

# **Semantic MediaWiki**

## **A Tool for Collaborative Vocabulary Development**

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**Division of Biomedical Informatics**

**Mayo Clinic**

# Outline

- **MediaWiki – what it is, how it works**
- **Semantic MediaWiki – MediaWiki meets the Semantic Web**
- **Vocabulary Development in Semantic MediaWiki**

# Outline

- **MediaWiki – what it is, how it works**
- **Semantic MediaWiki – MediaWiki meets the Semantic Web**
- **Vocabulary Development in Semantic MediaWiki**

# Wiki

- **Named after the Wiki Wiki shuttle bus at the Honolulu International Airport**
- **“Wiki” means “quick”**
- **Characteristics**
  - **All users can edit (almost) any page**
  - **Links between pages are easy to create**

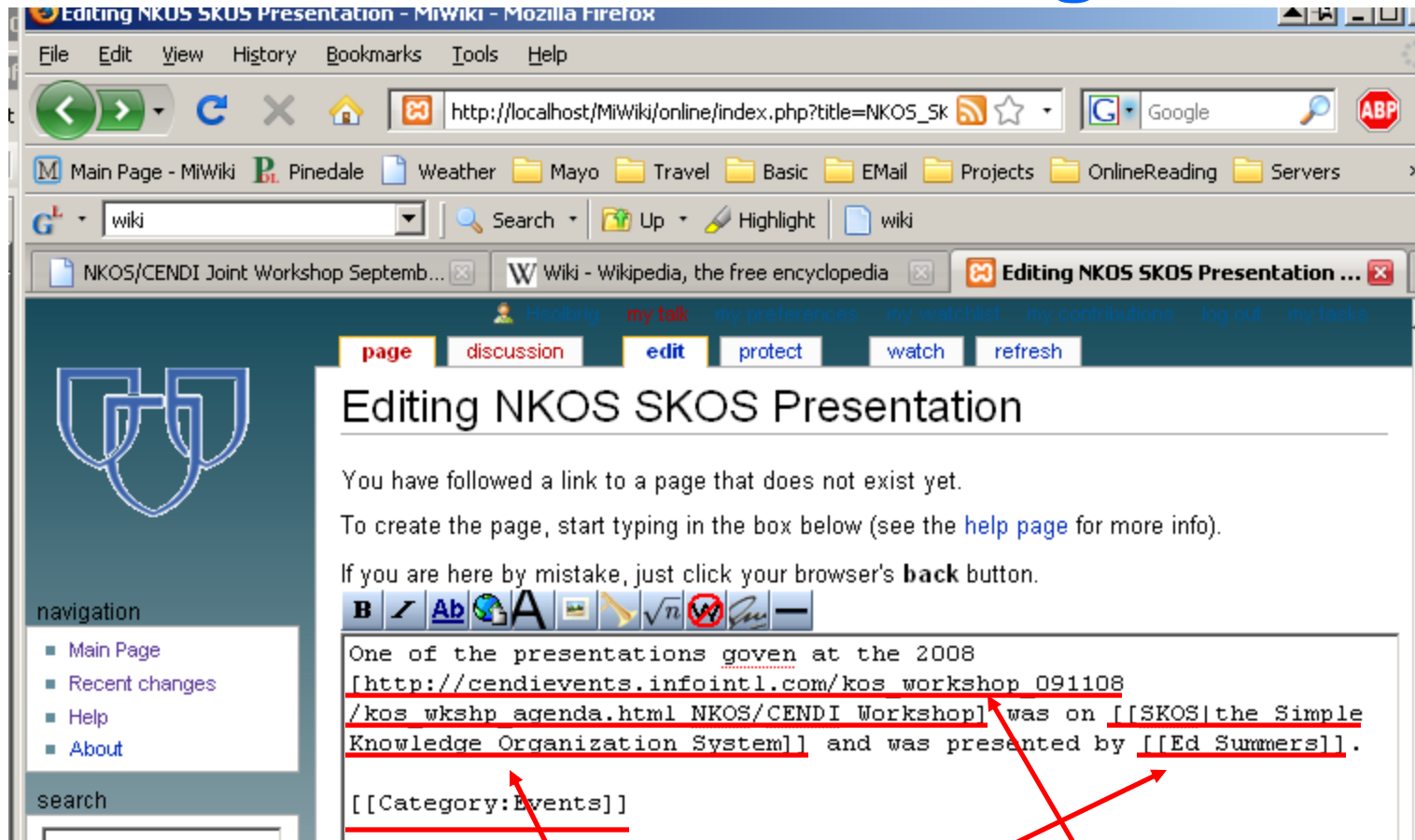
# Wiki



# MediaWiki












- **MediaWiki is one of the many “flavors” of Wiki**
- **Solid code base**
- **Basis for thousands of wikis on the web...**
- **... including Wikipedia**

# MediaWiki Editing



Editing NKOS SKOS Presentation

You have followed a link to a page that does not exist yet.  
To create the page, start typing in the box below (see the [help page](#) for more info).  
If you are here by mistake, just click your browser's **back** button.

**B**           

One of the presentations given at the 2008 [\[http://cendievents.infont1.com/kos\\_workshop\\_091108/kos\\_wkshp\\_agenda.html\]](http://cendievents.infont1.com/kos_workshop_091108/kos_wkshp_agenda.html) NKOS/CENDI Workshop was on [\[\[SKOS|the Simple Knowledge Organization System\]\]](#) and was presented by [\[\[Ed Summers\]\]](#).

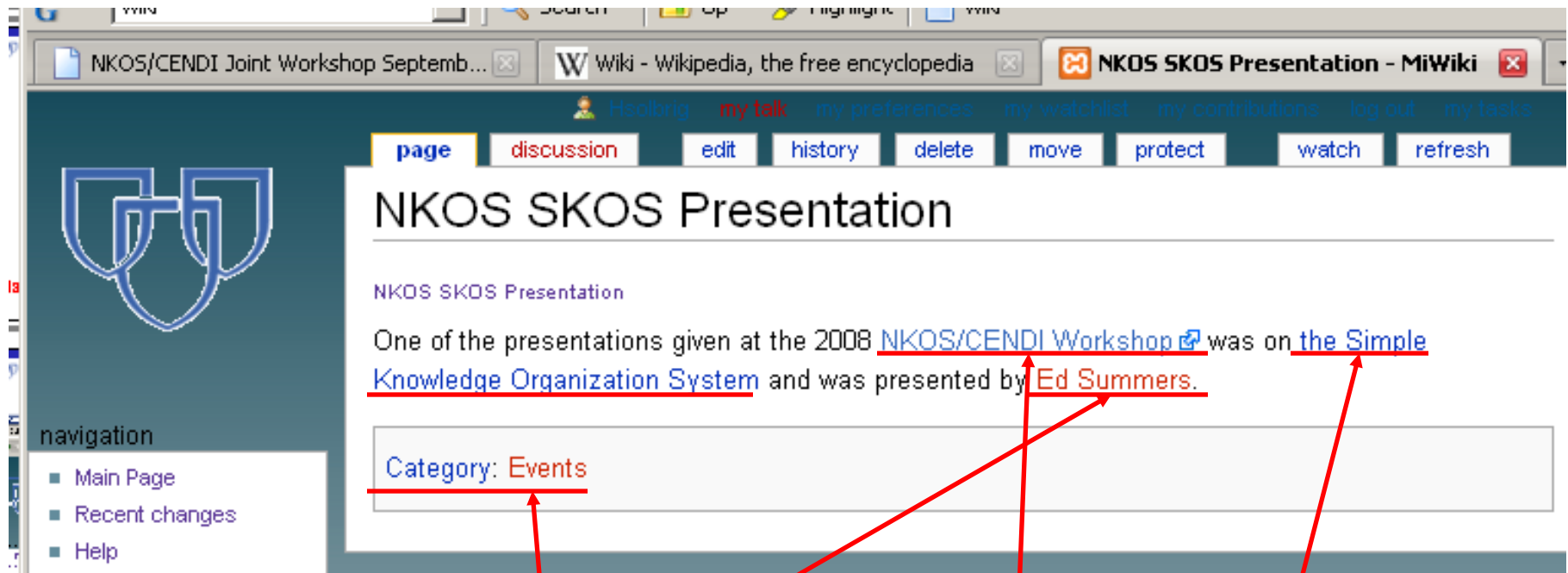
[\[\[Category:Events\]\]](#)

