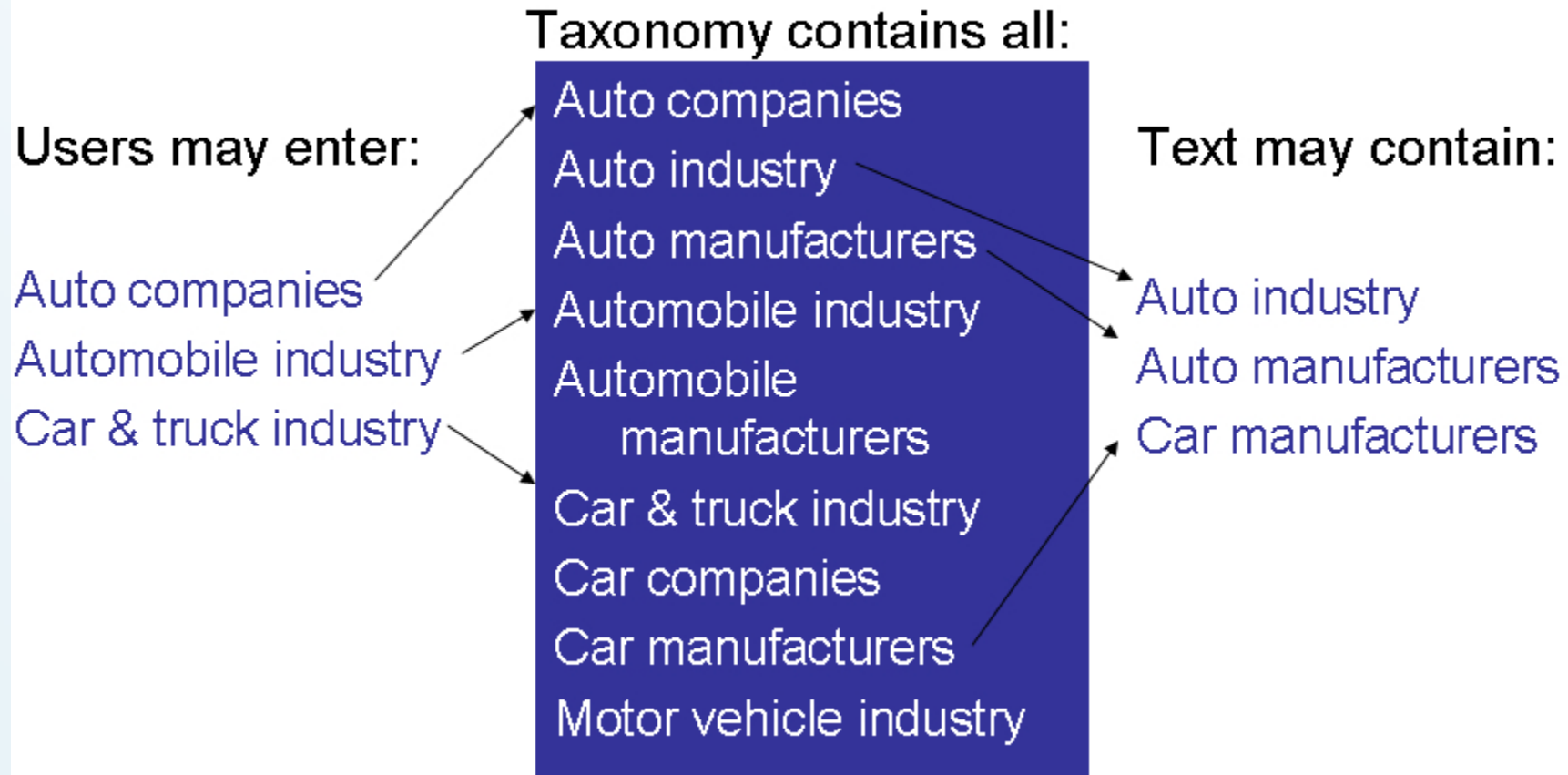
Purposes & Benefits: Controlled Vocabulary



➤ Helps people search for information by different names

- There are multiple ways to describe the same thing.
- A controlled vocabulary gathers synonyms, acronyms, variant spellings, etc.
- Without a controlled vocabulary keyword searches would miss some relevant documents, due to:
 - Use of different words (e.g. ***Automobiles***, instead of ***Cars***)
 - User does not knowing the spelling of unusual names (e.g. ***Condoleezza Rice***)

Purposes & Benefits: Controlled Vocabulary



Purposes & Benefits: Controlled Vocabulary



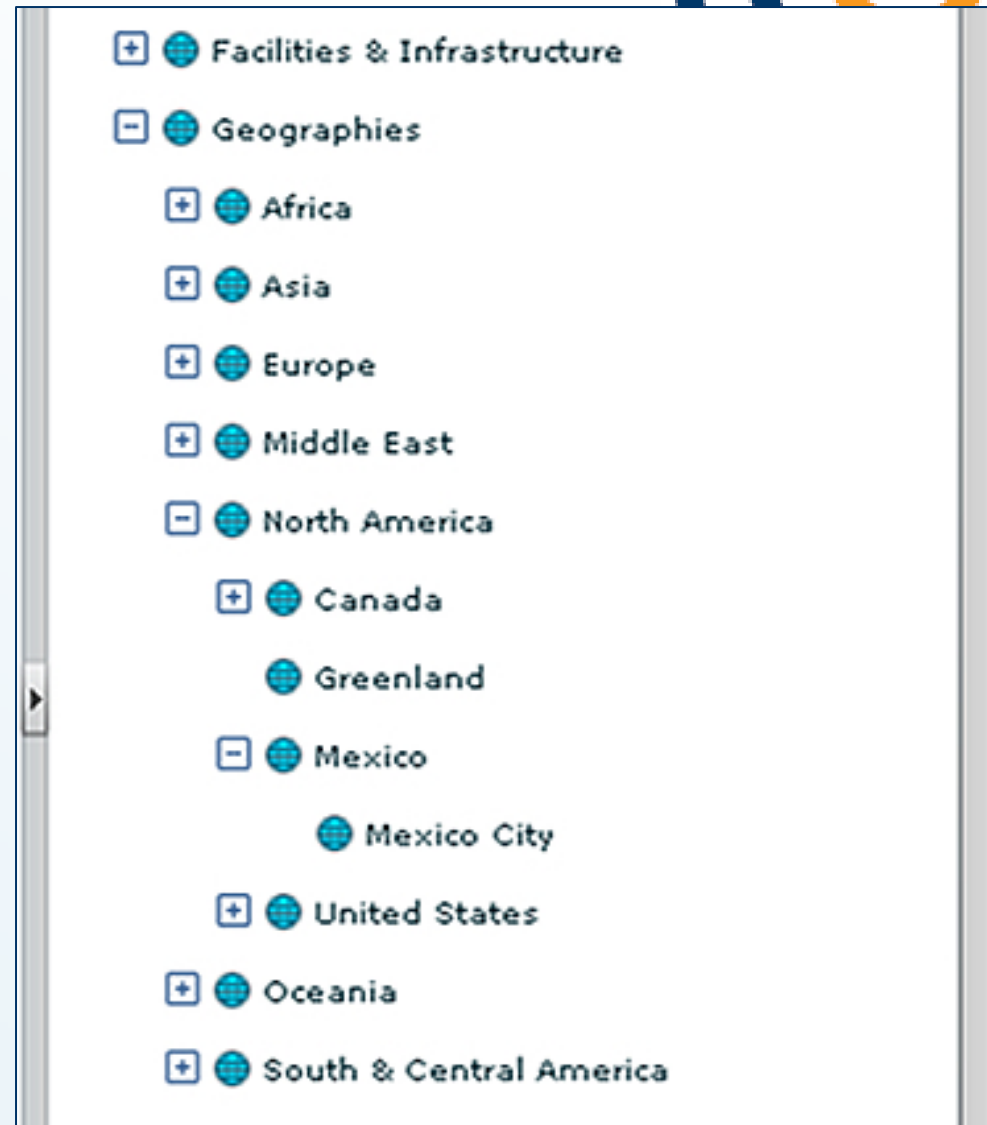
- Helps people retrieve matching concepts, not just words
 - A single term may have multiple meanings.
 - Controlled vocabulary terms can be clarified/ disambiguated.
 - Without a controlled vocabulary, too many irrelevant documents would be retrieved.
 - A search restricted on the controlled vocabulary retrieves concepts not just words.
 - Excludes document with mere text-string matches (e.g. *monitors* for computers, not the verb “observes”)

