



Structured Data in WordPress

By Koen Van den Wijngaert



We need a way to comb through and make sense of an enormous amount of data.



But... Why?



I have a dream for the Web become capable of analyzing all the data on the Web – the content, links, and transactions between people and computers.

A "Semantic Web", which makes this possible, has yet to emerge, but when it does, the day-to-day mechanisms of trade, bureaucracy and our daily lives will be handled by machines talking to machines.

Tim Berners-Lee, 1999

Semantic Web

“The ultimate goal of Semantic Web is to make the machine to understand the Internet data.”

- ✓ Technology to describe concepts, relationships between things, and categories of things
- ✓ Focus on linking and relations: **Giant Global Graph**



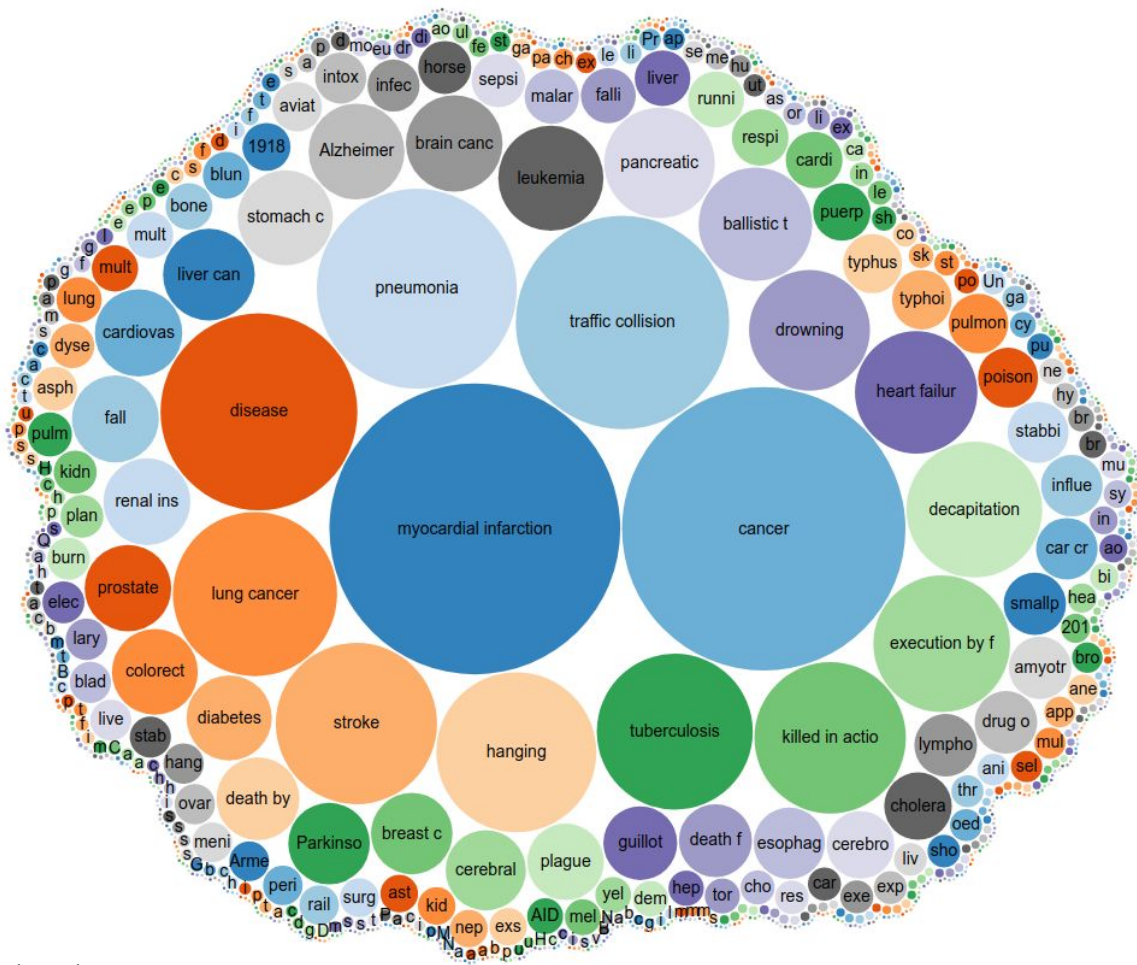
WIKIDATA

WIKIDATA

- ✓ Open data set van Wikimedia Foundation
- ✓ 65,351,490 data items that anyone can edit
- ✓ Used in 58.4% of all English Wikipedia articles
- ✓ Advanced query service