**Classification**

**Internal Page**

**External Link**

# MediaWiki Editing



**Classification**

**New Internal Page**

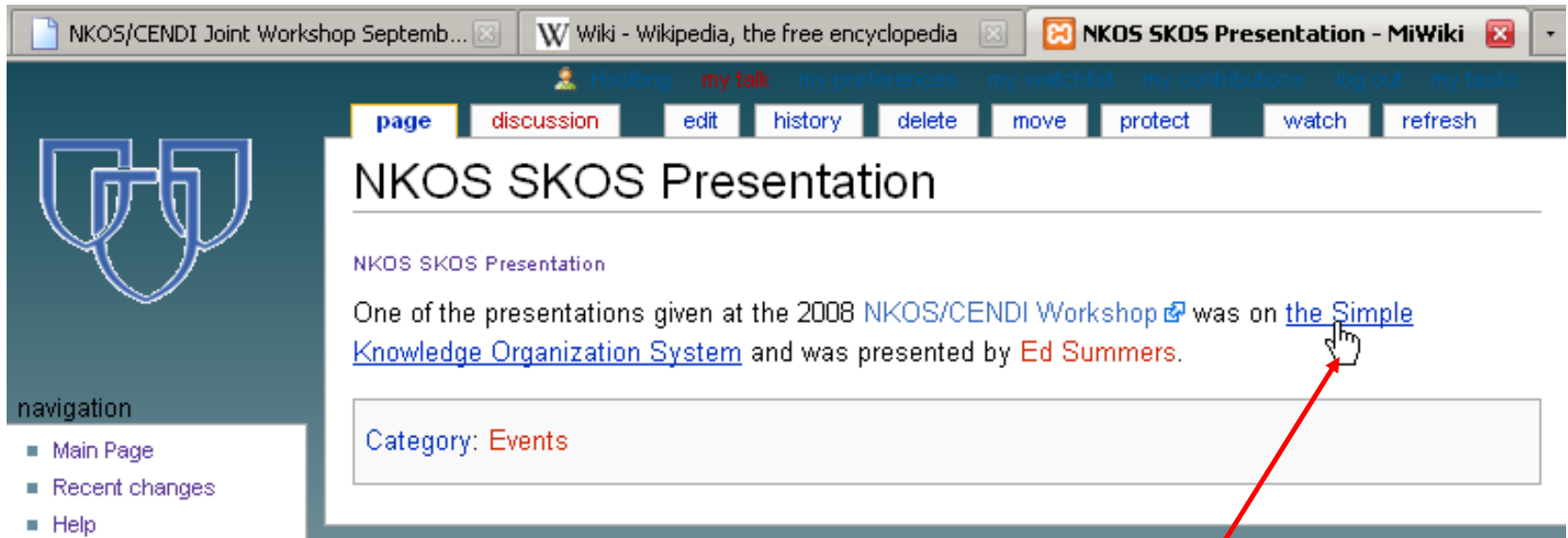
**External Link**

**Existing Internal Page**



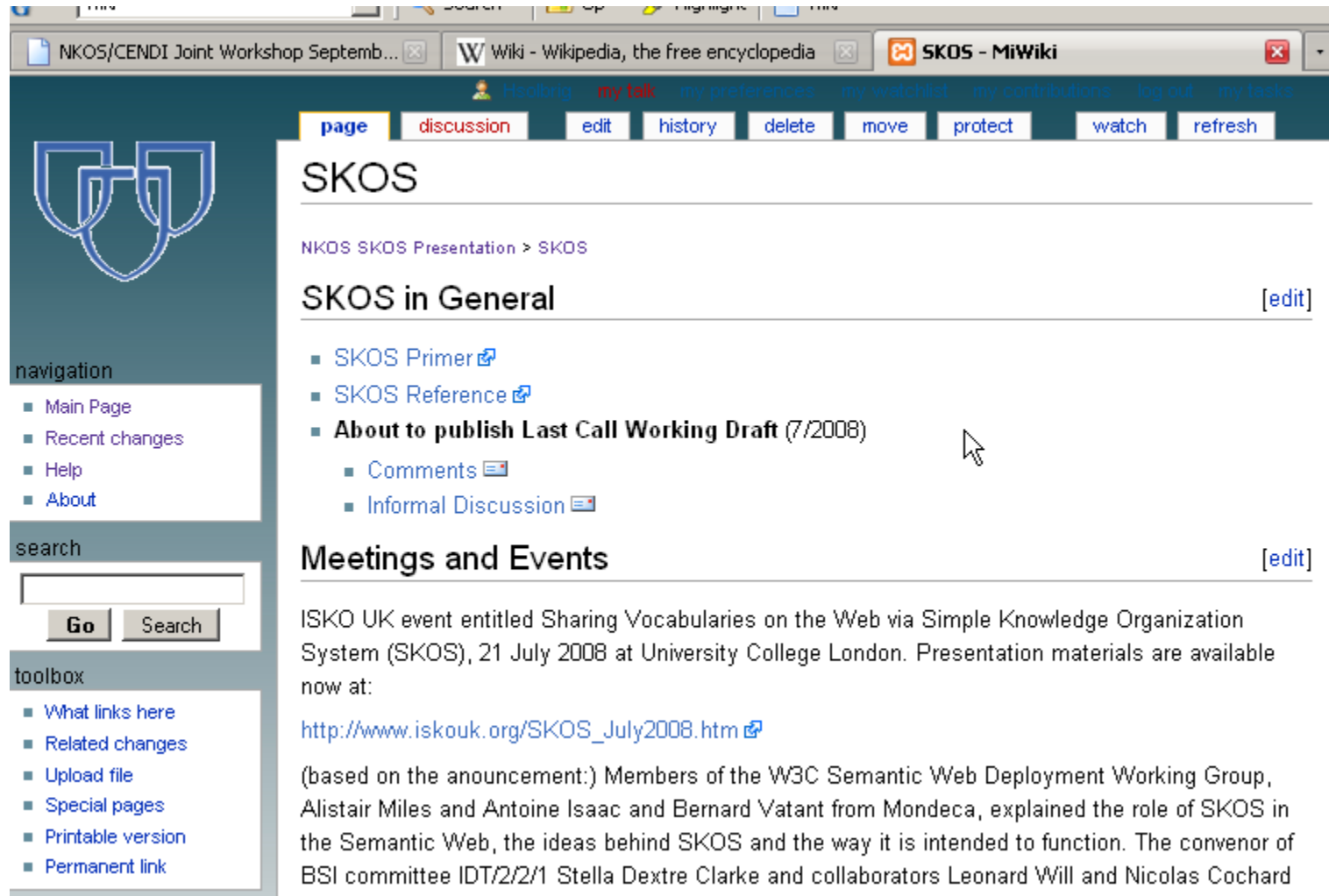
# MediaWiki Editing

## Selecting an existing page



The screenshot shows a web browser window with three tabs: 'NKOS/CENDI Joint Workshop Septemb...', 'Wiki - Wikipedia, the free encyclopedia', and 'NKOS SKOS Presentation - MiWiki'. The active tab is the MediaWiki page. The page title is 'NKOS SKOS Presentation'. Below the title is a navigation bar with buttons for 'page', 'discussion', 'edit', 'history', 'delete', 'move', 'protect', 'watch', and 'refresh'. The main content area contains the text: 'One of the presentations given at the 2008 [NKOS/CENDI Workshop](#) was on [the Simple Knowledge Organization System](#) and was presented by [Ed Summers](#).' A red arrow points from the bottom right towards the link 'the Simple Knowledge Organization System'. Below the text is a category box labeled 'Category: Events'. On the left side, there is a navigation menu with the Mayo Clinic logo and the following items: 'Main Page', 'Recent changes', and 'Help'.

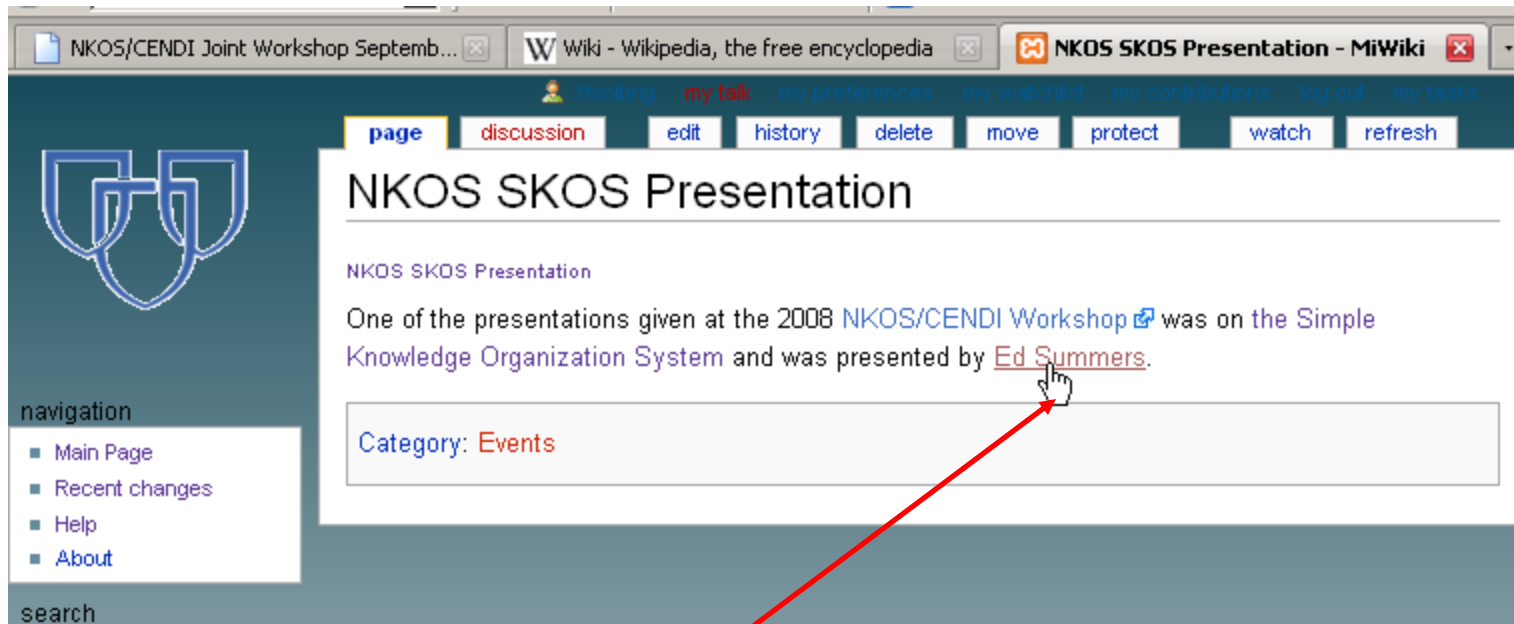
# MediaWiki Editing



The screenshot shows a MediaWiki page for 'SKOS'. The browser tabs include 'NKOS/CENDI Joint Workshop Septemb...', 'Wiki - Wikipedia, the free encyclopedia', and 'SKOS - MiWiki'. The page has a dark blue header with navigation links like 'Home', 'my talk', 'my preferences', etc. Below the header is a menu with options: 'page', 'discussion', 'edit', 'history', 'delete', 'move', 'protect', 'watch', and 'refresh'. The main content area features the 'SKOS' title, a breadcrumb trail 'NKOS SKOS Presentation > SKOS', and a section 'SKOS in General' with an '[edit]' link. A bulleted list includes 'SKOS Primer', 'SKOS Reference', and 'About to publish Last Call Working Draft (7/2008)', with sub-items 'Comments' and 'Informal Discussion'. Below this is a section 'Meetings and Events' with an '[edit]' link. The text describes an ISKO UK event on July 21, 2008, at University College London, with a link to 'http://www.iskouk.org/SKOS\_July2008.htm'. The text continues: '(based on the announcement:) Members of the W3C Semantic Web Deployment Working Group, Alistair Miles and Antoine Isaac and Bernard Vatant from Mondeca, explained the role of SKOS in the Semantic Web, the ideas behind SKOS and the way it is intended to function. The convenor of BSI committee IDT/2/2/1 Stella Dextre Clarke and collaborators Leonard Will and Nicolas Cochard'.

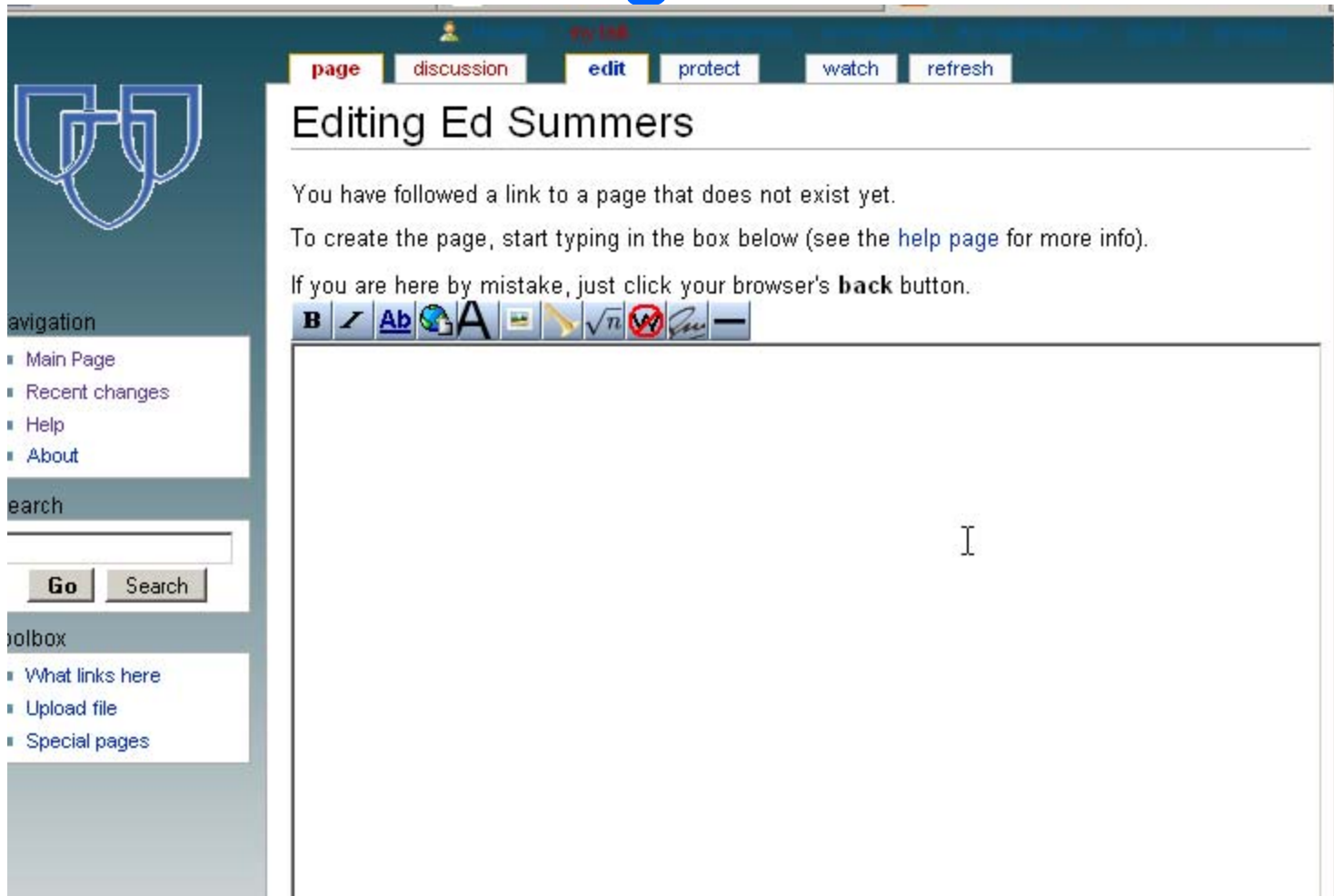
# MediaWiki Editing

## Selecting a missing page



The screenshot shows a web browser window with three tabs: 'NKOS/CENDI Joint Workshop Septemb...', 'Wiki - Wikipedia, the free encyclopedia', and 'NKOS SKOS Presentation - MiWiki'. The active tab is the MiWiki page. The page title is 'NKOS SKOS Presentation'. Below the title is a navigation bar with buttons for 'page', 'discussion', 'edit', 'history', 'delete', 'move', 'protect', 'watch', and 'refresh'. The main content area shows the text: 'NKOS SKOS Presentation' followed by 'One of the presentations given at the 2008 NKOS/CENDI Workshop was on the Simple Knowledge Organization System and was presented by Ed Summers.' A red arrow points from the bottom left towards the name 'Ed Summers' in the text. Below the text is a box containing 'Category: Events'. On the left side of the page, there is a navigation menu with links for 'Main Page', 'Recent changes', 'Help', and 'About', and a search box.