Purposes & Benefits: Hierarchical Taxonomy or Thesaurus

A hierarchical taxonomy provides guided search.

- Users can browse and locate narrower (more specific) subjects of interest.
- Users find out what is included and what is not.
- Users may find related subjects of interest.

Taxonomies reflect natural categories.



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Applications & Examples



Various applications, all to serve “findability”

1. Indexing/tagging support
(and secondarily, retrieval support)
2. Information retrieval support
3. Organization and navigation support

Applications & Examples



1. Indexing Support

- Manual/human:
 - Controlled vocabulary to support consistent indexing/tagging by multiple indexers who are indexing multiple different documents or records.
 - Often in a thesaurus display to support indexer browsing and finding the best term quickly.
- Automatic:
 - Uses synonym rings with additional “rules” and algorithms

Applications & Examples



Examples of human-indexing-support controlled vocabularies:

- Library of Congress Subject Headings (LCSH)
<http://authorities.loc.gov>
- Medical Subject Headings (MeSH)
<http://www.nlm.nih.gov/mesh/MBrowser.html>



LIBRARY OF CONGRESS AUTHORITIES

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SOURCE OF HEADINGS: Library of Congress Online Catalog

YOU SEARCHED: Subject Authority Headings = Human-computer interaction.

SEARCH RESULTS: Displaying 1 through 100 of 100.

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#	Bib Records	<i>select icon in first column to...</i> View Authority Headings/References	<u>Type of Heading</u>
1	556	Human-computer interaction.	LC subject headings
2	4	Human-computer interaction.	LC subject headings for children
3	1	Human-computer interaction--Abstracts--Periodicals.	LC subject headings
4	4	Human-computer interaction--Bibliography.	LC subject headings
5	0	Human Computer Interaction (Conference)	LC subject headings
6	0	Human-Computer Interaction Conference, Irish	LC subject headings
7	277	Human-computer interaction--Congresses.	LC subject headings
8	1	Human-computer interaction--Databases.	LC subject headings
9	1	Human-computer interaction--Directories.	LC subject headings
10	2	Human-computer interaction--Encyclopedias.	LC subject headings
11	1	Human-computer interaction--European Economic Community countries.	LC subject headings
12	11	Human-computer interaction--Fiction.	LC subject headings





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[MARC Display](#) [Labelled Display](#)

LC Control Number: sh 88003229

LC Class Number: QA76.9.H85

HEADING: Human-computer interaction

Used For/See From: Computer-human interaction

Human factors in computing systems

Interaction, Human-computer

Search Also Under: Human engineering

User-centered system design

User interfaces (Computer systems)

Scope Note: Here are entered works on the human factors in computer systems. Works on computer systems operating in a real-time environment are entered under Interactive computer systems.

Found In: Work cat.: Jones, M.K. Human-computer interaction, 1988.

LC data base, 5/19/88.

McGraw-Hill encyc. sci. tech., c1987: Index, 8-543-545.

Not Found In: Computer dict.; Standard glossary of computer terminology; IAC; Heme-pin

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MeSH Heading	Neurobehavioral Manifestations
Tree Number	C10.597.606
Tree Number	C23.888.592.604
Tree Number	F01.700
Annotation	not used for indexing
Scope Note	Signs and symptoms of higher cortical dysfunction caused by organic conditions. These include certain behavioral alterations and impairments of skills involved in the acquisition, processing, and utilization of knowledge or information.
Entry Term	Cognitive Manifestations
Entry Term	Cognitive Symptoms
Entry Term	Neurobehavioral Signs and Symptoms
Entry Term	Signs and Symptoms, Neurobehavioral
Allowable Qualifiers	CL DE ES PH RE
History Note	2000(1998)
Date of Entry	19970620
Unique ID	D019954

MeSH Tree Structures

Nervous System Diseases [C10]

Neurologic Manifestations [C10.597]

Cerebrospinal Fluid Otorrhea [C10.597.230]

Cerebrospinal Fluid Rhinorrhea [C10.597.267]

Decerebrate State [C10.597.305]

Dyskinesias [C10.597.350] +

Gait Disorders, Neurologic [C10.597.404] +

Meningism [C10.597.544]

▶ Neurobehavioral Manifestations [C10.597.606]

Catatonia [C10.597.606.115]

Communication Disorders [C10.597.606.150] +

Confusion [C10.597.606.337] +

Consciousness Disorders [C10.597.606.358] +

Lethargy [C10.597.606.441]

Memory Disorders [C10.597.606.525] +

Mental Retardation [C10.597.606.643] +

Perceptual Disorders [C10.597.606.762] +

Psychomotor Disorders [C10.597.606.881] +

Neurogenic Inflammation [C10.597.609]

Neuromuscular Manifestations [C10.597.613] +

Pain [C10.597.617] +

Pathological Conditions, Signs and Symptoms [C23]

Signs and Symptoms [C23.888]