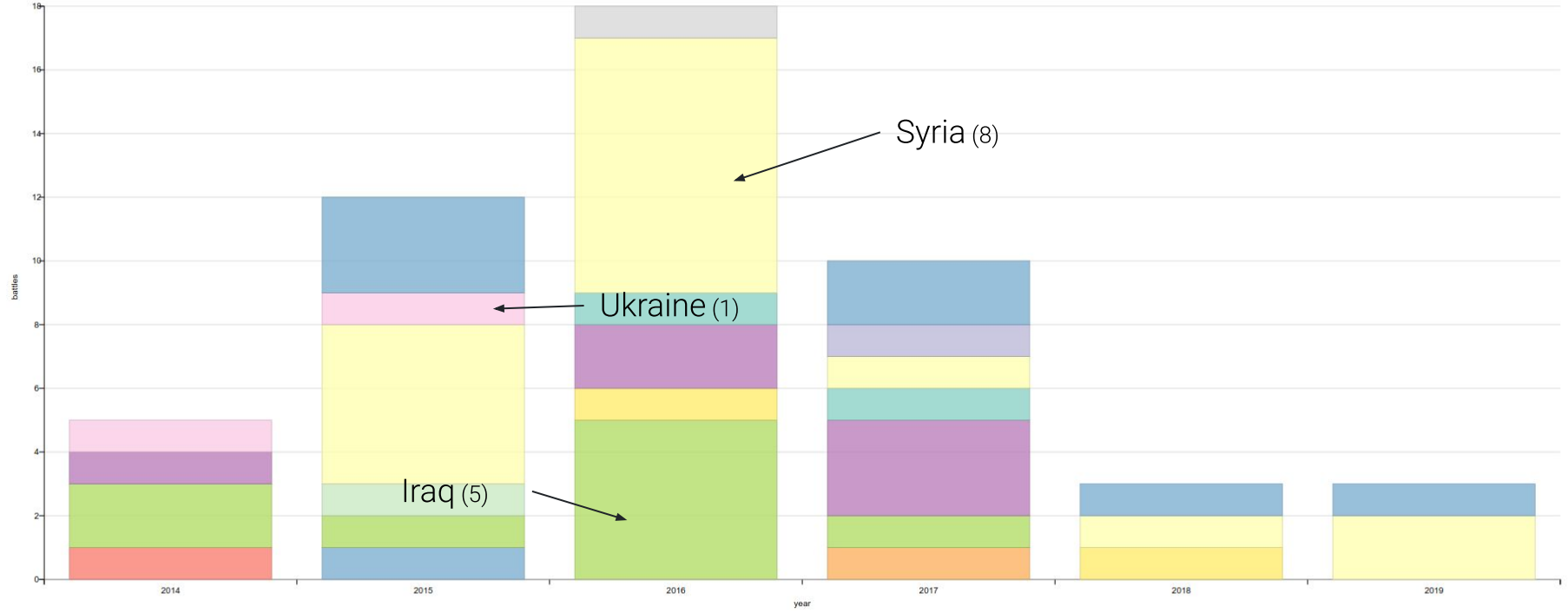
```
1 #Whose birthday is today?
2 SELECT ?entity ?entityLabel ?entityDescription (YEAR(?date) as ?year)
3 WHERE {
4     BIND(MONTH(NOW()) AS ?nowMonth)
5     BIND(DAY(NOW()) AS ?nowDay)
6     ?entity wdt:P569 ?date .
7     FILTER (MONTH(?date) = ?nowMonth && DAY(?date) = ?nowDay)
8
9 SERVICE wikibase:label { bd:serviceParam wikibase:language "[AUTO_LANGUAGE],en". }
10 }
11 LIMIT 20
```



Overall causes of death



Most popular fictional surnames



Number of battles per year, per country



Musicians born in Antwerp, ordered by sitelinks

| | | |
|-------------------|---|----|
| Laura Tesoro | Belgian actor and singer | 28 |
| André Cluytens | French conductor | 15 |
| Ann Christy | Belgian singer | 13 |
| Karel Goeyvaerts | Belgian composer | 13 |
| Dirk Verbeuren | Belgian drummer | 12 |
| Jacobus Barbireau | musician | 11 |
| Carl Verbraeken | Belgian composer | 10 |
| Tom Barman | Belgian musician and film director | 10 |
| Albert Grisar | Belgian composer | 10 |
| Jos Van Immerseel | Flemish harpsichordist, pianist and conductor | 9 |

Structured Data

Making sense of copious amounts of data



Structured Data

What do we need?

