

# Discovery with Linked Open Data: Leveraging Wikidata for Context and Exploration

Lucas Mak

Devin Higgins (me) @devinhhi

Michigan State University Libraries

Digital Repository: <https://d.lib.msu.edu>

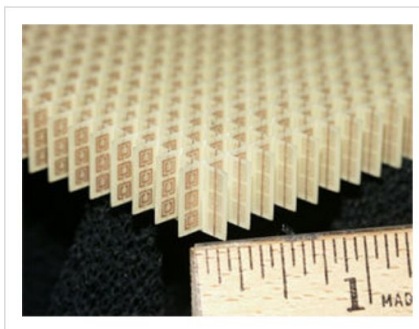
*Main Idea* Use linked data to provide meaningful information about subject headings, and provide avenues for discovery through hierarchical subject connections and enriched context.

# FAST subjects provide the links

- OCLC publishes FAST as linked data in 2011.
  - Available via [bulk download](#) or via [API](#)
  - Contains links to:
    - LCSH, LCNAF, VIAF, GeoNames
    - And more...
- Experimental reconciliation against Wikipedia in 2016

Authors	<a href="#">Quedraogo, Raoul O</a>
Thesis Advisors	<a href="#">Rothwell, Edward J.</a>
Committee members	<a href="#">Diaz, Alejandro</a> <a href="#">Kempel, Leo</a> <a href="#">Balasubramaniam, S</a> <a href="#">Wei, Guowei</a>
Date	2011
Subjects	<a href="#">Metamaterials</a> ⓘ <a href="#">Antennas (Electronic)</a> <a href="#">Miniature electronic</a> <a href="#">Electric filters, Wave</a>
Language	English
Pages	xvii, 250 pages
Copyright	This item is protected by copyright and related rights. For more information, see the Creative Commons Attribution-NonCommercial-ShareAlike license.

## Metamaterial



A metamaterial (from the Greek word μετά meta, meaning beyond) is a material engineered to have a property that is not found in nature. They are made from assemblies of multiple elements fashioned from composite materials such as metals or plastics. The materials are usually arranged in repeating patterns, at scales that are smaller than the wavelengths of the phenomena they influence.

[More on Wikipedia](#)

### Broader terms

[Composite materials](#)

### Related terms

[Electromagnetism](#)

Close

# Subject Knowledge Cards

```
graph TD; A[Subject Knowledge Cards] --> B[Connections]; A --> C[Context];
```

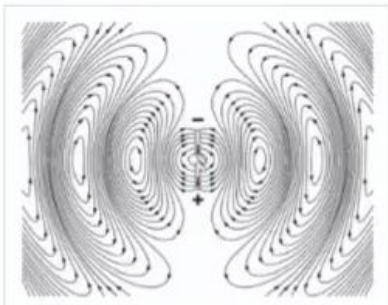
Connections

Broader, Narrower  
and Related Terms;

Context

Data points from  
Wikidata and DBpedia

## Antenna (radio)



In radio and electronics, an antenna (plural antennae or antennas), or aerial, is an electrical device which converts electric power into radio waves, and vice versa. It is usually used with a radio transmitter or radio receiver. In transmission, a radio transmitter supplies an electric current oscillating at radio frequency (i.e. a high frequency alternating current (AC)) to the antenna's terminals, and the antenna radiates the energy from the

[More on Wikipedia](#)

### Narrower terms

[Antenna arrays](#)  
[Log-periodic antennas](#)  
[Microwave antennas](#)  
[Optical antennas](#)  
[Phased array antennas](#)

### More results

[JSTOR](#)  
[Library catalog](#)

Close

## Nicaragua



Nicaragua (/ˌnɪkəˈrɑːɡwə, -ræ-ˌɡjuə/; Spanish: [ˈnikaˈraɣwa]), officially the Republic of Nicaragua (Spanish: [ˈrepublikaˈnikaˈraɣwa]), is the largest country in the Central American isthmus. Nicaragua's capital, Managua, is the country's largest city and the third-largest city in Central America. The multi-ethnic population of six million includes indigenous peoples, Europeans, Africans, and Asians. The main language is Spanish. Native tribes on the

[More on Wikipedia](#)

[View in Google Maps](#)

