Taxonomies, Ontologies and Knowledge Graphs
Taxonomy

is a

Knowledge map displays a knowledge domain

Classification scheme groups together related things

Semantic representation made from a controlled vocabulary

can be turned into a
Faceted Taxonomies: Start Search From Any Perspective, Progressively Filter Results
Taxonomy

- List or Hierarchy
- BT/NT/RT relationships
- Matrix and Facet forms
- Visual navigation
- Human friendly
- Built for known needs
### Thesaurus

- **BT/NT/RT/ USE/UF relationships**
- **Dictionary navigation**

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<td>NT Exhaust emissions</td>
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<td>NT Ozone layer</td>
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<td>RT Annex VI</td>
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can be turned into an

in your

in the form of a

for easy

contains alternates for

expresses broader, narrower, related relationships between

facets

matrix

comprehension

dictionary

ontology

expresses many different kinds of relationships between

in the form of a

poly hierarchy

hierarchy

system map

tree

list

terms

comprising the
**Ontology**
- Maps unlimited types of relationship between concepts
- Difficult to build and maintain - especially for fluid, imprecise environments
- Machine friendly not human friendly
- Built for multiple potential needs

**Taxonomy**
- List or Hierarchy
- BT/NT/RT relationships
- Matrix and Facet forms
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- Built for known needs
Breathe.... Now we’re going to talk about Knowledge Graphs, Taskonomies and leading into Search Based Apps
Carl Linnaeus
Botanist

Carl Linnaeus, also known after his ennoblement as Carl von Linné, was a Swedish botanist, physician, and zoologist, who laid the foundations for the modern biological naming scheme of binomial nomenclature. Wikipedia

Born: May 23, 1707, Råshult, Sweden
Died: January 10, 1778, Linnaeus Hammarby, Sweden
Children: Carl Linnaeus the Younger, more
Parents: Nils Ingermansson Linnaeus, Christina Brodersonia
Education: University of Harderwijk (1735–1735), Lund University, Uppsala University

Books

- Systema Naturae 1735
- Species Plantarum 1753
- Linnaeus' Philosophia Botanica
- Genera Plantarum 1737
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Washington, D.C.

Capital of United States of America

Washington, D.C., formally the District of Columbia and commonly referred to as Washington, "the District", or simply D.C., is the capital of the United States. Wikipedia

Area: 176.9 km²
Weather: 9°C, Wind W at 3 km/h, 72% Humidity
Local time: Friday 2:52 AM

Points of interest

- National Mall
- Smithsonian Institution
- United States Capitol
- White House
- National Air and Space Museum

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View 35+ more
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Address: 1000 H St NW, Washington, D.C. 20001, United States
Phone: +1 202-582-1234
Hotel class: 4 stars

Reviews
3.4 ★★★★★ 92 Google reviews

More reviews: booking.com, priceline.com, hotelclub.com, hotelchatter.com

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**Taxonomy Facets**

- People
- Places
- Institutions

**Content Sources**

- Wikipedia
- Weather server
- Time server
- Map server
- Reviews
- Web pages
- Structured databases

**Salient Relationships**

- Between facets
- Between concepts
- Between facets and content
- Between content and content
- Mapping is active and passive

**Contextual Analysis**

- Taskonomy → user needs
- Disambiguation cards
- Frequent next action
Relevance vs Salience

**Relevance**

Retrieved results meet the need expressed in the query.

Retrospective, against defined needs.

Supports finding stuff you are looking for.

**Salience**

Having the quality of standing out as especially significant.

Has continuing utility, meets as-yet unexpressed needs.

Supports discovery of stuff you didn’t know existed.
## Taxonomy vs Ontology vs Knowledge Graph

**Taxonomy**

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- Hierarchical
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**Thesaurus**

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**Knowledge Graph**

- Maps *salient* entities and relationships
- Can map to content as well as concepts
- Highly scalable, flexible, evidence-based, built for known need
Taskonomy: an arrangement to enable common work tasks
"I’m prescribing medication for a patient. I want to immediately identify medication appropriate to a diagnosis, that we have in stock. I want to check contraindications against my patient’s medical history. I want to be aware of any incidents involving the selected medication, and I want to be able to advise the patient on how to manage their daily life while on the medication."

Search Based Applications are fed by Taskononomies (+ Taxonomies + Knowledge Graphs)
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Pharmaceuticals database (subscription)

Taxonomies & Thesauri

- Resolve vocabularies to common terms
- Support navigation

Knowledge graphs

- Map relationships between concepts & concepts and between concepts and content
- That are salient to the task at hand

Incident reporting system

ePharmacy (hospital)

Patientslikeus.com (social)

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