- ✓ A common way of **categorizing** data
- ✓ **Standard** way of **structuring** this data
in a **machine readable** format

Structured Data

A common way of **categorizing** data

- ✓ **Schemas** are types of structured data
eg: Person, Place, Event, ...
- ✓ Sets of schemas are called **vocabularies**
- ✓ Most used vocabularies are: **Dublin Core**, **FOAF** and **Schema.org**

Movie

[Thing](#) > [CreativeWork](#) > [Movie](#)

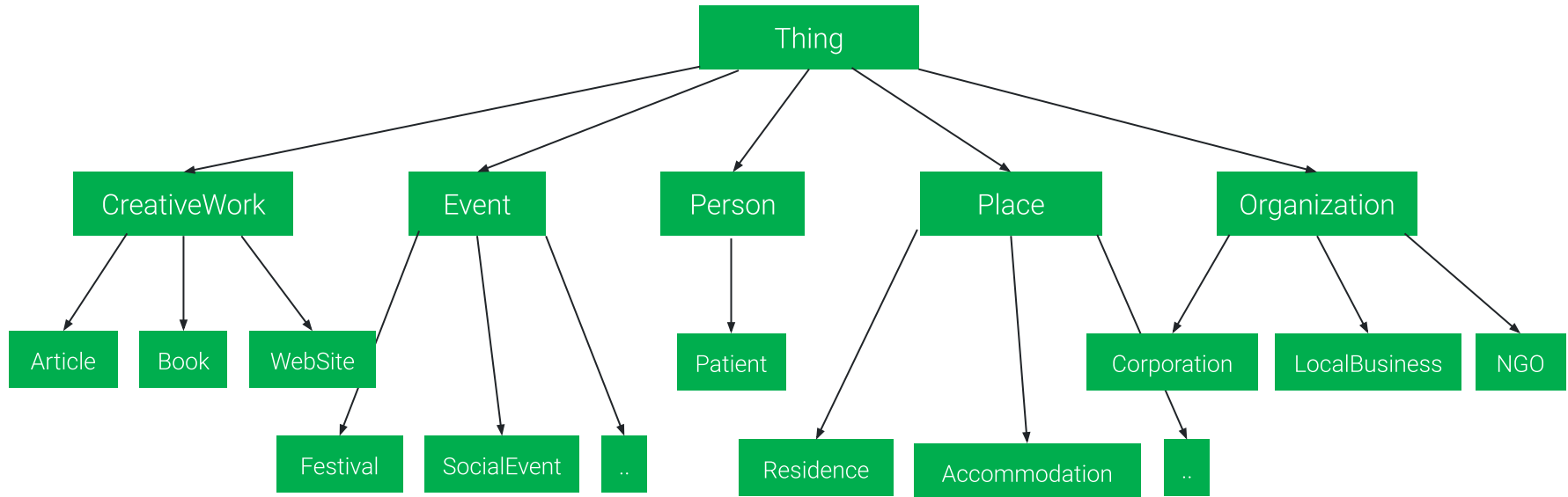
A movie.

[\[more...\]](#)

| Property | Expected Type | Description |
|--|--|---|
| Properties from Movie | | |
| actor | Person | An actor, e.g. in tv, radio, movie, video games etc., or in an event. Actors can be associated with individual items or with a series, episode, clip. Supersedes actors . |
| countryOfOrigin | Country | The country of the principal offices of the production company or individual responsible for the movie or program. |
| director | Person | A director of e.g. tv, radio, movie, video gaming etc. content, or of an event. Directors can be associated with individual items or with a series, episode, clip. Supersedes directors . |
| duration | Duration | The duration of the item (movie, audio recording, event, etc.) in ISO 8601 date format . |
| musicBy | MusicGroup or Person | The composer of the soundtrack. |
| productionCompany | Organization | The production company or studio responsible for the item e.g. series, video game, episode etc. |
| subtitleLanguage | Language or Text | Languages in which subtitles/captions are available, in IETF BCP 47 standard format . |
| trailer | VideoObject | The trailer of a movie or tv/radio series, season, episode, etc. |
| Properties from CreativeWork | | |



Schema.org Type Hierarchy



Structured Data

Structuring data in a machine readable **format**

- ✓ RDFa 1.1 Lite
- ✓ Microdata
- ✓ JSON-LD



Example

`http://schema.org/Movie`

- ✓ Name
- ✓ Genre
- ✓ Director
- ✓ Trailer



RDFa 1.1 Lite



```
<div vocab="http://schema.org/" typeof="Movie">
  <h1 property="name">Avatar</h1>
  <div property="director" typeof="Person">
    Director: <span property="name">James Cameron</span>
    (born <time property="birthDate" datetime="1954-08-16">August 16, 1954</time>)
  </div>
  <span property="genre">Science fiction</span>
  <a href="../movies/avatar-theatrical-trailer.html" property="trailer">Trailer</a>
</div>
```