<b>Country</b>	Nicaragua
<b>Capital</b>	Managua
<b>Start Date</b>	1821

### More results

[PubMed](#)  
[Library catalog](#)

Close

## Environmental monitoring



Environmental monitoring describes the processes and activities that need to take place to characterise and monitor the quality of the environment. Environmental monitoring is used in the preparation of environmental impact assessments, as well as in many circumstances in which human activities carry a risk of harmful effects on the natural environment. All monitoring strategies and programmes have reasons and justifications which are

[More on Wikipedia](#)

### Broader terms

[Environmental engineering](#)

### Narrower terms

[Biodiversity--Monitoring](#)  
[Environmental impact analysis](#)  
[Environmental indicators](#)  
[Water quality biological assessment](#)

### Related terms

[Pollution--Measurement](#)

### More results

[JSTOR](#)  
[PubMed](#)  
[Library catalog](#)

Close

Use **AJAX** to gather data about subjects

Biodiversity--Monitoring 

Environmental monitoring

Environmental protection

Indigenous peoples--Ecology 

Human-animal relationships 

Ecology

Nicaragua

## Via API

Broader Terms: Subject → <skos:broader>

Related Terms: Subject → <skos:related>

Narrower Terms: <skos:broader> → Subject

*Cross reference in repository:*

Only display terms that appear in our index.



# Data points captured via SPARQL query of WikiData

## ***General***

Image, Abstract, Wikipedia link

## ***Geographic names***

Coordinates, Country, Capital, Official language

## ***Corporate bodies***

Founder, Start date, End date, Location, Headquarters  
location, Website

## ***Person***

Birth date, Death date, Gender, Occupation

**Author** Le Tellier, Hervé, 1957-  
**Title** Esthétique de l'Oulipo / Hervé Le Tellier.  
**Publisher** Bordeaux : Le Castor astral, [2006]. ©2006.  
**Citation** Cite this item (from WorldCat) by OCLC

**LOCATION**

**CALL NUMBER**

MSU MAIN LIBRARY [Map It!](#)

PQ22.O8 L4 2006

[Send via Text Me](#)

**Description** 334 pages : illustrations ; 21 cm  
**Format** text  
unmediated  
volume  
**Bibliography** Includes bibliographical references (page [329]) and indexes.  
**Subject** Oulipo (Association) ⓘ  
Literature, Experimental -- France -- History and criticism. ⓘ  
French literature -- 20th century -- History and criticism.  
**More Terms** Experimental Literature Poetry 20th-21st Century OULIPO Aesth  
**ISBN** 2859206337 (pbk.)  
9782859206338 (pbk.)

[Permanent record link ⓘ](http://catalog.lib.msu.edu/record=b5149114~S16a): <http://catalog.lib.msu.edu/record=b5149114~S16a>

**Reader Reviews**

[Be the First to Write](#)

**Tags**

Experimental literature ✕



Experimental literature refers to written work—usually fiction or poetry—that emphasizes innovation, most especially in technique.

[More on Wikipedia](#)

**Broader terms**

- [Avant-garde \(Aesthetics\)](#)
- [Literary style](#)
- [Modernism \(Literature\)](#)

**Narrower terms**

- [Experimental drama](#)
- [Experimental fiction](#)
- [Experimental poetry](#)

[Close](#)

# Limitations

- Not every concept/entity has a Wikidata entry
  - Esp. subdivided headings, compound headings, headings qualified by nationality, ethnic group, or language
- Differences in data modeling
  - Wikidata has separate entries for Asparagus (genus),
  - *Asparagus officinalis* (species), and Asparagus
  - (vegetable). FAST / LCSH collapses these into one.
- Name changes
  - FAST / LCSH separate entries for Michigan State University / Michigan State College. Wikidata treats these as aliases of the same entity.



# Limitations

- Wikipedia: its vastness, inconsistency, lacunae
  - Tertiary source, “needs its own lens of both caution and possibility” -- Anasuya Sengupta, DLF 2018
- Library of Congress: Slowness to change, incompleteness, unfitness for many knowledges.

# Discovery with Linked Open Data: Leveraging Wikidata for Context and Exploration

Lucas Mak

Devin Higgins (me) @devinhhi

Michigan State University Libraries

Digital Repository: <https://d.lib.msu.edu>