# MediaWiki Editing New Page Creation



The screenshot shows a MediaWiki interface for editing a page titled "Ed Summers". At the top, there are navigation tabs: "page" (highlighted), "discussion", "edit", "protect", "watch", and "refresh". Below the tabs, the page title "Editing Ed Summers" is displayed. The main content area contains the following text:

You have followed a link to a page that does not exist yet.  
To create the page, start typing in the box below (see the [help page](#) for more info).  
If you are here by mistake, just click your browser's **back** button.

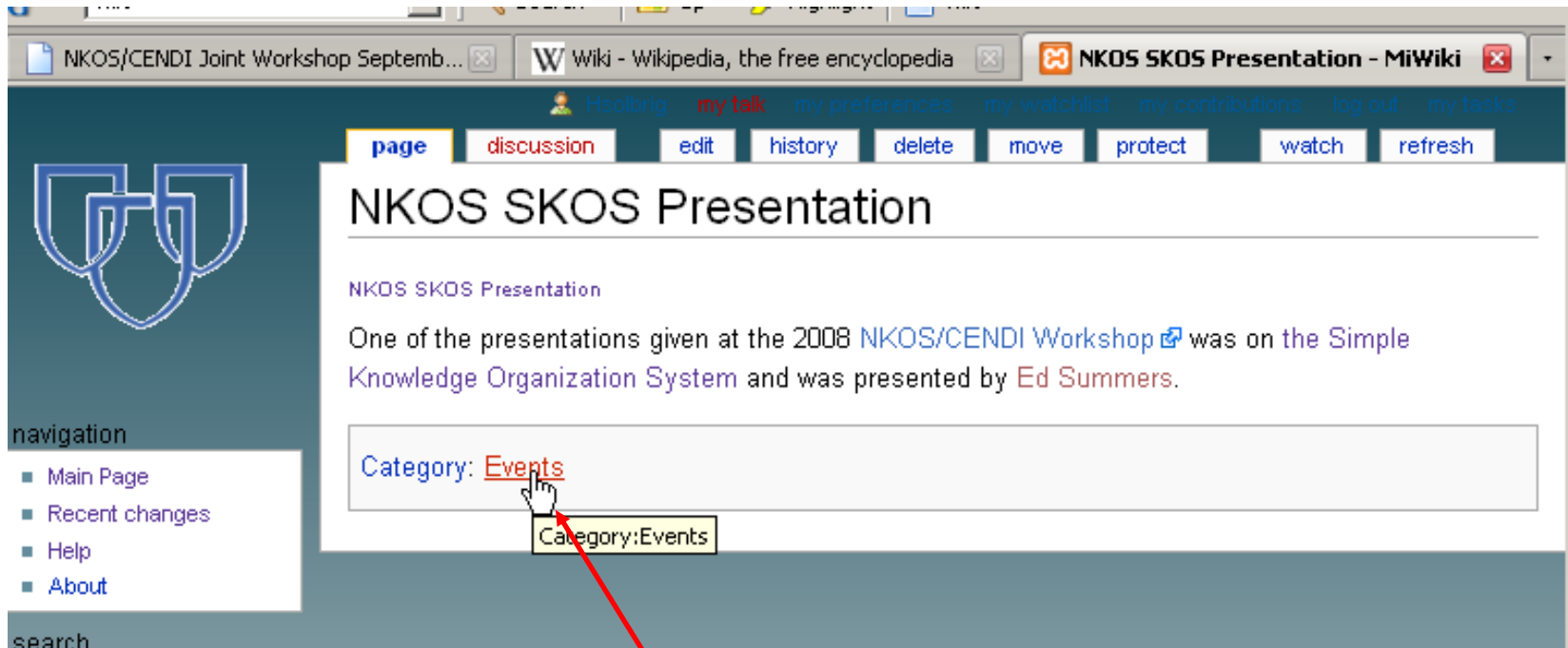
Below the text is a rich text editor toolbar with icons for bold (B), italic (I), underline (Ab), link (Globe), unlink (A), list (List), link (W), and undo (Z). The editor area is currently empty, with a vertical cursor (I) positioned in the center.

On the left side of the page, there is a navigation menu with the following items:

- Navigation
  - Main Page
  - Recent changes
  - Help
  - About
- Search
  - Go
  - Search
- Toolbox
  - What links here
  - Upload file
  - Special pages

# MediaWiki

## Editing Categories



The screenshot shows a web browser window with three tabs: 'NKOS/CENDI Joint Workshop Septemb...', 'Wiki - Wikipedia, the free encyclopedia', and 'NKOS SKOS Presentation - MiWiki'. The active page is the 'NKOS SKOS Presentation' page. The page title is 'NKOS SKOS Presentation'. Below the title is a navigation bar with buttons for 'page', 'discussion', 'edit', 'history', 'delete', 'move', 'protect', 'watch', and 'refresh'. The main content area contains the text: 'NKOS SKOS Presentation' followed by 'One of the presentations given at the 2008 NKOS/CENDI Workshop was on the Simple Knowledge Organization System and was presented by Ed Summers.' Below this text is a text box containing 'Category: Events'. A mouse cursor is hovering over the underlined 'Events' link, and a tooltip box displays 'Category:Events'. A red arrow points from the bottom of the screen towards the tooltip.

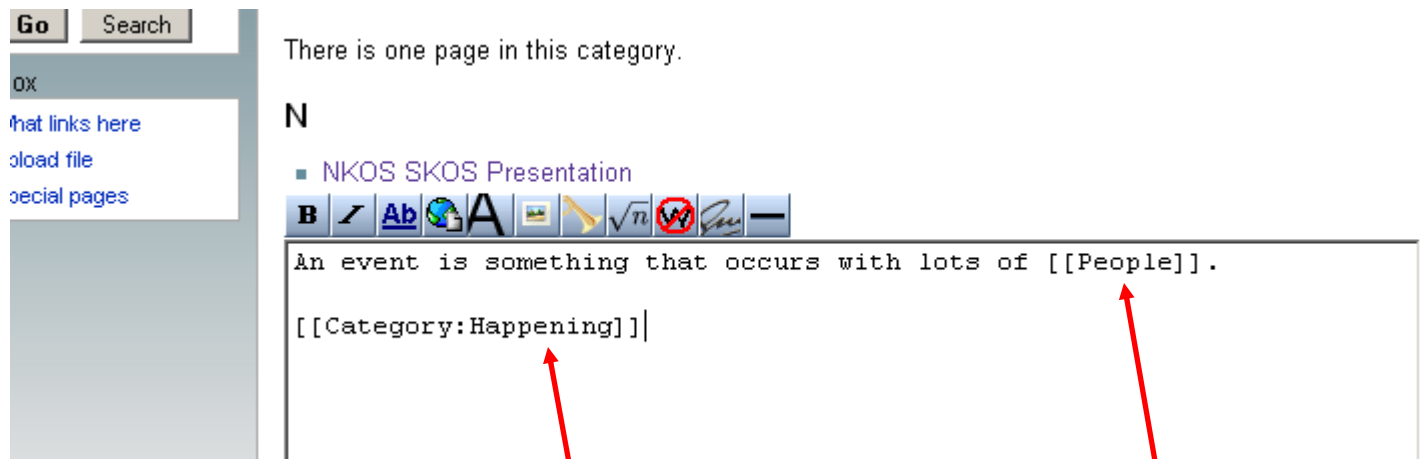
Navigation menu:

- Main Page
- Recent changes
- Help
- About

search

# MediaWiki


## Editing Categories



There is one page in this category.

N

- NKOS SKOS Presentation

**B** / **Ab** 

An event is something that occurs with lots of [[People]].

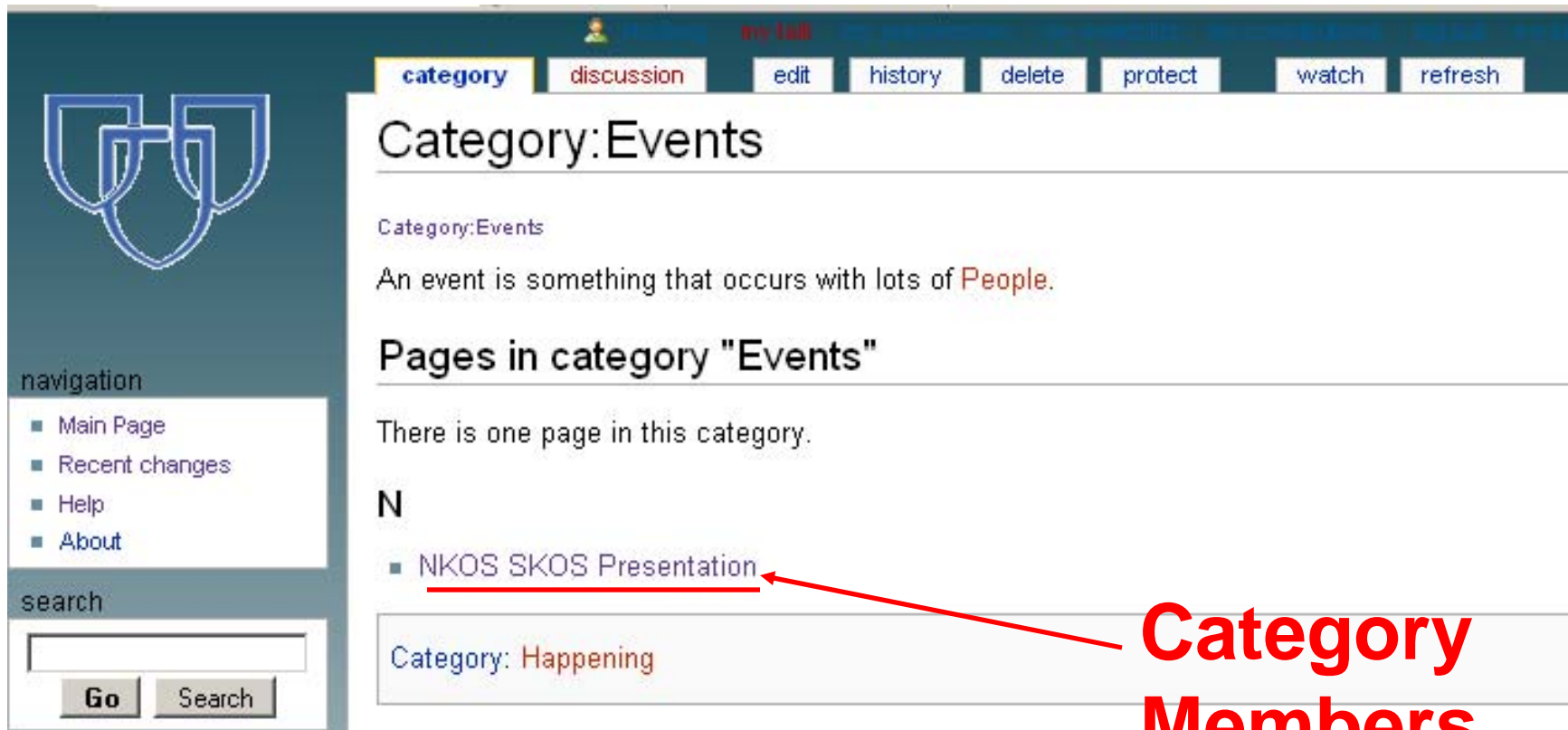
[[Category:Happening]]

**Classification**

**Internal Link**

# MediaWiki

## Editing Categories



The screenshot shows a MediaWiki page for the 'Events' category. The page title is 'Category:Events'. Below the title, there is a description: 'An event is something that occurs with lots of People.' The page lists 'Pages in category "Events"', stating 'There is one page in this category.' The list contains one item: 'NKOS SKOS Presentation', which is underlined and has a red arrow pointing to it from the text 'Category Members' on the right. The page also shows a navigation sidebar on the left with links for 'Main Page', 'Recent changes', 'Help', and 'About', and a search box at the bottom left. The top navigation bar includes buttons for 'category', 'discussion', 'edit', 'history', 'delete', 'protect', 'watch', and 'refresh'.