Neurologic Manifestations [C23.888.592]

Cerebrospinal Fluid Otorrhea [C23.888.592.230]

Cerebrospinal Fluid Rhinorrhea
[C23.888.592.264]

Decerebrate State [C23.888.592.298]

Dyskinesias [C23.888.592.350] +

Gait Disorders, Neurologic [C23.888.592.413] +

Meningism [C23.888.592.544]

▶ Neurobehavioral Manifestations
[C23.888.592.604]

Apraxias [C23.888.592.604.080] +

Catatonia [C23.888.592.604.115]

Communication Disorders
[C23.888.592.604.150] +

Confusion [C23.888.592.604.339] +

Consciousness Disorders
[C23.888.592.604.359] +

Lethargy [C23.888.592.604.444]

Memory Disorders [C23.888.592.604.529] +

Mental Retardation [C23.888.592.604.646]

Perceptual Disorders [C23.888.592.604.764] +

Psychomotor Disorders
[C23.888.592.604.882] +

Neuromuscular Manifestations

Applications & Examples



2. Information Retrieval Support

- Displayed taxonomies
 - As browsable hierarchies
 - As facets
- Non-displayed taxonomies
 - Synonym rings match user entered terms to taxonomy terms

Applications & Examples



Displayed hierarchical taxonomy examples:

- Verizon Superpages
<http://www.superpages.com/yellowpages>
- Amazon.com book subject categories
<http://www.amazon.com/gp/homepage.html>

Phone Book - Browse our most popular categories:



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- Entertainment
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- Home & Garden
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Books > Computers & Internet > Databases > Database Design

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Laura Thomson (Paperback - Oct 11, 2009)
Buy new: ~~\$49.99~~ **\$31.49** [78 Used & new from \\$14.99](#)
Get it by **Monday, Aug 10** if you order in the next hour.
Eligible for **FREE Super Saver Shipping**.
★★★★☆ (201)

Applications & Examples



Displayed faceted taxonomy examples:

- Microbial Life Educational Resources
<http://serc.carleton.edu/microbelife/resources>
- Shoebuy.com - advanced search
http://www.shoebuy.com/s.jsp/r_as
- My recipes
<http://search.myrecipes.com>

Results 1 - 10 of 900 matches

[Yellowstone Resources and Issues Guide - Astrobiology](#) part of SERC Web Resource Collection
<http://www.lpi.usra.edu/education/EPO/yellowstone2002/li...>

This report explores the connection between geomicrobiology and astrobiology, explaining NASA's interest in the natural history of Yellowstone National Park. Multi-institution research teams are ...

Subject: Biology: Biology: Astrobiology, Microbiology, Ecology: Metabolism, Biology: Evolution, Diversity
Resource Type: Scientific Resources: Overview/Reference Work
Extreme Environments: Extremely Hot
Grade Level: Graduate/Professional, General Public, College Upper (15-16), College Lower (13-14)

[Microbiology in Yellowstone National Park](#) part of SERC Web Resource Collection
<http://www.wfed.org/resources/reports/article5.htm>

This site describes how Yellowstone National Park is a focal point for cutting-edge microbiology research and how it provides a valuable setting for outreach education. Topics include questions for ...

Subject: Biology: Biology: Microbiology
Resource Type: Scientific Resources: Overview/Reference Work
Extreme Environments: Extremely Hot

[Eukaryotes in Extreme Environments](#) part of SERC Web Resource Collection
<http://www.nhm.ac.uk/zoology/extreme.html>

This article is a compilation of information about free-living eukaryotes in extreme environments. Written in summary form, it includes anaerobes, thermophiles, psychrophiles, acidophiles, ...

Subject: Biology: Biology: Diversity, Microbiology, Biology
Resource Type: Scientific Resources: Overview/Reference Work
Extreme Environments: High Pressure, Anhydrous, Anoxic, Extremely Hot, Hypersaline, Alkaline, Acidic, Extremely Cold
Grade Level: Informal, General Public, Graduate/Professional, College Upper (15-16), College Lower (13-14), High School (9-12)

[Mono Lake Microbial Diversity](#) part of SERC Web Resource Collection
http://www.monolake.uqa.edu/reports/Mono_Lake_Microbial_...

This is a survey reporting the phylogenetic diversity of Mono Lake bacteria as conducted by the Mono Lake Microbial Observatory. Samples were collected from different layers of the lake and analyzed ...

Subject: Biology: Biology: Diversity: Censuses, Biology: Microbiology, Ecology: Metabolism
Resource Type: Scientific Resources: Research Results
Extreme Environments: Hypersaline, Altered by Humans, Alkaline
Grade Level: College Upper (15-16), Graduate/Professional

[Ice Cube of Exotic Microbes](#) part of SERC Web Resource Collection
<http://www.astrobio.net/news/article234.html>

This article describes a permafrost subglacial lake discovered beneath Antarctica. The lake offers scientists a chance to test their sterile drilling techniques before exploring elsewhere in search

Narrow the View ↴

Subject: Biology

[313 matches](#) General/Other
Astrobiology [100 matches](#)
Biogeochemistry [136 matches](#)
Diversity [157 matches](#)
Ecology [667 matches](#)
Evolution [231 matches](#)
Microbiology [900 matches](#)
Molecular Biology [190 matches](#)

Resource Type

Activities [136 matches](#)
Assessments [13 matches](#)
Course Information [34 matches](#)
Datasets and Tools [32 matches](#)
Audio/Visual [162 matches](#)
Computer Applications [21 matches](#)
Pedagogic Resources [63 matches](#)
Scientific Resources [771 matches](#)
Biographical Resources [4 matches](#)
Policy Resources [14 matches](#)

Extreme Environments

Alkaline [60 matches](#)
Acidic [65 matches](#)
Extremely Cold [61 matches](#)
Extremely Hot [139 matches](#)
Hypersaline [68 matches](#)
High Pressure [70 matches](#)
High Radiation [28 matches](#)
Anhydrous [34 matches](#)
Anoxic [73 matches](#)
Altered by Humans [71 matches](#)

Ocean Environments

Coastal and Estuarine [195 matches](#)
Shallow Sea Floor/Continental Shelf [32 matches](#)
Deep Sea Floor/Abyssal [46 matches](#)
Surface Waters [91 matches](#)
Deep Waters [29 matches](#)

Grade Level

Primary (K-2) [22 matches](#)
Intermediate (3-5) [121 matches](#)

Subject: **Biology** showing only [Biology](#) > [Ecology](#) > [Habitats](#) [↑ Show all Subject: Biology](#)

Resource Type showing only [Audio/Visual](#) > [Images/Illustrations](#) [↑ Show all Resource Type](#)

Extreme Environments showing only [Extremely Hot](#) [↑ Show all Extreme Environments](#)

Ocean Environments showing only [Deep Sea Floor/Abbyssal](#) [↑ Show all Ocean Environments](#)

Grade Level showing only [Middle \(6-8\)](#) [↑ Show all Grade Level](#)

Results 1 - 7 of 7 matches

[Sea Vent Viewer](#) part of SERC Web Resource Collection

<http://www.nsf.gov/news/overviews/earth-environ/interact...>

This web site serves as an educational overview of National Science Foundation (NSF) earth and environmental science research focusing on hydrothermal vent systems. It features an interactive viewer ...