Microdata

```
<div itemscope itemtype="http://schema.org/Movie">
  <h1 itemprop="name">Avatar</h1>
  <div itemprop="director" itemscope itemtype="http://schema.org/Person">
    Director: <span itemprop="name">James Cameron</span>
    (born <time itemprop="birthDate" datetime="1954-08-16">August 16, 1954</time>)
  </div>
  <span itemprop="genre">Science fiction</span>
  <a href="../movies/avatar-theatrical-trailer.html" itemprop="trailer">Trailer</a>
</div>
```



JSON-LD

```
<script type="application/ld+json">
{
  "@context": "http://schema.org/",
  "@type": "Movie",
  "name": "Avatar",
  "director":
  {
    "@type": "Person",
    "name": "James Cameron",
    "birthDate": "1954-08-16"
  },
  "genre": "Science fiction",
  "trailer": "../movies/avatar-theatrical-trailer.html"
}
</script>
```




Choosing a format.



We currently prefer JSON-LD markup. I think most of the new structured data that are kind of come out for JSON-LD first.

So that's what we prefer.

John Mueller, Webmaster Trends Analyst at Google



Uses of Structured Data in SEO

Uses of Structured Data in SEO



Increased visibility on **SERPs**



Using Rich Snippets



Get featured as a “Featured Snippet”



Defining explicit **relations** & **structure**



Linking content together



Breadcrumbs




Rich Snippets in Google


Lava Lite Classic Lava Lamp, Purple/Blue - Walmart.com
Walmart › Lava-2118-Lava-Lite-Classic-...

★★★★★ Rating: 3.5 - 60 votes - \$13.17 - In stock
Mobile-friendly - Buy Lava Lite Classic Lava Lamp, Purple/Blue at Walmart.com.

Recipes



Perfect Apple Pie
Pillsbury
4.5 ★★★★★ 276 reviews
3 hr - 230 calories



Apple Pie by Grandma
Allrecipes
4.8 ★★★★★ 6,931 reviews
1 hr 30 min - 512 calories

Example Site - Frequently Asked Questions(FAQ)
Your site title here › support › answer

Welcome to our support center. Here you can find the most frequently asked questions. If you cannot find an answer below, please call us at 1-800-555-5555.

What is the return policy? ▼

How long does it take to process a refund? ▼


What is the policy for late/non-delivery of items ordered online? ▼

▼ Show more


← concerts in chicago 🔍

Today Tomorrow This Week **This Weekend**


20 JUL Pitchspoon Music Festival 2018
Fri, Jul 20 – Sun, Jul 22
Union Park · Chicago, IL




21 JUL The Adventures of Kira and Morrison
Sat, 7 PM
Snickerpark Stadium



22 JUL Painting Class in the Studio
Sun, 12 AM
Union Park · Chicago, IL



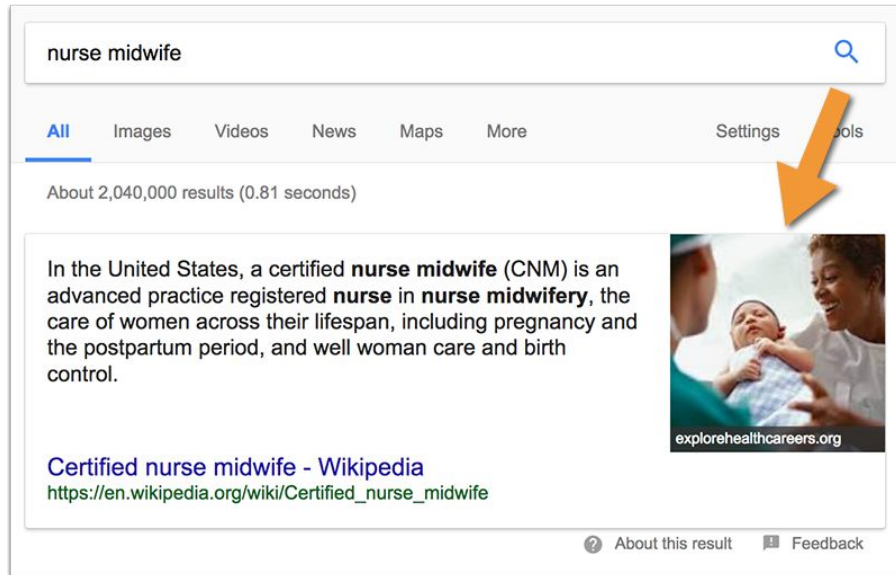
22 JUL Sunday Feasts with Friends
Sunday



For You Browse Saved



Featured Snippets in Google





Hinting the structure of your content

News | Life With Cats

Life With Cats › TV › News

December 10, 2017 Posted by Adrea Leave a Comment · Is This What Your Cat Does When You Aren't Home? Do you know what your cat does when you aren't home? Perhaps this kitty will give you a bit of insight.