Category:Events

Category:Events

An event is something that occurs with lots of People.

Pages in category "Events"

There is one page in this category.

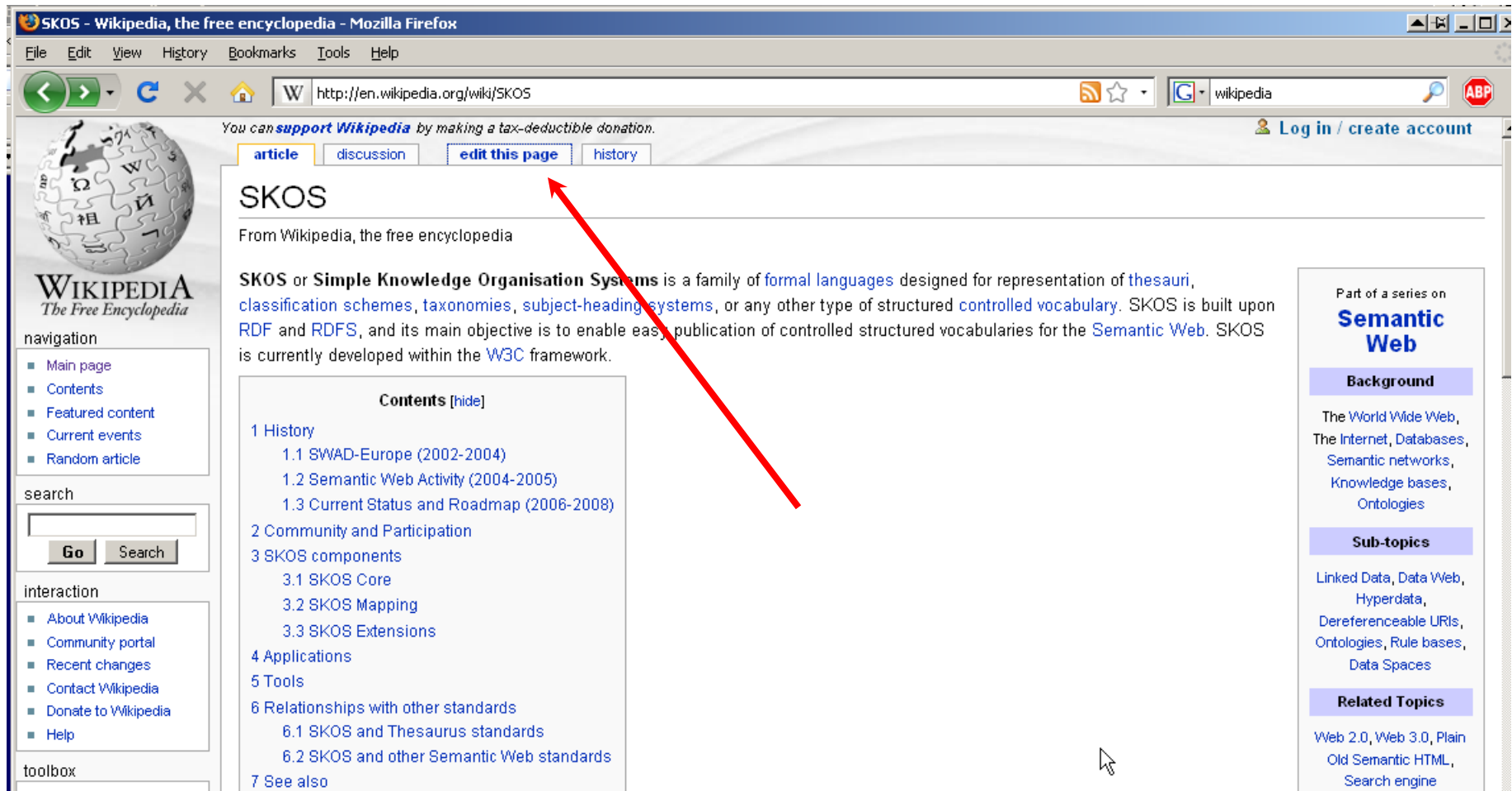
N

- NKOS SKOS Presentation

Category: Happening

**Category Members**

# WikiPedia In MediaWiki



SKOS - Wikipedia, the free encyclopedia - Mozilla Firefox

File Edit View History Bookmarks Tools Help

W http://en.wikipedia.org/wiki/SKOS

Log in / create account

You can **support Wikipedia** by making a tax-deductible donation.

article discussion **edit this page** history

## SKOS

From Wikipedia, the free encyclopedia

**SKOS** or **Simple Knowledge Organisation Systems** is a family of **formal languages** designed for representation of **thesauri**, **classification schemes**, **taxonomies**, **subject-heading systems**, or any other type of structured **controlled vocabulary**. SKOS is built upon **RDF** and **RDFS**, and its main objective is to enable easy publication of controlled structured vocabularies for the **Semantic Web**. SKOS is currently developed within the **W3C** framework.

**Contents** [hide]

- History
  - 1.1 SWAD-Europe (2002-2004)
  - 1.2 Semantic Web Activity (2004-2005)
  - 1.3 Current Status and Roadmap (2006-2008)
- Community and Participation
- SKOS components
  - 3.1 SKOS Core
  - 3.2 SKOS Mapping
  - 3.3 SKOS Extensions
- Applications
- Tools
- Relationships with other standards
  - 6.1 SKOS and Thesaurus standards
  - 6.2 SKOS and other Semantic Web standards
- See also

Part of a series on  
**Semantic Web**

**Background**

The World Wide Web,  
The Internet, Databases,  
Semantic networks,  
Knowledge bases,  
Ontologies

**Sub-topics**

Linked Data, Data Web,  
Hyperdata,  
Derferenceable URIs,  
Ontologies, Rule bases,  
Data Spaces

**Related Topics**

Web 2.0, Web 3.0, Plain  
Old Semantic HTML,  
Search engine



Editing SKOS - Wikipedia, the free encyclopedia - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://en.wikipedia.org/w/index.php?title=SKOS&action=edit

Find out more about navigating Wikipedia and finding information. Log in / create account
















[article](#)
[discussion](#)
[edit this page](#)
[history](#)

## Editing SKOS

From Wikipedia, the free encyclopedia

You are not currently [logged in](#). Editing this way will cause your [IP address](#) to be [recorded publicly](#) in [this page's edit history](#). If you [create an account](#), you can conceal your IP address and be provided with many other [benefits](#). Messages sent to your IP can be viewed on [your talk page](#).

**Please do not save test edits. If you want to experiment, please use the [sandbox](#).**

**B** / [Ab](#)                [<ref ref>](#)

```

{{Semantic Web}}
'''SKOS''' or '''Simple Knowledge Organisation Systems''' is a family of \[\[formal language\]\]s designed for representation of \[\[thesaurus|thesauri\]\], \[\[classification scheme\]\]s, \[\[taxonomy|taxonomies\]\], \[\[Authority control|subject-heading systems\]\], or any other type of structured \[\[controlled vocabulary\]\]. SKOS is built upon \[\[Resource Description Framework|RDF\]\] and \[\[RDF Schema|RDFS\]\], and its main objective is to enable easy publication of controlled structured vocabularies for the \[\[Semantic Web\]\]. SKOS is currently developed within the \[\[World Wide Web Consortium|W3C\]\] framework.

== History ==
=== SWAD-Europe \(2002-2004\) ===

SKOS was first developed as an output of the Thesaurus AcTivity Work Package, in the Semantic Web Advanced Development for Europe (SWAD-Europe) project <ref>http://www.w3.org/2001/sw/Europe/ SWAD-Europe</ref>. SWAD-Europe was funded by the \[\[European Community\]\], and part of the \[\[Information Society

```

navigation

- [Main page](#)
- [Contents](#)
- [Featured content](#)
- [Current events](#)
- [Random article](#)

search

Go Search





interaction

- [About Wikipedia](#)
- [Community portal](#)
- [Recent changes](#)
- [Contact Wikipedia](#)
- [Donate to Wikipedia](#)
- [Help](#)

toolbox



# Wikipedia In MediaWiki

23. <sup>▲</sup> [SKOS Core Validation Service](#) 
24. <sup>▲</sup> [SWOOP](#)  A Hypermedia-based Featherweight OWL Ontology Editor, developed by Mindswap - Maryland Information and Network Dynamics Lab Semantic Web Agents Project
25. <sup>▲</sup> [NISO Standards](#)  Z39.19 - 2005 : Guidelines for the Construction, Format, and Management of Monolingual Controlled Vocabularies
26. <sup>▲</sup> [ISO 5964:1985](#)  Guidelines for the establishment and development of multilingual thesauri

Categories: [Knowledge representation](#) | [Semantic Web](#)

IA

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# Wikipedia

- **Over 10 million pages in 253 languages**
- **While there is still debate about the overall accuracy and reliability, there is no doubt that it represents a valuable knowledge resource**
- **Pages are highly interconnected (see SKOS example above) and categorized**

# Outline

- MediaWiki – what it is, how it works
- **Semantic MediaWiki – MediaWiki meets the Semantic Web**
- Vocabulary Development in Semantic MediaWiki

# Background RDF

## Resource Description Framework

- Describes “Resources”
- Format: Subject Predicate Object
  - SKOS type formal language
  - SKOS represents classification schemes
  - SKOS released “2003”

# Background

## RDFS - RDF Schema

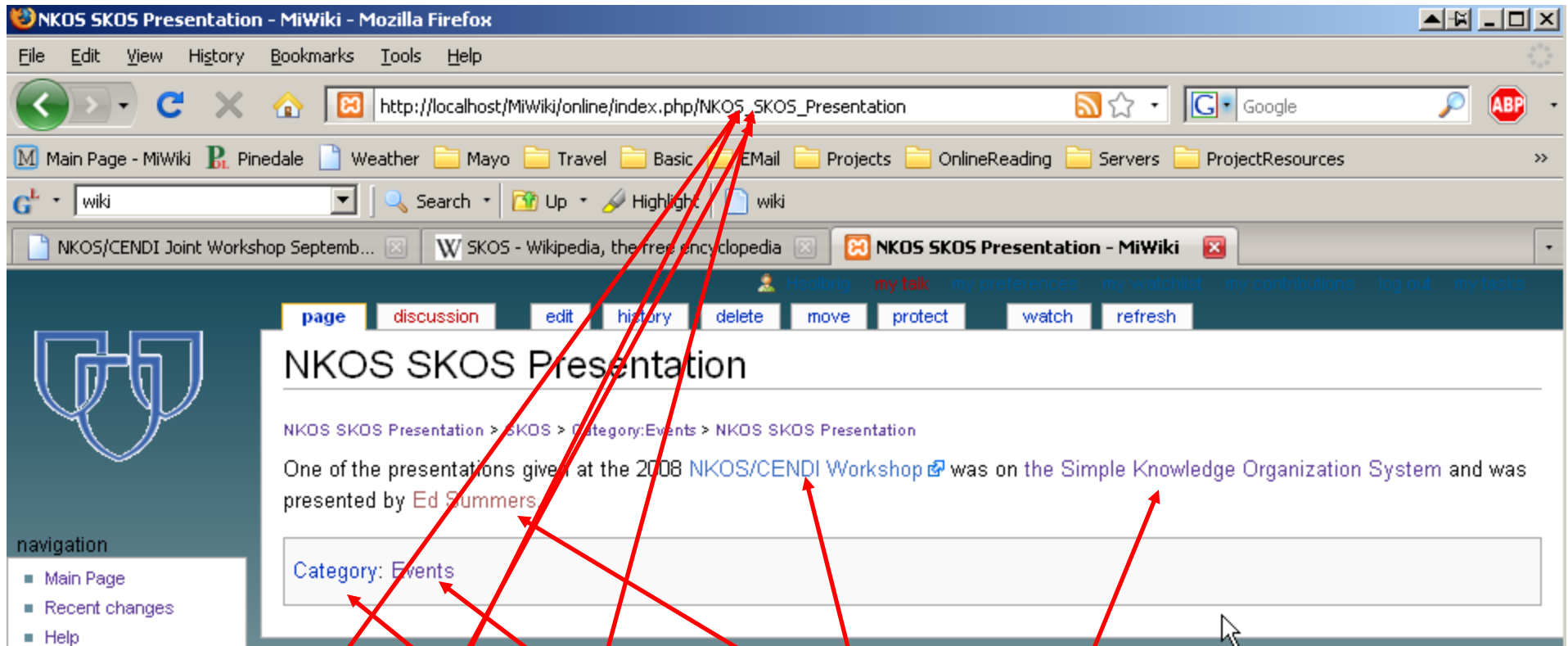
- **Adds Semantics to RDF**
  - **Class, Literal, Property, Datatype**
  - **subClass, subProperty**
  - **...**
- **SKOS type Knowledge Representation**
- **Knowledge Representation subClassOf Information Science**