Subject: **Biology**: Biology:Ecology:Habitats:Benthic, Biology:Diversity, Ecology:Habitats:Marine, Biology:Microbiology

Resource Type: **Audio/Visual**:Images/Illustrations, Scientific Resources:Overview/Reference Work, Audio/Visual:Animations/Video

Extreme Environments: High Pressure, Extremely Hot

Ocean Environments: Deep Sea Floor/Abbyssal:Hydrothermal Systems

Grade Level: Primary (K-2), Intermediate (3-5), College Lower (13-14), High School (9-12), Middle (6-8), Graduate/Professional, College Upper (15-16), General Public, Informal

[We're in Hot Water Now: Hydrothermal Vents](#) part of SERC Web Resource Collection

<http://www.nationalgeographic.com/xpeditions/lessons/07/...>

In this National Geographic lesson, students will use National Geographic's Yellowstone internet module to learn about the processes that drive geysers. The activity involves learning about ...

Subject: **Biology**: Biology:Ecology:Symbiotic Relations, Symbiotic Relations:Mutualism, Biology:Ecology:Metabolism, Habitats:Marine, Biology:Diversity, Ecology:Habitats:Benthic, Biology:Microbiology, Evolution

Resource Type: Computer Applications, Activities:Lab Activity, Audio/Visual:Images/Illustrations, Activities:Classroom Activity

Extreme Environments: Extremely Hot, High Pressure

Ocean Environments: Deep Sea Floor/Abbyssal:Hydrothermal Systems

Narrow the View ↴

Subject: **Biology** [Show all Subject: Biology](#)

[Biology](#) > [Ecology](#) > [Habitats](#)

Marine [7 matches](#)

Benthic [7 matches](#)

Resource Type [Show all Resource Type](#)

[Audio/Visual](#) > [Images/Illustrations](#)

[7 matches](#)

Extreme Environments [Show all Extreme Environments](#)

[Extremely Hot](#)

[7 matches](#)

Ocean Environments [Show all Ocean Environments](#)

[Deep Sea Floor/Abbyssal](#)

[1 match](#) General/Other

Hydrothermal Systems [7 matches](#)

Grade Level [Show all Grade Level](#)

[Middle \(6-8\)](#)

[7 matches](#)



Search Women's Shoes

Any Brand

Any Type

Any Category

Any Category

- Above the Ankle Boots
- Active Sandals
- Adjustable Strap Shoes
- Aerobic Shoes
- After Sport Sandals
- Airport Friendly Boots
- Alligator Shoes
- Amphibious Sandals
- Animal Print Shoes
- Animal Slippers
- Ankle Boots
- Ankle Strap Sandals
- Ankle Straps
- Approach Shoes
- Apres Ski Boots
- Aqua Socks
- Athletic Accessories
- Athletic Shoes
- Backless Sneakers

Search Men's Shoes

adidas

Athletic

Sneakers

10

Regular

Black

Any Country

\$65 - \$100

Search

Search Children's Shoes

Any Brand

Any Type

Any Category

Any Size

Any Width

Any Color

Any Country

Any Price

Search

[Spirit](#)

[Comfort](#)

[Leim](#)

[ton & Murphy](#)

[ss](#)

• [Mephisto](#)

• [Merrell](#)

• [Minnetonka](#)

• [Naturalizer](#)

• [New Balance](#)

• [Propet](#)

• [PUMA](#)

• [Reebok](#)

• [Rockport](#)

• [Saucony](#)

• [Skechers](#)

• [Softspots](#)

• [Sperry Top-Sider](#)

• [Stride Rite](#)

• [Stuart Weitzman](#)

• [Timberland](#)

Course

- [Main Dishes](#) (15504)
- [Desserts](#) (7530)
- [Side Dishes/Vegetables](#) (6182)

[Show More](#)

Convenience

- [Entertaining](#) (23804)
- [Make-Ahead](#) (13917)
- [Quick/Easy](#) (13186)

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Cost Per Serving

- [\\$1 and Under](#) (388)
- [\\$1.01 to \\$2](#) (394)
- [\\$2.01 to \\$3](#) (250)
- [\\$3.01 to \\$4](#) (94)
- [\\$4.01 and Up](#) (28)

Cuisine

- [American](#) (28614)
- [Italian](#) (3129)
- [New American](#) (2370)

[Show More](#)

Main Ingredient

- [Vegetables](#) (11246)
- [Fruits](#) (6297)
- [Poultry](#) (5287)

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Dietary Consideration

- [Meatless](#) (11299)
- [Low Cholesterol](#) (7534)
- [Low Saturated Fat](#) (7444)

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Cooking Method

- [Bake](#) (12470)
- [Food Processor](#) (2588)
- [Grill](#) (2449)

[Show More](#)

Occasion

- [Summer](#) (9512)
- [Autumn](#) (9185)



Jambalaya

Real Simple, DECEMBER 2004



Weeknight Ravioli Lasagna

All You, MARCH 2009



Green Bean Casserole

Oxmoor House, FEBRUARY 2006



Ravioli with Roasted Zucchini

Real Simple, APRIL 2005



Lemon-Stuffed Grilled Branzino

Food & Wine, SEPTEMBER 2009



Smoked Trout-and-Horseradish Spread

Southern Living, DECEMBER 2008



Artichoke, Spinach, and Feta Stuffed Shells

Cooking Light, DECEMBER 2006



Turkey Burgers with Grated Zucchini and Carrot

Real Simple, JUNE 2007



Applications & Examples



3. Organization and Navigation Support

- Categorical organization of a web site, intranet, portal structure, CMS areas
- Multi-level navigation menu labels
- Site maps (of topics, not just page titles)

Applications & Examples



Organizational/navigational taxonomy examples

- Digital Web Magazine topics
<http://www.digital-web.com/topics>
- Information Architecture Institute
<http://iainstitute.org/en/site-map.php>
- MyFlorida.com State of Florida site map
<http://www.myflorida.com/taxonomy>