NASA

<https://www.nasa.gov/> ▼

NASA.gov brings you the latest news, images and videos from America's space agency, pioneering the future in space exploration, scientific discovery and ...

Results from nasa.gov



NASA TV

NASA TV Programming. 11:00 p.m..
Earth Views High Definition ...

International Space Station

Space Station Images - Overview -
Crews and Expeditions - HDEV

NASA Live

Watch live broadcasts from NASA
Television and NASA's ...

For Students

Higher Education - Current
Opportunities - Observe the Moon



Advanced Uses of Structured Data



Advanced Usages

✓ Email Marketing

✓ Accelerated Mobile
Pages (**AMP**)

✓ Screenreaders

eg: Speakable

✓ Google Ads

✓ Knowledge Graph

✓ Digital Assistants

eg: Using Actions, Speakable

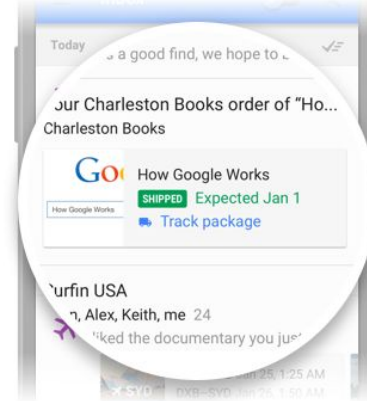
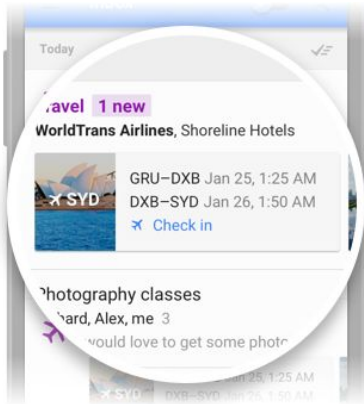
✓ API-Platform

Email Marketing: actions






Email Marketing: Highlights




All results


**Google Alerts**

Google Alert - Obama – Google Obama Daily update · June 26, 2015 NEWS Politico Obama bounces back Politico President Barack