# OWL and the Semantic Web

- **Represented as RDF “triples”**
- **OWL adds further semantics to RDFS**
  - **Inheritance, inference, set theory**



# Semantic MediaWiki



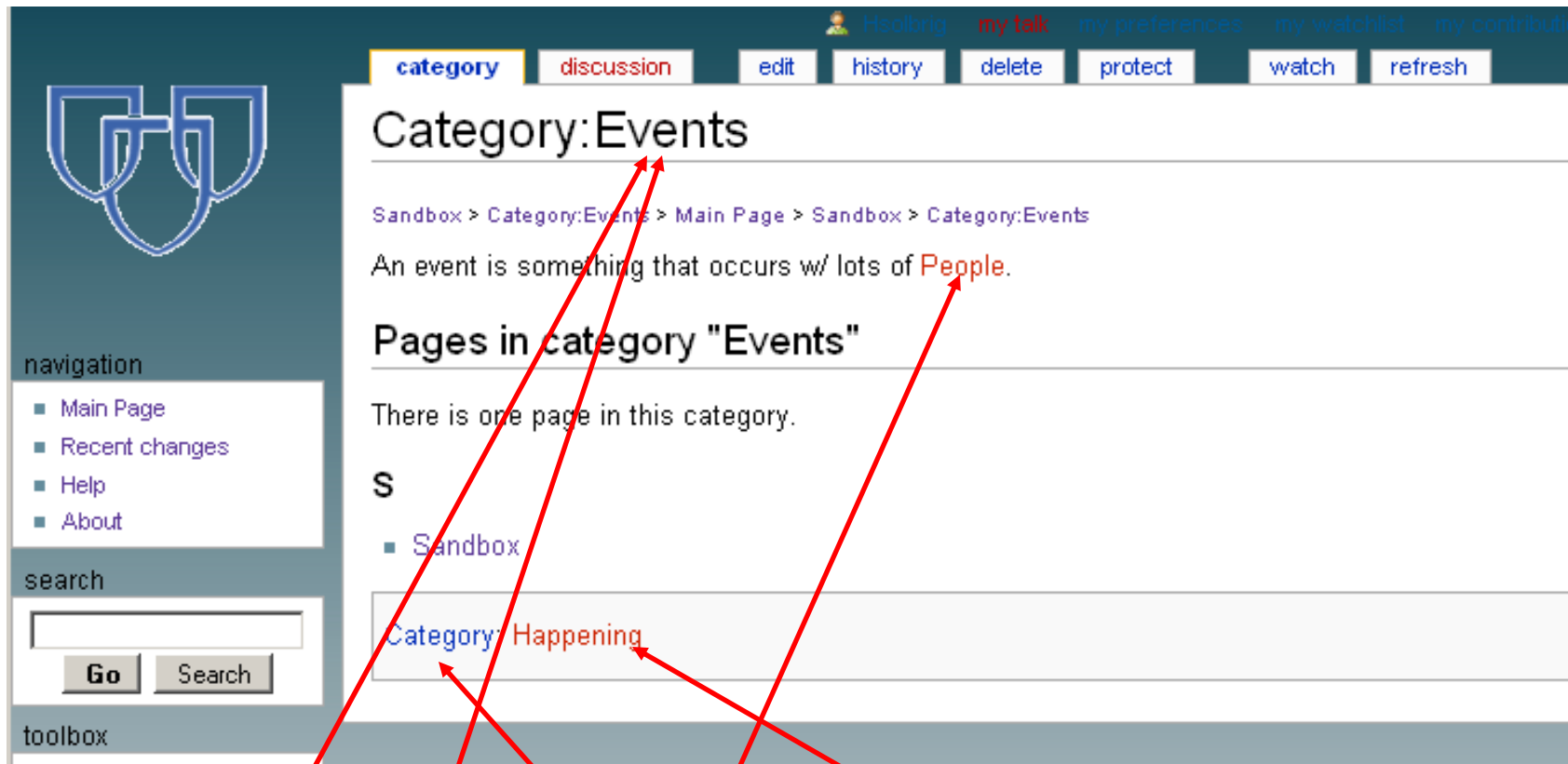
NKOS SKOS Presentation ??? NKOS/CENDI Workshop

NKOS SKOS Presentation ??? Ed Summers

NKOS SKOS Presentation ??? SKOS

NKOS SKOS Presentation type Events

# Semantic MediaWiki



**Events ??? People**

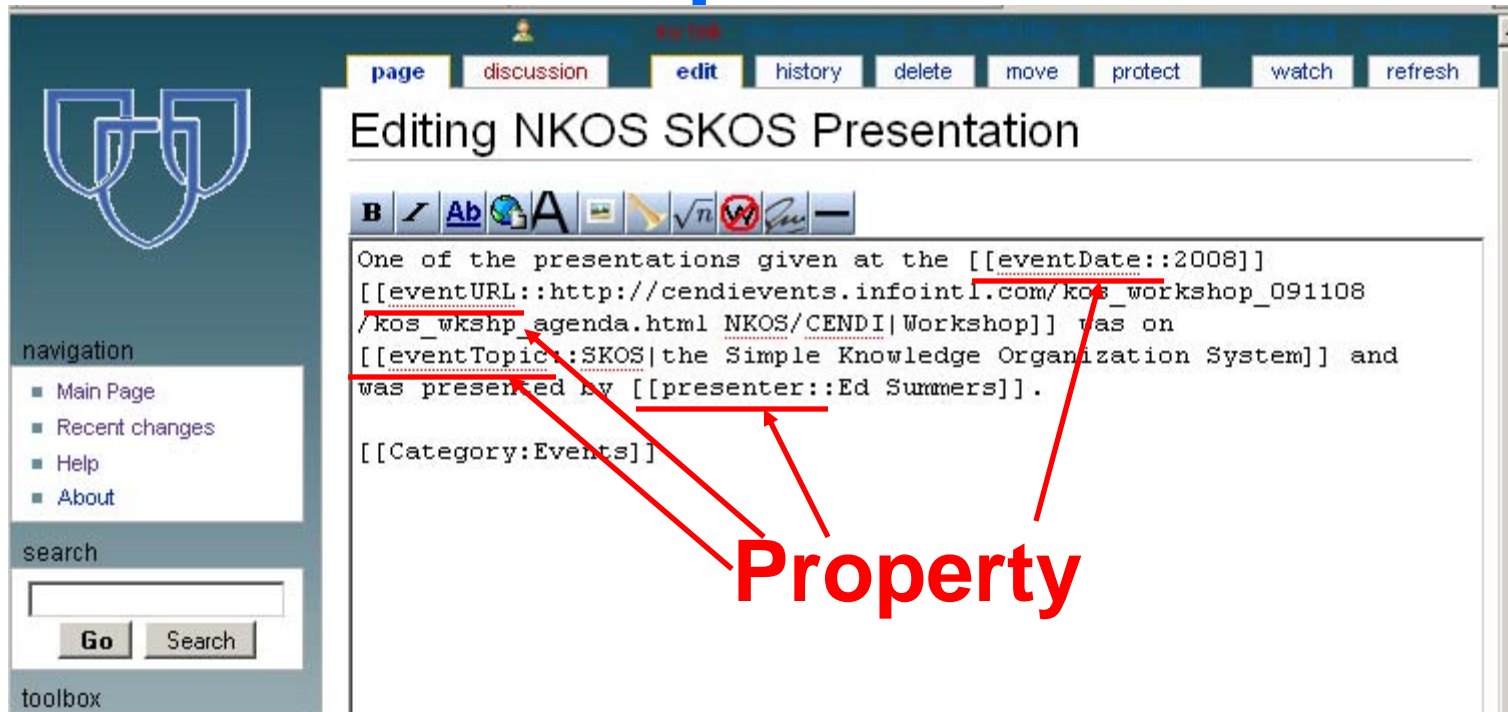
**Events subClassOf Happening**

# Semantic MediaWiki

**Premise is that we should be able to harvest the knowledge in Wikis (especially Wikipedia!)**

- **Links → current page ??? Linked page**
- **Categories:**
  - **current page type Link**
  - **current page subclassOf Link**
- **Data (e.g. meeting in 2008) → current page ???? (data)**

# Semantic Mediawiki Properties



The screenshot shows a web browser window displaying the editing interface of a Semantic Mediawiki page titled "Editing NKOS SKOS Presentation". The page features a navigation menu on the left with links for "Main Page", "Recent changes", "Help", and "About". A search box is also present. The main editing area contains a text editor with a toolbar and a text area. The text in the editor is as follows:

```
One of the presentations given at the [[eventDate::2008]]  
[[eventURL::http://cendievents.infointl.com/kos_workshop_091108/  
/kos_wkshp_agenda.html NKOS/CENDI|Workshop]] was on  
[[eventTopic::SKOS|the Simple Knowledge Organization System]] and  
was presented by [[presenter::Ed Summers]].  
[[Category:Events]]
```

Red arrows point from the word "Property" (written in large red font at the bottom center) to the property names in the text: "eventDate", "eventURL", "eventTopic", and "presenter".

# Semantic Mediawiki Properties

NKOS SKOS Presentation

NKOS SKOS Presentation > SKOS > Category:Events > NKOS SKOS Presentation

One of the presentations given at the 2008 Workshop was on the Simple Knowledge Organization System and was presented by Ed Summers.