Articles by Topic

Discover

- [Basics](#)
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- [Business](#)
- [Client Management](#)
- [Content Management Systems \(CMS\)](#)
- [Convergence](#)
- [E-Commerce](#)
- [E-Learning](#)
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- [Color](#)
- [Databases](#)
- [Graphic Design](#)
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- [Information Design](#)
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- [Keep It Simple \(KISS\)](#)
- [Liquid Web Design](#)
- [Motion Graphics](#)
- [Photography](#)
- [Prototyping](#)
- [Redesign](#)
- [Search](#)
- [Typography](#)
- [User Experience](#)
- [User-Centered Design \(UCD\)](#)
- [Web Design](#)

Build

- [API](#)
- [Browsers](#)
- [CSS](#)
- [Content](#)
- [DOM](#)
- [Email](#)
- [Flash](#)
- [HTML](#)
- [Mailing Lists](#)
- [Navigation](#)
- [PHP](#)
- [Programming](#)
- [RSS](#)
- [SVG](#)
- [Scripting](#)
- [Web Standards](#)
- [XHTML](#)
- [XML](#)

Evaluate

- [Accessibility](#)
- [Community](#)
- [Critique](#)
- [Human-Computer Interaction \(HCI\)](#)
- [ROI](#)
- [Search Engine Optimization \(SEO\)](#)
- [Usability](#)
- [Web Analytics](#)
- [Web Maintenance](#)

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The Information Architecture Institute supports individuals and organizations specializing in the design and construction of shared information environments.

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 - ▲ [What to expect from a mentor/protégé](#)
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 - ▲ [Sample mentoring agreement](#)
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 - ▲ [Progress Grant Details](#)
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 - ▲ [IAI Meta List](#)
 - ▲ [Second Life Initiative List](#)
- ▲ [Member Center](#)

IA Network

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 - ▲ [Local Group FAQ](#)
 - ▲ [Start a Local Group](#)
 - ▲ [Local Group Coordinator Survey](#)
- ▲ [GeoLocate IAs](#)
- ▲ [Find a Network](#)
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 - ▲ [IA Glossary](#)
 - ▲ [Local Groups](#)
 - ▲ [IA Library](#)
 - ▲ [IA Tools](#)
 - ▲ [Translation of IA](#)
 - ▲ [Second Life](#)
 - ▲ [Job Board](#)
- ▲ [Discuss IA](#)
- ▲ [Contribute Documents](#)

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- ▲ [Research](#)
 - ▲ [Salary Survey](#)
 - ▲ [Industry Surveys](#)
 - ▲ [IA White Papers](#)
 - ▲ [IAI Grant Research](#)
- ▲ [Education](#)
 - ▲ [Careers](#)
 - ▲ [Schools Teaching IA](#)
 - ▲ [IA Curriculum](#)
 - ▲ [Selected IA Books](#)
 - ▲ [IA Glossary](#)
 - ▲ [Elevator Pitches](#)
 - ▲ [Testimonials](#)
- ▲ [Library](#)
 - ▲ [Introduction to IA](#)
 - ▲ [Recently Added](#)
 - ▲ [Search the Library](#)
 - ▲ [About the Library](#)
 - ▲ [Browse by:](#)
 - ▲ [Subject](#)
 - ▲ [Resource Type](#)
 - ▲ [Author](#)
 - ▲ [Language](#)
 - ▲ [All Resources](#)
- ▲ [Tools](#)

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- ▲ [Our Mission](#)
- ▲ [People](#)
 - ▲ [Board of Directors](#)
 - ▲ [Staff](#)
 - ▲ [Advisory Board](#)
 - ▲ [Volunteer Initiative Leaders](#)
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- ▲ [Partners](#)
- ▲ [Global Initiatives](#)
- ▲ [Annual Report](#)

Utilities

- ▲ [Log-In](#)
- ▲ [Join](#)
- ▲ [Contact Us](#)
- ▲ [Privacy Policy](#)
- ▲ [About this Site](#)

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[Attractions](#)

[Kids Corner](#)

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[Traveling to Florida](#)

[Publications & Guides](#)

[Nature & Outdoor Activities](#)

[People & Places](#)

[Reservations](#)

Floridian

[People & Places](#)

[Disasters & Emergency Information](#)

[Health & Medical](#)

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[Research & Statistics](#)

[Consumer Information](#)

[Working in Florida](#)

[History & Culture](#)

[Education](#)

[Home and Family](#)

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[Florida Military Information](#)

[Communities](#)

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[Just for Kids](#)

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[Transportation & Travel](#)

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[Welcome to Florida Government](#)

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[Communities](#)

[Florida Government Information](#)

[State Purchasing](#)

[Executive Branch](#)

[Regional Councils and Districts](#)

[News and Consumer Alerts](#)

[For State Employees](#)

[Taxes](#)

[Legislative Branch](#)

[Local Government](#)

[Statistics and Reports](#)

[Federal Government Information](#)

[Other State Services](#)

Business

[Enterprise Development and Technology](#)

[Florida Workforce](#)

[Environment](#)

[General Topics](#)

[Starting a Business in Florida](#)

[Business Licenses, Permits and Regulation](#)

[Transportation Planning](#)

[Doing Business with the State](#)

[Agriculture](#)

[Taxes](#)

Outline

1. Introduction
2. Definitions
3. Purposes & Benefits
4. Applications & Examples
5. Creating & Wording of Terms
6. Non-preferred Terms
7. Hierarchical Relationships
8. Associative Relationships
9. Indexing, Metadata, and Folksonomies
10. Resources



Creating & Wording of Terms



Variously Called:

- Terms - generic, common designation
- Nodes - in hierarchical "trees"
- Concepts - term + synonyms, attributes, relationships, etc.
- Objects - same as concept, in object-oriented databases
- Descriptors - preferred term, excludes non-preferred
- Preferred terms - excludes non-preferred terms
- Topics - preferred term, not a named entity
- Categories - preferred term, not a named entity, for classification in hierarchies

Creating & Wording of Terms



Deciding whether a concept should be a term

1. Is it within the subject-area scope of the CV?
2. Is it important, likely to be looked up
3. Is there enough information (or sufficient anticipated information)
4. Do users want and expect it?

Creating & Wording of Terms



Deciding which should be the preferred term

- Choosing between two synonyms:
 - **Doctors** vs. **Physicians**
 - **Movies** vs. **Motion pictures**
 - **Cars** vs. **Automobiles**

Consider:

1. Wording of terms most likely looked up by the intended users/audience, especially in browsed CV
2. Enforcing organizational/enterprise controlled vocabulary
3. Conforming to academic or professional standards
4. Consistency in style throughout the CV
5. Wording with in the documents/content indexed

Creating & Wording of Terms



Term format

- Lower case or initial caps, consistently; not title caps
- Single words or multi-word phrases
- Nouns or noun phrases
- Common nouns or proper nouns

- Adjectives alone can be terms in special circumstances and where noun is obvious from context.
- Countable nouns are usually plural.
- Parenthetical qualifiers may be used for disambiguation, not modification.
- Avoid term inversions.