1:26 PM



Jennicet Gutierrez, transgender immigr...
Washington Times



Why the Nuclear Experts Who Sent an ...
TIME



Watch Obama Discuss Climate Change...
Huffington Post

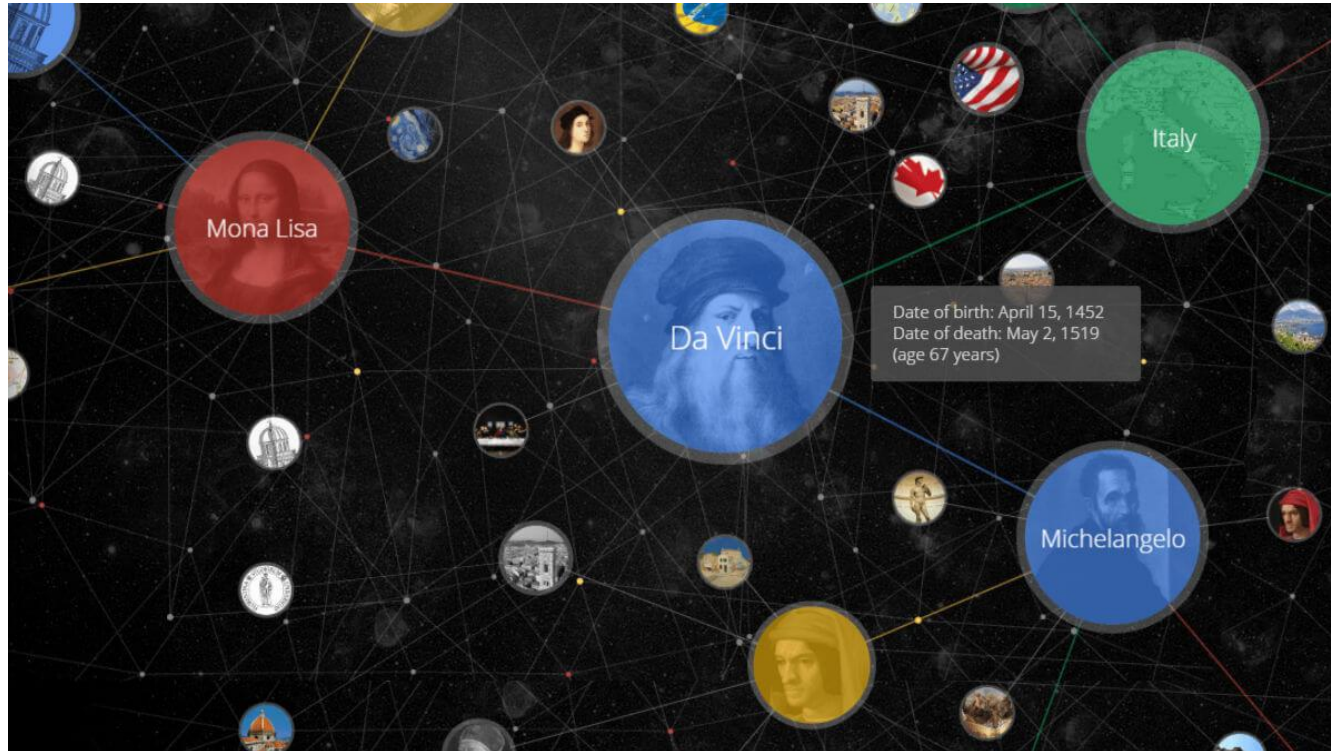


Accelerated Mobile Pages

Fast, optimized versions of your website pages served directly from the search engine's cache.

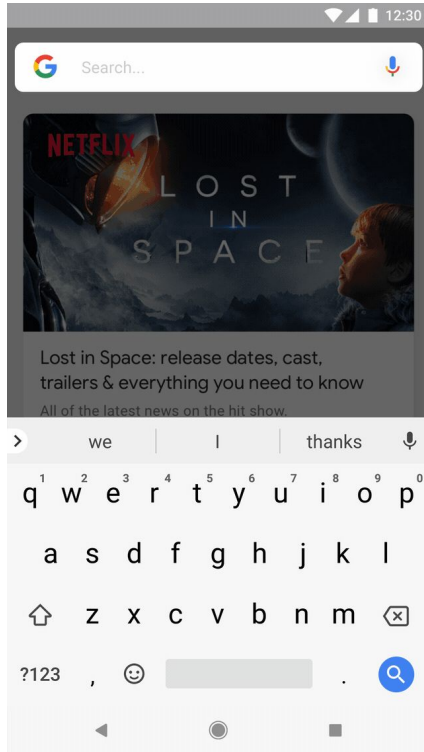
AMP also heavily relies on structured data.





Knowledge Graph





Knowledge Graph





WordPress

Downloadable software

WordPress is a content management system based on PHP and MySQL that is usually used with the MySQL or MariaDB database servers but can also use the SQLite database engine. Features include a plugin architecture and a template system, referred to inside WordPress as Themes. [Wikipedia](#)

License: GPLv2+

Developer(s): WordPress Foundation






Initial release date: May 27, 2003

Stable release: 5.2.3 / 2019-09-04

Written in: PHP

Operating system: Unix-like, Windows, Linux

People also search for [View 15+ more](#)



Joomla

XAMPP

WooCo...

Drupal

Microsoft Word



Implementing Structured Data

Implementing Structured Data

In a WordPress website

- ✓ General guidelines
- ✓ Commonly used types
- ✓ Using GTM
- ✓ Coding it yourself
- ✓ PHP libraries
- ✓ WordPress Plugins



Implementing Structured Data

Some general guidelines from **Google**:

- ✓ Add markup to the page it describes
- ✓ Be as specific as possible when choosing a type
- ✓ Only markup for content that is shown on the page
- ✓ Don't block these pages from search indexing



Common types for SEO

These types will make the biggest difference.



Organization

For Google's knowledge graph



Search box

Provides support for a search box in your site links



Breadcrumbs



videoObject



Common types for SEO

E-Commerce

- ✓ Product
- ✓ Offer
- ✓ Review

Blog

- ✓ Article
NewsArticle & BlogPosting
- ✓ ClaimReview
- ✓ CriticReview



Common types for SEO

Other types

- ✓ Recipe
- ✓ HowTo
- ✓ Event
- ✓ Courses
- ✓ Job Postings

Implementing Structured Data

A few options.



Google Tag Manager

It is often recommended on the web to add structured data with Google Tag Manager.

Although it is *possible*, it's strongly **discouraged** to do so.

Structured data should be added directly in the source code, not loaded in using JavaScript.