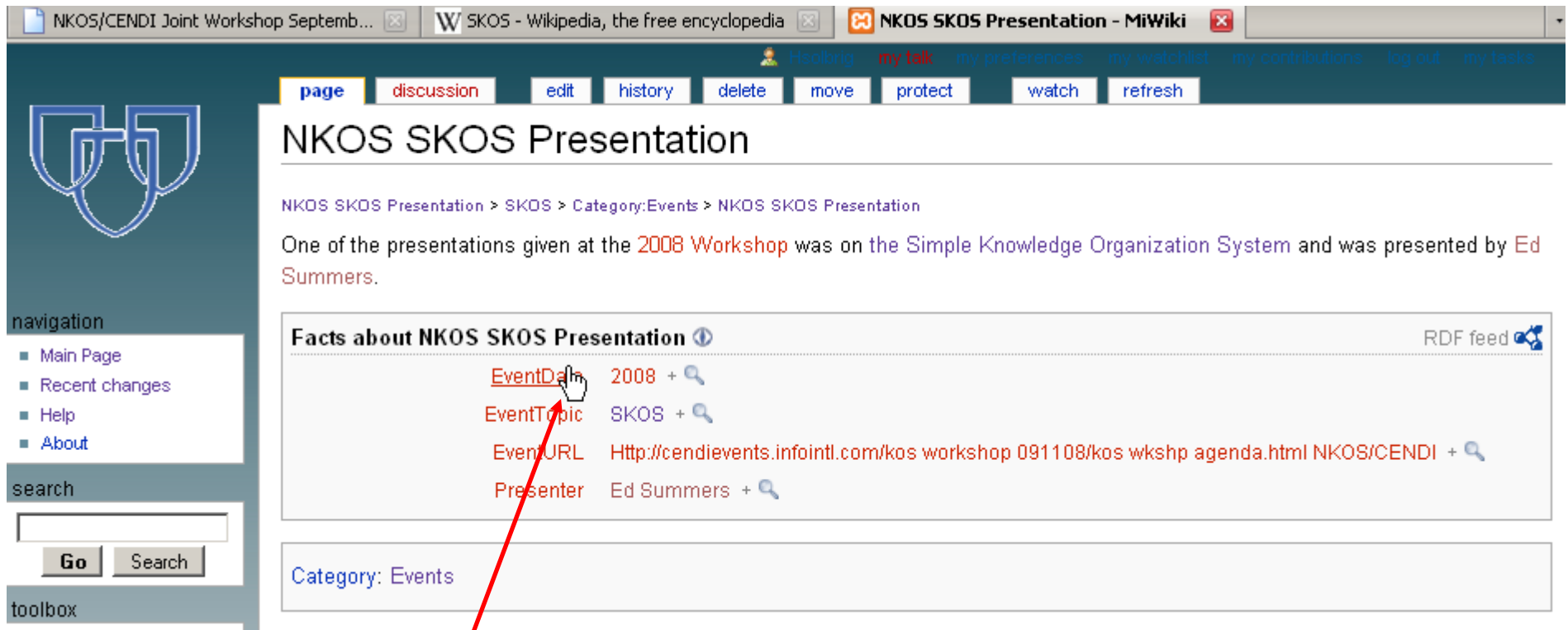
Facts about NKOS SKOS Presentation	
EventDate	2008 +
EventTopic	SKOS +
EventURL	http://cendievents.infointl.com/kos-workshop-091108/kos-wkshp-agenda.html NKOS/CENDI +
Presenter	Ed Summers +

Category: Events

**NKOS SKOS Presentation eventTopic SKOS**  
**NKOS SKOS Presentation presenter Ed Summers**  
**NKOS SKOS Presentation eventURL http://...**  
**NKOS SKOS Presentation eventDate 2008**

# Semantic MediaWiki

## Defining Properties



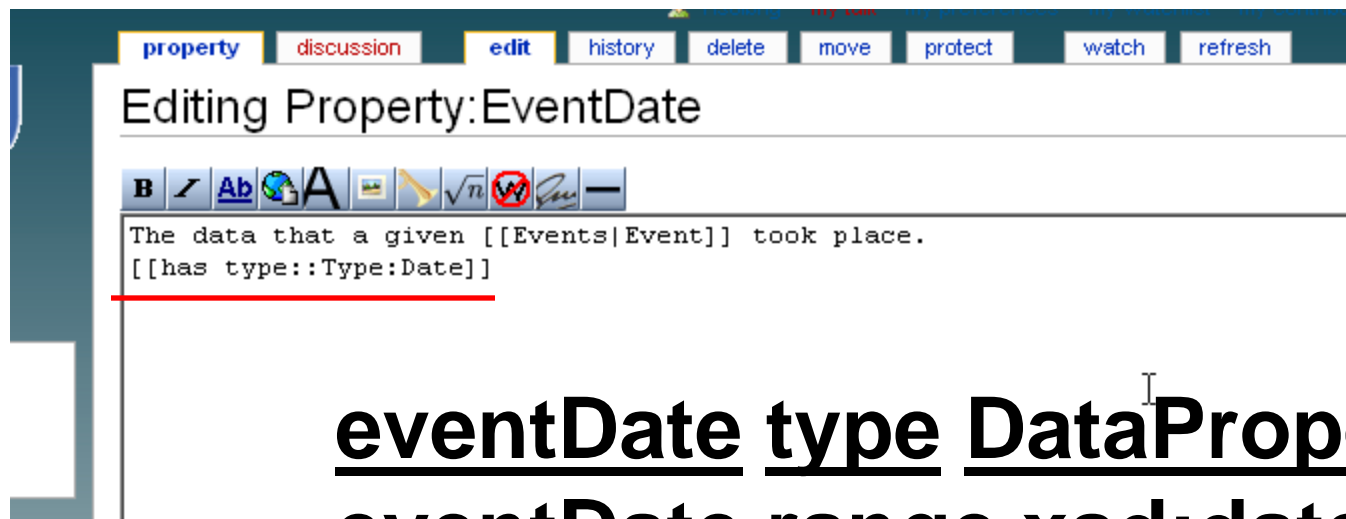
The screenshot shows a browser window with three tabs: 'NKOS/CENDI Joint Workshop Septemb...', 'SKOS - Wikipedia, the free encyclopedia', and 'NKOS SKOS Presentation - MiWiki'. The active page is the Semantic MediaWiki article for 'NKOS SKOS Presentation'. The page features a navigation bar with buttons for 'page', 'discussion', 'edit', 'history', 'delete', 'move', 'protect', 'watch', and 'refresh'. Below the navigation bar is the article title 'NKOS SKOS Presentation' and a breadcrumb trail: 'NKOS SKOS Presentation > SKOS > Category:Events > NKOS SKOS Presentation'. The main text states: 'One of the presentations given at the 2008 Workshop was on the Simple Knowledge Organization System and was presented by Ed Summers.' Below the text is a 'Facts about NKOS SKOS Presentation' section with an 'RDF feed' icon. The facts are listed in a table:

Facts about NKOS SKOS Presentation ⓘ		RDF feed ⓘ
EventDate	2008 + 🔍	
EventTopic	SKOS + 🔍	
EventURL	Http://cendievents.infointl.com/kos workshop 091108/kos wkshp agenda.html NKOS/CENDI + 🔍	
Presenter	Ed Summers + 🔍	

Below the facts section is a 'Category: Events' label. On the left side of the page, there is a navigation menu with links for 'Main Page', 'Recent changes', 'Help', and 'About'. Below the navigation menu is a search box with 'Go' and 'Search' buttons. At the bottom left is a 'toolbox' section.

# Semantic MediaWiki

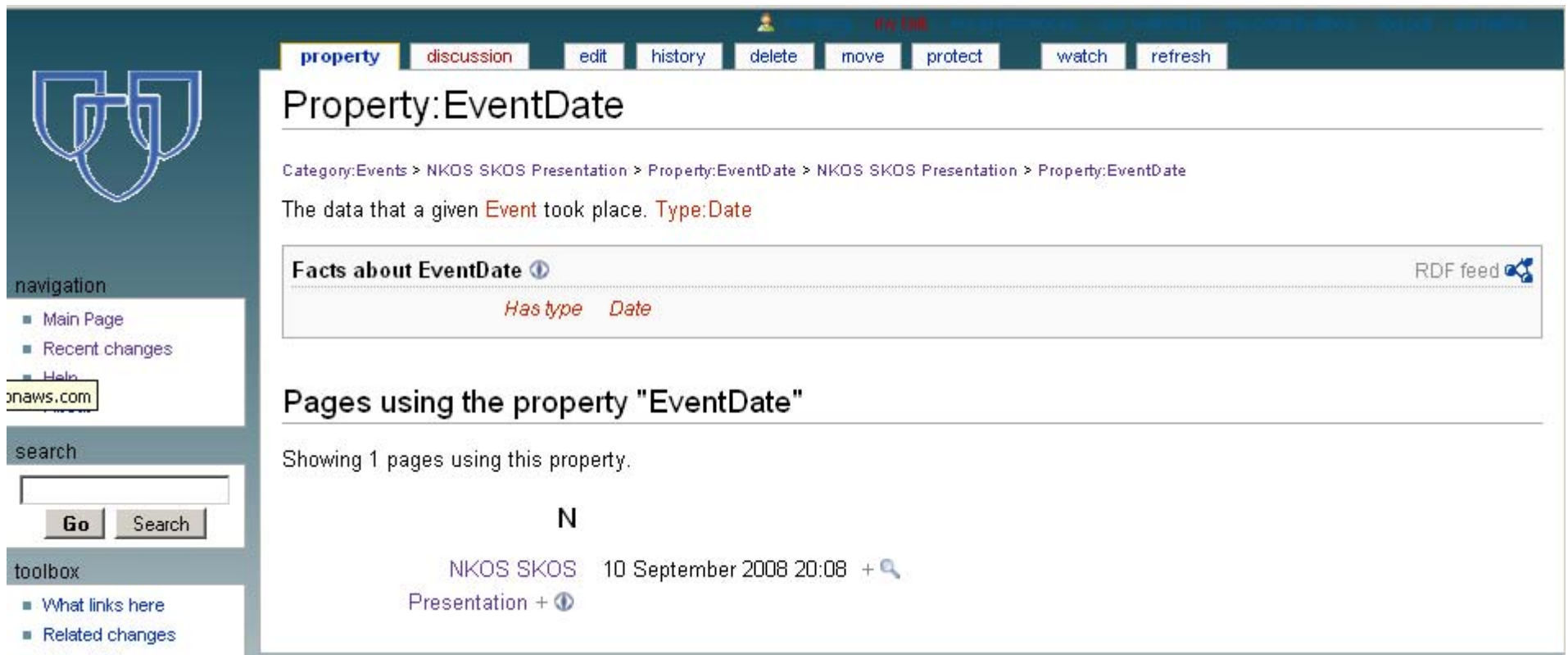
## Defining Properties



**eventDate type DataProperty**  
**eventDate range xsd:dateTime**

# Semant MediaWiki

## Defining Properties



The screenshot shows a Semant MediaWiki page for the property `Property:EventDate`. The page is titled "Property:EventDate" and includes a navigation bar with buttons for "property", "discussion", "edit", "history", "delete", "move", "protect", "watch", and "refresh". The breadcrumb trail is "Category:Events > NKOS SKOS Presentation > Property:EventDate > NKOS SKOS Presentation > Property:EventDate". The main content area describes the property as "The data that a given `Event` took place. `Type:Date`". Below this, there is a section titled "Facts about EventDate" with a sub-section "Has type" and the value "Date". An "RDF feed" link is also present. The page also features a "Pages using the property 'EventDate'" section, which shows one page: "NKOS SKOS Presentation" with a date of "10 September 2008 20:08". The left sidebar contains navigation links, a search box, and a toolbox.

property discussion edit history delete move protect watch refresh

### Property:EventDate

Category:Events > NKOS SKOS Presentation > Property:EventDate > NKOS SKOS Presentation > Property:EventDate

The data that a given `Event` took place. `Type:Date`

**Facts about EventDate** ⓘ RDF feed ⓘ

*Has type* `Date`

### Pages using the property "EventDate"

Showing 1 pages using this property.