Creating & Wording of Terms: Term Notes



- Terms may have notes.
- If included, not all terms need notes.
- May have multiple types/purposes of notes
- For searcher, indexer, or both
- Basic standard note is: Scope Note (SN)
 1. To restrict or expand the application of a term
 2. To distinguish between terms of overlapping meaning (may have reciprocal notes)
 3. To provide advice on term usage

Creating & Wording of Terms: Term Notes: Examples



ProQuest Controlled Vocabulary

Occupational health

SN: Employer activities designed to protect and promote the health and safety of employees on the job

Inequality

SN: Socioeconomic disparity stemming from racial, cultural, or social bias

Medical Subject Headings (MeSH)

Nonverbal Communication

Annotation: human only; for animals use ANIMAL COMMUNICATION or VOCALIZATION, ANIMAL

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Non-preferred Terms

- Terms for which a designated preferred term should be used instead.
- Have various designations:

- Variants
- Non-preferred terms
- Non-postable terms
- NPT
- Nondescriptors
- Equivalent terms
- Equivalency relationship
- Alternate terms
- Entry terms
- Used for terms
- Use for terms
- See references
- Use references
- Cross-references
- Synonyms
- Aliases
- Keywords



Non-preferred Terms



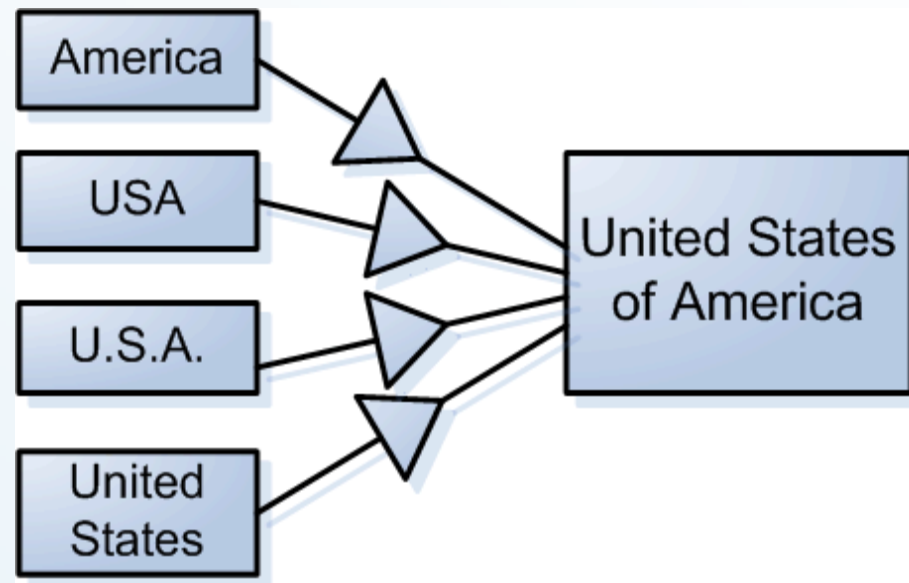
- Standard thesaurus notation: USE / UF
- Examples:
 - **Public procurement USE Government purchasing**
 - **Dress design USE Costume design**
 - **Eskimos USE Inuit**
 - **Inundations USE Floods**
- Sometimes instead: See
- Also considered a kind of “Relationship”: Equivalency
- Relationship is reciprocal: **Use** and **Used from**
 - **Inundations USE Floods**
 - **Floods UF Inundations**

Non-preferred Terms



Depending on the search/retrieval system, often a non-preferred term may point to only one preferred term. Usually no “multiple USE” references

Many-to-one,
rather than one-to-many



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Creating Term Relationships



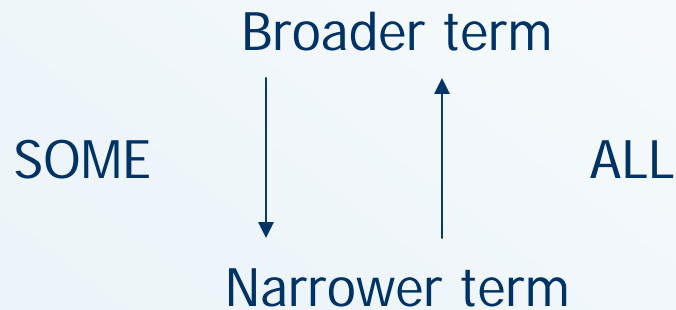
1. Equivalence: Use (USE) / UF Used for)
2. Hierarchical: Broader term (BT) / Narrower term (NT)
3. Associative: Related term (RT)
4. Semantic: More specific types of USE/UF, BT/NT or RT

Relationships are reciprocal between terms.

Hierarchical (Broader/Narrower) Relationships



Asymmetrical reciprocal relationships



Fruits NT Apples Apples BT Fruits

Three types:

1. Generic - Specific
2. Common noun - Proper noun (instance)
3. Whole – Part

Hierarchical (Broader/Narrower) Relationships



1. Generic - Specific:

Category or class

- members
- more specific types

- Narrower term “is a” broader term
- Standard notation:
BTG / NTG

Examples:

Plants

NT **Trees**

Financial services

NT **Investment services**

Romance languages

NT **Italian**

Hierarchical (Broader/Narrower) Relationships



2. Instance:

Common noun

– Proper noun

- Narrower term “is a” broader term
- Standard notation:
BTI / NTI

Examples:

National parks

NT **Grand Canyon**

Children’s writers

NT **Rowling, J.K.**

Holidays

NT **Thanksgiving**

Hierarchical (Broader/Narrower) Relationships



3. Whole - Part:

Concept or Entity

– part

– subentity

- Narrower term “is in” broader term
- Standard notation:
BTP / NTP

Examples:

U.S. Congress

NT **U.S. Senate**

Colorado

NT **Denver**

Digestive system

NT **Stomach**

Engineering

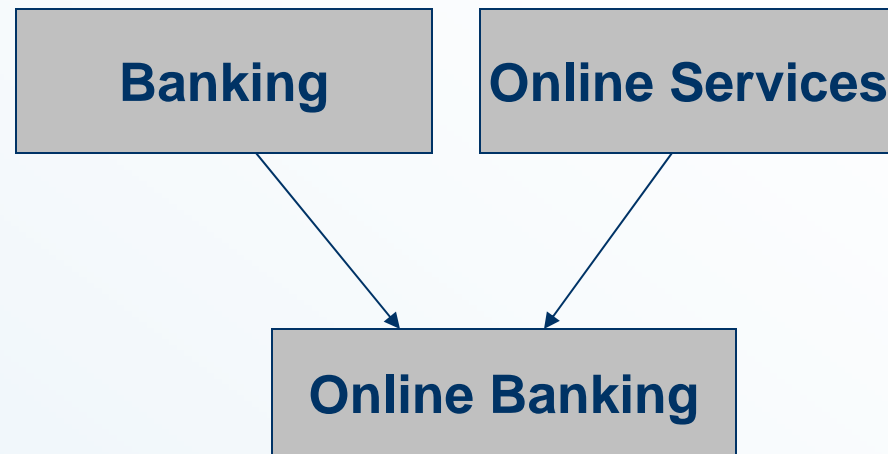
NT **Electrical engineering**

Hierarchical (Broader/Narrower) Relationships



Polyhierarchies

Sometimes a term can have two or more broader terms.