Coding it yourself

```
add_action('wp_head', function() {  
    if(is_front_page()) {  
        echo <<<EOT  
<script type="application/json+ld">  
{  
    "@context":"https://schema.org",  
    "@type":"Organization",  
    "@id":"https://www.siteoptimo.com/#organization",  
    "name":"SiteOptimo",  
    "url":"https://www.siteoptimo.com/",  
    "sameAs": [  
        "https://www.facebook.com/siteoptimo/",  
        "https://www.linkedin.com/company/siteoptimo/",  
        "https://twitter.com/siteoptimo"  
    ]  
}  
</script>  
EOT;  
    }  
});
```



Coding it yourself

Using PHP libraries

- ✓ [torann/json-ld](https://github.com/torann/json-ld)
- ✓ [spatie/schema-org](https://github.com/spatie/schema-org)

Install them using Composer or by downloading the source directly.



spatie/schema-org

```
use Spatie\SchemaOrg\Schema;

$localBusiness = Schema::localBusiness()
    ->name('Spatie')
    ->email('info@spatie.be')
    ->contactPoint(Schema::contactPoint()->areaServed('Worldwide'));

echo $localBusiness->toScript();
```



spatie/schema-org

```
<script type="application/ld+json">
{
  "@context": "http://schema.org",
  "@type": "LocalBusiness",
  "name": "Spatie",
  "email": "info@spatie.be",
  "contactPoint": {
    "@type": "ContactPoint",
    "areaServed": "Worldwide"
  }
}
</script>
```



WordPress Plugins

Plugins providing schema.org markup integration

- ✓ Schema Pro
- ✓ Schema
- ✓ Yoast SEO
- ✓ WordLift

** Non exhaustive list.*



Schema Pro



ARTICLE



RECIPE



COURSE



EVENT



BOOK



PRODUCT



REVIEW



LOCAL BUSINESS



Schema + (Schema Premium)

Dashboard

Posts

Media

Pages

Comments

Appearance

Plugins

Users

Tools

Settings

Schema

Settings

Types

Extensions

Database

Schema [Add New](#)

All (5) | Published (5)

Bulk Actions Apply All dates Filter

| <input type="checkbox"/> Name | Schema Type | Specific Type | Enabled on | Excluded on |
|--|---------------|----------------|--|------------------|
| <input type="checkbox"/> JobPosting | JobPosting | - | Specific Page: 2 | - |
| <input type="checkbox"/> LocalBusiness | LocalBusiness | ChildCare | Specific Page: 3 | - |
| <input type="checkbox"/> Event | Event | ChildrensEvent | Specific Post: 1 | - |
| <input type="checkbox"/> BlogPosting | BlogPosting | - | Post Type: post, page Specific Post: 26 | Specific Page: 2 |
| <input type="checkbox"/> Article | Article | - | Post Type: page | Specific Page: 3 |
| <input type="checkbox"/> Name | Schema Type | Specific Type | Enabled on | Excluded on |

Bulk Actions Apply

5 items

Article Properties

URL
URL of the article.

Headline *
Headline of the article

Alternative Headline
Secondary title for this article.

- Select -
Site Meta
Site Name
Site Description
Site URL
Post Meta
✓ Post Title
Post Content
Post Excerpt
Post Permalink
Author Name
Publish Date
Last Modified Date

Screen Options

Search Schemas

5 items

Fields
Text
Custom Field
Existing Field
Date

Yoast SEO

- ✓ Takes care of data like Organisation and BlogPost
- ✓ Structured Data Blocks
- ✓ Entity Graphs
- ✓ Extensible using premium plugins (eg: local SEO)



Yoast SEO

Knowledge Graph & Schema.org

Choose whether the site represents an organization or a person.

Organization



A company name and logo need to be set for structured data to work properly. [Learn more about the importance of structured data.](#)

Organization

Organization name

Organization logo

Upload Image

Clear Image

Social - Yoast SEO

Accounts

Facebook

Twitter

Pinterest

 NEED HELP? 