**N**

NKOS SKOS 10 September 2008 20:08 + ⓘ  
Presentation + ⓘ

navigation

- Main Page
- Recent changes
- Help

onaws.com

search

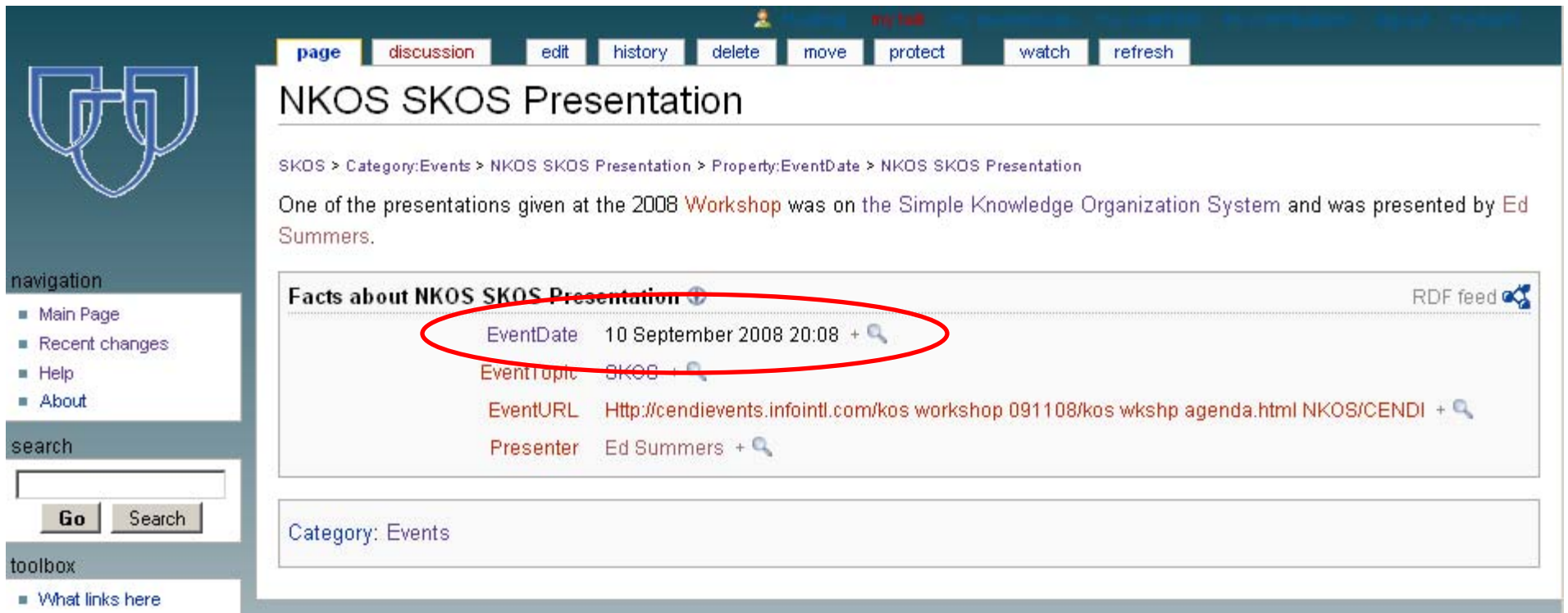
**Go** Search

toolbox

- What links here
- Related changes



# Semantic MediaWiki Property Formatting








page discussion edit history delete move protect watch refresh

## NKOS SKOS Presentation

SKOS > Category:Events > NKOS SKOS Presentation > Property:EventDate > NKOS SKOS Presentation

One of the presentations given at the 2008 [Workshop](#) was on the Simple Knowledge Organization System and was presented by Ed Summers.

**Facts about NKOS SKOS Presentation** RDF feed 

EventDate	10 September 2008 20:08 + 
EventTopic	SKOS + 
EventURL	<a href="http://cendievents.infointl.com/kos-workshop-091108/kos-wkshp-agenda.html">Http://cendievents.infointl.com/kos-workshop-091108/kos-wkshp-agenda.html</a> NKOS/CENDI + 
Presenter	Ed Summers + 

Category: Events

navigation

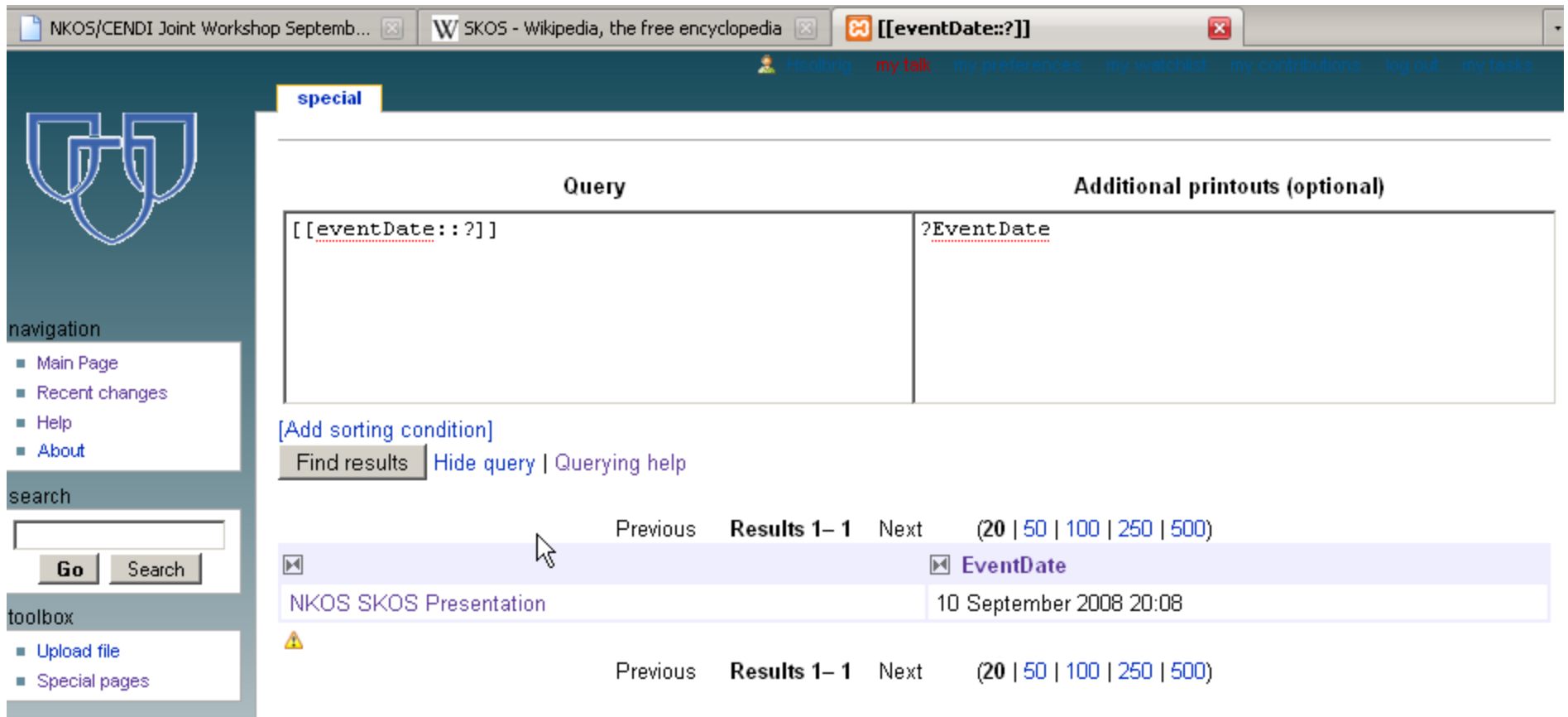
- Main Page
- Recent changes
- Help
- About

search

toolbox

- What links here

# Semantic MediaWiki Query Language



The screenshot shows a browser window with three tabs: "NKOS/CENDI Joint Workshop Septemb...", "SKOS - Wikipedia, the free encyclopedia", and "[[eventDate::?]]". The page is titled "special" and contains a query interface. The query is "[[eventDate::?]]" and the additional printouts are "?EventDate". The results table shows one result: "NKOS SKOS Presentation" with an event date of "10 September 2008 20:08".

Query	Additional printouts (optional)
<code>[[<u>eventDate</u>::?]]</code>	? <u>EventDate</u>

[Add sorting condition]  
Find results Hide query | Querying help

Previous **Results 1– 1** Next (20 | 50 | 100 | 250 | 500)

<input type="checkbox"/>	<input checked="" type="checkbox"/> EventDate
<input type="checkbox"/> NKOS SKOS Presentation	<input checked="" type="checkbox"/> 10 September 2008 20:08

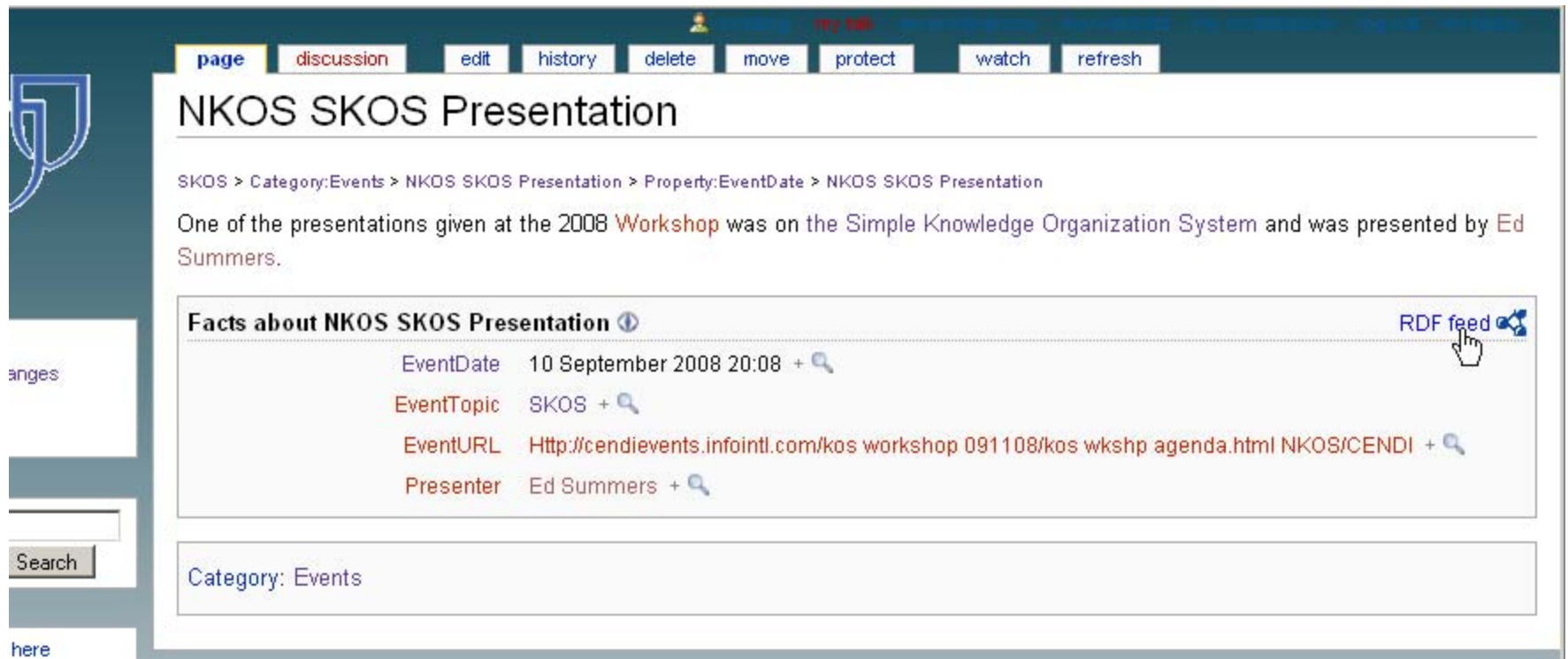
Previous **Results 1– 1** Next (20 | 50 | 100 | 250 | 500)

Navigation: Main Page, Recent changes, Help, About

Search:  Go Search

Toolbox: Upload file, Special pages

# Semantic MediaWiki RDF Dump



The screenshot shows a Semantic MediaWiki page titled "NKOS SKOS Presentation". At the top, there is a navigation bar with buttons for "page", "discussion", "edit", "history", "delete", "move", "protect", "watch", and "refresh". Below the navigation bar, the page title "NKOS SKOS Presentation" is displayed. A breadcrumb trail reads "SKOS > Category:Events > NKOS SKOS Presentation > Property:EventDate > NKOS SKOS Presentation". The main text of the page states: "One of the presentations given at the 2008 Workshop was on the Simple Knowledge Organization System and was presented by Ed Summers." Below the text is a section titled "Facts about NKOS SKOS Presentation" with a downward arrow icon. To the right of this section is a link for "RDF feed" with a blue icon. The facts are listed as follows:

EventDate	10 September 2008 20:08 + 🔍
EventTopic	SKOS + 🔍
EventURL	Http://cendievents.infointl.com/kos workshop 091108/kos wkshp agenda.html NKOS/CENDI + 🔍
Presenter	Ed Summers + 🔍

Below the facts section, there is a box labeled "Category: Events". On the left side of the page, there is a search bar with the text "Search" and a "here" link below it.