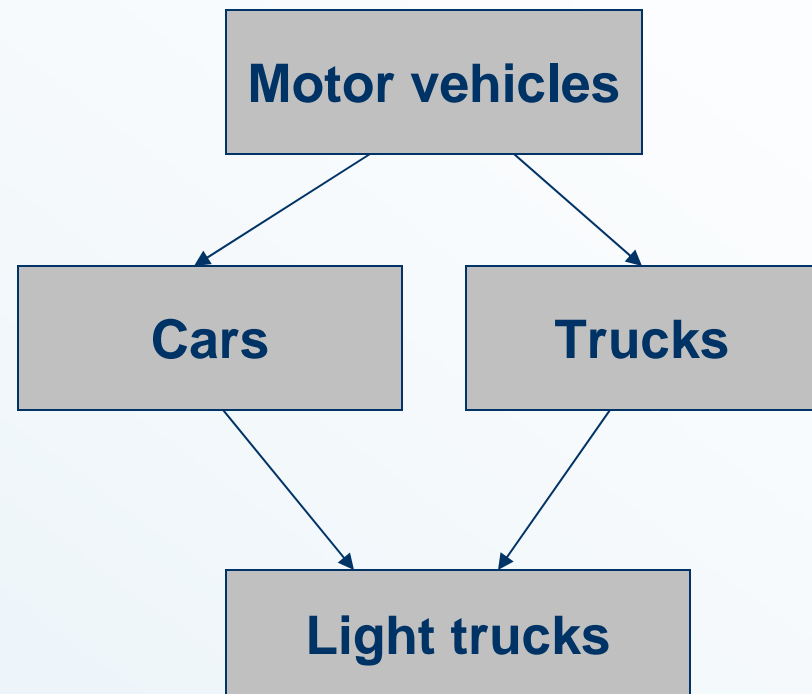
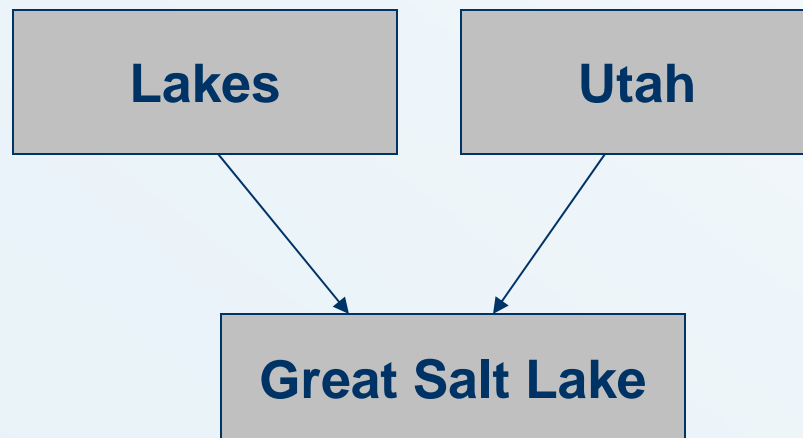


Hierarchical (Broader/Narrower) Relationships



Polyhierarchies

- Based on different means of categorizing
- Based on generic relationship



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Associated Term Relationships



- Suggestions to the user of possible related terms of interest
- Not used in simple hierarchical taxonomies
- Required feature of standard thesauri
- Standard designation of RT
- Default is symmetrically bi-directional relationship
- Between terms within the same hierarchy or in different hierarchies
- Called:
 - Related terms
 - Associated terms
 - See also

Associated Term Relationships

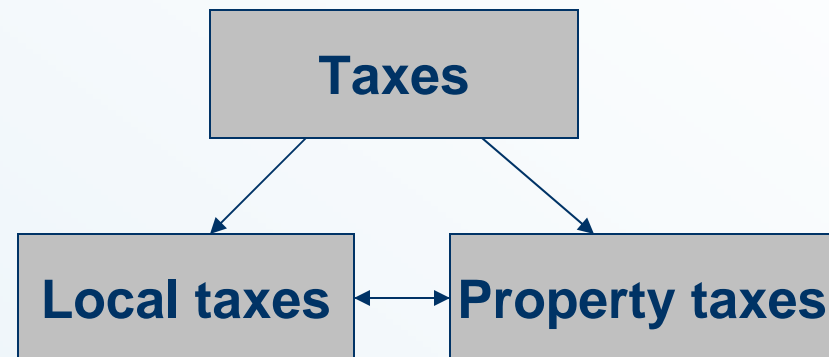
Between terms within the same hierarchy



1. Having a shared broader term (siblings) and overlapping meaning

Example:

Required RT links, according to the standards



Associated Term Relationships



- Siblings with overlapping meaning: examples
 - **Boats – Ships**
 - **Children's books – Picture books**
 - **Taxonomists – Librarians**
 - **Middle East – North Africa**
 - **Telecommunications industry – Media industry**
- Remember: In some CVs, concepts with overlapping meanings might be combined into a single term for simplification.



Associated Term Relationships

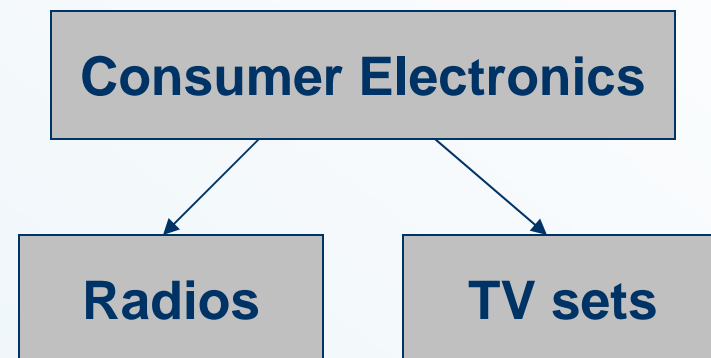
Between terms within the same hierarchy

2. Siblings *without* overlapping meaning (mutually exclusive terms)

Optional, and usually not done.