Organization social profiles

Facebook Page URL

<https://www.facebook.com/siteoptimo/>

Twitter Username

siteoptimo

Instagram URL

LinkedIn URL

<https://www.linkedin.com/company/siteoptimo/>

MySpace URL

Pinterest URL

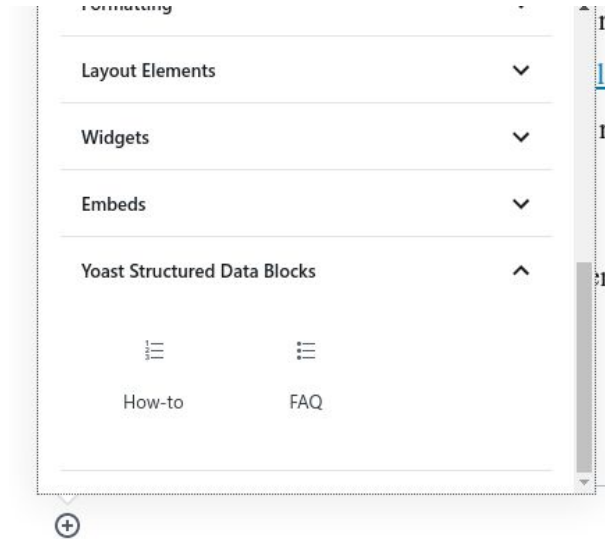
YouTube URL

Wikipedia URL

Save changes



Yoast SEO: Structured Blocks









Yoast SEO: Structured Blocks

Example: FAQ Block

Enter a question

Enter the answer to the question

 Add image  

 Add question



Yoast SEO: Structured Blocks

Example: FAQ Block

```
{
  "@type": "Question",
  "@id": "https://www.wpantwerp.test/?page_id=30#faq-question-1572447029785",
  "position": 0,
  "url": "https://www.wpantwerp.test/?page_id=30#faq-question-1572447029785",
  "name": "Sint et quis sit. Qui nostrum nisi non natus quae omnis?",
  "answerCount": 1,
  "acceptedAnswer": {
    "@type": "Answer",
    "text": "Repellendus voluptas omnis fugit. laudantium dolor at. Et et Ipsam est magnam non.
Molestias eius repellat nemo aliquam molestias. Veritatis doloribus in qui ut. Dolorum officiis nostrum
ut nemo. Dolorem quis repellendus modi distinctio."
  }
}
```



Yoast SEO: Structured Blocks

Example: FAQ Block

The screenshot shows a Google search for "yoast diversity fund faq". The search results include a link to "Yoast Diversity Fund • Yoast" with a URL of <https://yoast.com/yoast-diversity-fund/>. Below the link, there is a date "May 3, 2018" and a snippet: "To make a conference inclusive and have it feature a diverse set of speakers is hard. Women, but certainly also other underrepresented groups ...".

Below the search results, there is an FAQ block with the following questions and answers:

- Question: What type of costs are reimbursed?
- Question: How many times can I apply for the Yoast Diversity Fund?
- Answer: Our goal is to assist in increasing speaker diversity as much as possible. This means we'll focus on first-time applications mostly. However, there is no limit to the number of times you can apply.
- Question: Is the fund available to all?
- Question: When should I apply?



Yoast SEO: Entity Graph

An **entity graph** is a representation of a topic, which describes the entities — people, places and things, for instance — and defines their **relationships** via properties.

Or in this case, how your site is connected to your pages, organization, authors et cetera.



Yoast SEO: Entity Graph

Very easy to hook into using hooks and filters.

```
add_filter( 'wpseo_schema_graph_pieces', 'yoast_add_graph_pieces' );

/**
 * Adds Schema pieces to our output.
 *
 * @param array $pieces Graph pieces to output.
 * @param \WPSEO_Schema_Context $context Object with context variables.
 *
 * @return array $pieces Graph pieces to output.
 */
function yoast_add_graph_pieces( $pieces, $context ) {
    $pieces[] = new Team_Member( $context );
    return $pieces;
}
```

- [class-schema-article.php](#)
- [class-schema-author.php](#)
- [class-schema-breadcrumb.php](#)
- [class-schema-context.php](#)
- [class-schema-faq-question-list.php](#)
- [class-schema-faq-questions.php](#)
- [class-schema-faq.php](#)
- [class-schema-howto.php](#)
- [class-schema-ids.php](#)
- [class-schema-image.php](#)



WordLift

Uses AI to automatically analyse and classify your content for you, while you type.

WordLift helps you organize posts and pages adding facts, links and media to build beautifully structured websites, for both humans and search engines.



WordLift

Create new entry

Content classification

What

Wormhole

2

Home

2

Who

NASA

2

Michael Caine

1

Matthew McConaughey

1

Where

Earth

1

When




2070

1

Article metadata

Suggested images

Drag & Drop



Related posts

Content widgets provide editors with **image suggestions** and links to **related articles**

Tools

- ✓ Schema markup generator
- ✓ Google Structured Data Testing Tool
- ✓ Steal our Id+json
- ✓ JSON-LD Schema Generator by Merkle

Thanks for listening!



Koen Van den Wijngaert



@vdwijngaert



SiteOptimo.com