Not incorrect, but better left out.

Example:

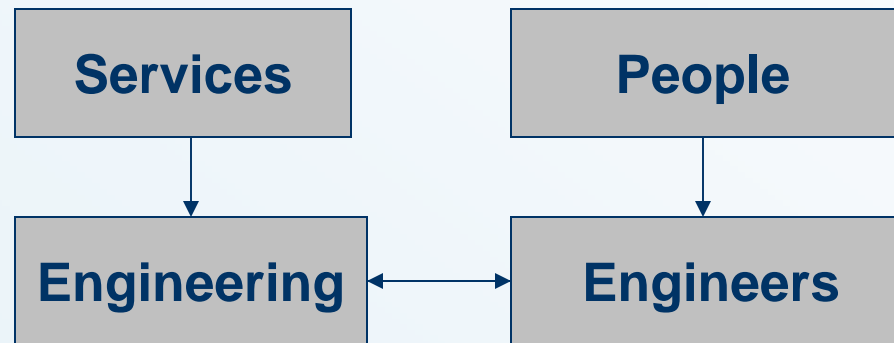


Associated Term Relationships



Between terms in different hierarchies

- As with non-preferred terms, if a search box exists, don't assume user relies on A-Z browse. Include alphabetically neighboring relationships.



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Indexing & Controlled Vocabularies

Controlled vocabularies (especially thesauri) are used for:

- Indexing by indexers
- Cataloging by catalogers
- Tagging by taggers
- Classifying by editors

Whatever you call it/them, these people need continued support:

- Communicating new terms
- Improving indexing quality and consistency
- Indexing/tagging/cataloging software usability



Automated indexing & CVs

Search engines

- Not as accurate as human indexing, but more efficient for large volumes of frequently updated data.
- Some search engines integrate controlled vocabularies, and some do not.
- CV, at least of the synonym ring type, matches user-entered terms with words in texts.

Metadata & Controlled Vocabularies



- Metadata is data about data (like information on cards in a card catalog)
- Metadata can include: subject(s), author, title, date, source, document type, format, approval status, ownership, audience, purpose, brief description, etc.
- Controlled vocabularies can/should be used for most of these elements (excluding title, date, description)

CV/Taxonomy Governance



- Maintenance
- Policy creation and enforcement
- Metadata specification

- Concerns the CV and associated materials
 - Editorial Style Guide
 - Taxonomy Training Materials
 - Metadata Standard
 - Team rules and procedures (subject to exec. review)

Social tagging/Folksonomies



- Also called collaborative tagging, social classification, social indexing
- Use of non-controlled or only semi-controlled vocabularies
- Indexing (called tagging) done by content creators and by the users/consumers, not by indexers
- Dynamic
- Popular on the Web since 2004: [Flickr](#), [del.icio.us](#), [LibraryThing](#)
- Now moving into enterprises

Social tagging/Folksonomies



- Advantages
 - Reflects trends, up-to-date, can monitor change and popularity
 - Cheaper and quicker than building and maintaining a taxonomy
 - Facilitate workplace democracy and the distribution of management tasks
 - Responsive to user needs
- Disadvantages
 - Inconsistent – serious precision & recall deficiencies
 - Biased
 - Requires critical mass of involvement to be useful
- Solutions/trends:
 - Some degree of vocabulary control
 - Applicable to certain areas of content, not all

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1. Introduction
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4. Applications & Examples
5. Creating & Wording of Terms
6. Non-preferred Terms
7. Hierarchical Relationships
8. Associative Relationships
9. Indexing, Metadata, and Folksonomies
10. Resources

Resources: Books



- ANSI/NISO Z39.19 (2005) *Guidelines for Construction, Format, and Management of Monolingual Controlled Vocabularies*. Bethesda, MD: NISO Press.
- Harping, Patricia. (2010) *Introduction to Controlled Vocabularies: Terminology for Art, Architecture, and Other Cultural Works*. Los Angeles: Getty Research Institute.
- Hedden, Heather. (2010). *The Accidental Taxonomist*. Medford, NJ: Information Today Inc.
- Lambe, Patrick. (2007). *Organising Knowledge: Taxonomies, Knowledge and Organisational Effectiveness*. Oxford, England: Chandos Publishing.
- Stewart, Darin L. (2008) *Building Enterprise Taxonomies*. Portland, OR: Mokita Press.

Resources: Organizations



- Special Libraries Association (SLA): Taxonomy Division
<http://wiki.sla.org/display/SLATAX/Taxonomy+Home>
- American Society for Indexing: Taxonomies & Controlled Vocabularies Special Interest Group
<http://www.taxonomies-sig.org>
- Information Architecture Institute
<http://iainstitute.org>
- American Society of Information Science & Technology
<http://www.asis.org>

Resources: Discussion Groups



- Taxonomy Community of Practice
<http://finance.groups.yahoo.com/group/TaxoCoP>
- Taxonomies & Controlled Vocabularies SIG, ASI
<http://finance.groups.yahoo.com/group/taxonomies>
- Metadatalibrarians
<http://metadatalibrarians.monarchos.com>

Resources: Workshops, Seminars



- Taxonomy Community of Practice Webinar phone calls
 - \$50 each. Occasionally free vendor-sponsored calls.
 - Usually first Wednesday of the month, 1:00-2:00 pm EST
 - www.earley.com/TaxoCoP.asp
- "Taxonomies and Controlled Vocabularies"
Simmons College Graduate School of Library and Information Science
Continuing Education Program
 - 5 weeks long. \$250. Next open session is October, 2010.
 - www.simmons.edu/gslis/continuinged/workshops
- Taxonomy Boot Camp conference
 - Information Today Inc.
 - Next: Next: November 15-16, 2010, Washington, DC
 - www.taxonomybootcamp.com

Resources: Web Sites



- **Taxonomy Community of Practice Wikispace**
<http://taxocop.wikispaces.com>
- **Taxonomy Guide, Faculty of Information Studies, University of Toronto**
<http://plc.fis.utoronto.ca/tgdemo/default.asp>
- **Construction of Controlled Vocabularies: A Primer**
<http://www.slis.kent.edu/%7Emzeng/Z3919/index.htm>
- **Thesaurus Construction tutorial by Tim Craven**
<http://publish.uwo.ca/~craven/677/thesaur/main00.htm>
- **Willpower Information: Publications on thesaurus construction and use**
<http://www.willpowerinfo.co.uk/thesbibl.htm>
- **Taxonomy Watch Blog by Linda Farmer**, <http://taxonomy2watch.blogspot.com>
- **Earley & Associates** <http://www.earley.com>
- **Taxonomy Strategies** <http://www.taxonomystrategies.com>

Questions



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