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
- <rdf:RDF>
  <!-- Ontology header -->
  - <owl:Ontology rdf:about="">
    <swivt:creationDate rdf:datatype="http://www.w3.org/2001/XMLSchema#dateTime">2008-09-10T12:28:44-05:00</swivt:creationDate>
    <owl:imports rdf:resource="http://semantic-mediawiki.org/swivt/1.0"/>
  </owl:Ontology>
  <!-- exported page data -->
  - <swivt:Subject rdf:about="http://bmidev3.mayo.edu/MiWiki/online/index.php/Special:URIResolver/NKOS_SKOS_Presentation">
    <rdfs:label>NKOS SKOS Presentation</rdfs:label>
    <swivt:page rdf:resource="http://localhost/MiWiki/online/index.php/NKOS_SKOS_Presentation"/>
    <rdfs:isDefinedBy rdf:resource="http://localhost/MiWiki/online/index.php/Special:ExportRDF/NKOS_SKOS_Presentation"/>
    <rdf:type rdf:resource="http://bmidev3.mayo.edu/MiWiki/online/index.php/Special:URIResolver/Category-3AEvents"/>
    <property:EventDate rdf:datatype="http://www.w3.org/2001/XMLSchema#dateTime">2008-09-10T20:08:00</property:EventDate>
    <property:EventTopic rdf:resource="http://bmidev3.mayo.edu/MiWiki/online/index.php/Special:URIResolver/SKOS"/>
    <property:EventURL rdf:resource="http://bmidev3.mayo.edu/MiWiki/online/index.php/Special:URIResolver/Http-3A//cendievents.infointl.com/kos_workshop_091108/kos_wkshp_agenda.html_NKOS/CENDI"/>
    <property:Presenter rdf:resource="http://bmidev3.mayo.edu/MiWiki/online/index.php/Special:URIResolver/Ed_Summers"/>
  </swivt:Subject>
  <!-- auxilliary definitions -->
  - <swivt:Subject rdf:about="http://bmidev3.mayo.edu/MiWiki/online/index.php/Special:URIResolver/Ed_Summers">
    <rdfs:label>Ed Summers</rdfs:label>
    <swivt:page rdf:resource="http://localhost/MiWiki/online/index.php/Ed_Summers"/>
    <rdfs:isDefinedBy rdf:resource="http://localhost/MiWiki/online/index.php/Special:ExportRDF/Ed_Summers"/>
  </swivt:Subject>
  - <owl:ObjectProperty rdf:about="http://bmidev3.mayo.edu/MiWiki/online/index.php/Special:URIResolver/Property-3APresenter">
    <rdfs:label>Presenter</rdfs:label>
    <swivt:page rdf:resource="http://localhost/MiWiki/online/index.php/Property:Presenter"/>
    <rdfs:isDefinedBy rdf:resource="http://localhost/MiWiki/online/index.php/Special:ExportRDF/Property:Presenter"/>
  </owl:ObjectProperty>
  - <swivt:Subject rdf:about="http://bmidev3.mayo.edu/MiWiki/online/index.php/Special:URIResolver/Http-3A//cendievents.infointl.com/kos_workshop_091108/kos_wkshp_agenda.html_NKOS/CENDI">
```

# Semantic MediaWiki

**Can generate “semantic” triples**

**\* Subject Property Object**

**Export RDF**

**Run SPARQL-like queries**

**Extensions:**

- Semantic Forms – form based entry**
- SMW Halo – syntax directed entry**

# Semantic Mediawiki

**But what of “Semantics”?**

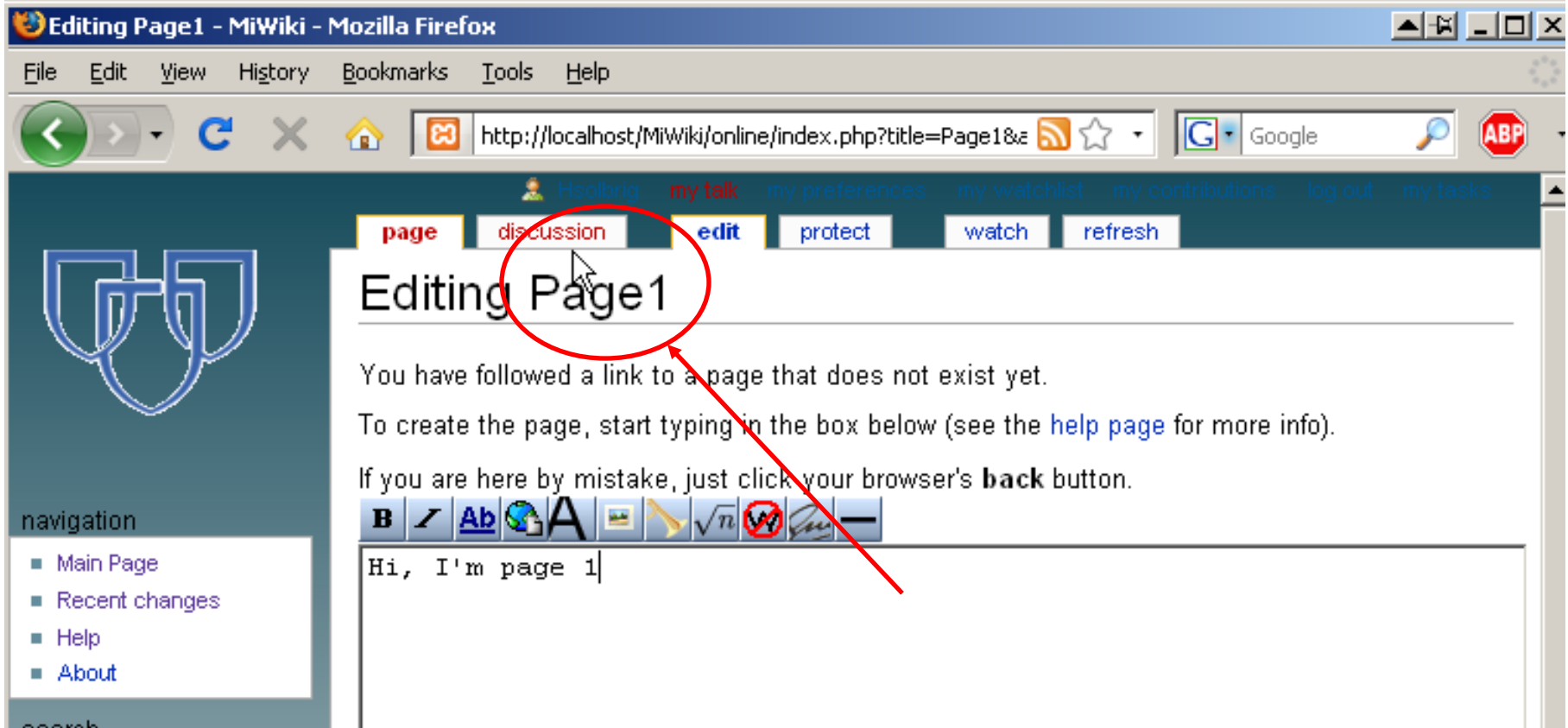
- **Dublin Core**
- **SKOS**
- **FOAF**
- **RDF & RDFS**
- **OWL**
- **...**

# Semantic Mediawiki Semantics

**Solution:**

**Import external resources via  
“Semantic Templates”**

# Templates



Editing Page 1 - MiWiki - Mozilla Firefox

File Edit View History Bookmarks Tools Help








http://localhost/MiWiki/online/index.php?title=Page1&...

Hsorbig my talk my preferences my watchlist my contributions log out my tasks

page discussion edit protect watch refresh

## Editing Page 1

You have followed a link to a page that does not exist yet.  
To create the page, start typing in the box below (see the [help page](#) for more info).  
If you are here by mistake, just click your browser's **back** button.

**B** / **Ab**  **A**     $\sqrt{n}$    

Hi, I'm page 1

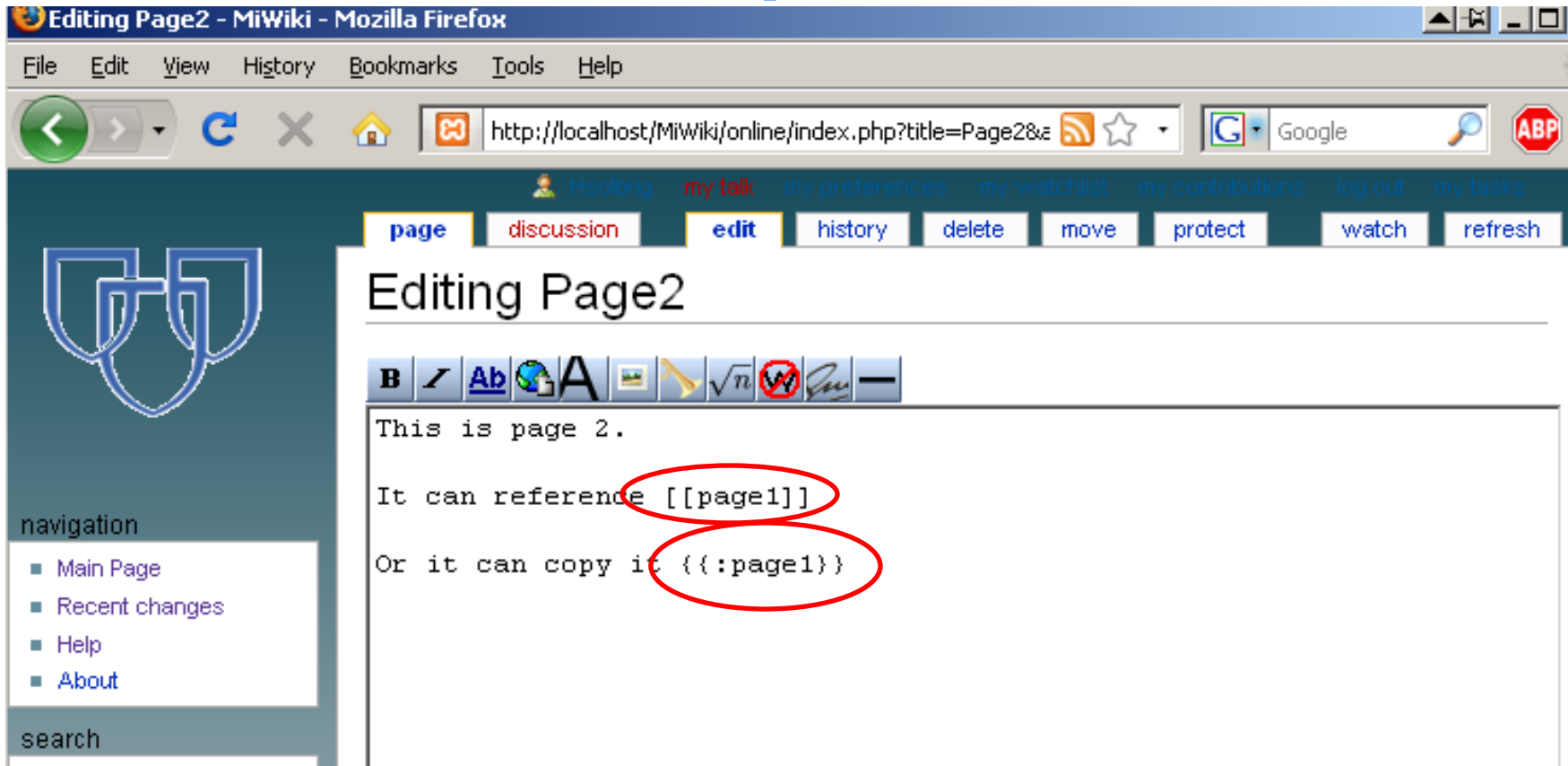
navigation

- [Main Page](#)
- [Recent changes](#)
- [Help](#)
- [About](#)

search



# Templates



Editing Page2 - MiWiki - Mozilla Firefox







File Edit View History Bookmarks Tools Help

http://localhost/MiWiki/online/index.php?title=Page2& Google

Hooling my talk my preferences my watchlist my contributions log out my tasks

page discussion edit history delete move protect watch refresh

## Editing Page2

**B** / **Ab**  **A**    $\sqrt{n}$    

This is page 2.

It can reference `[[page1]]`

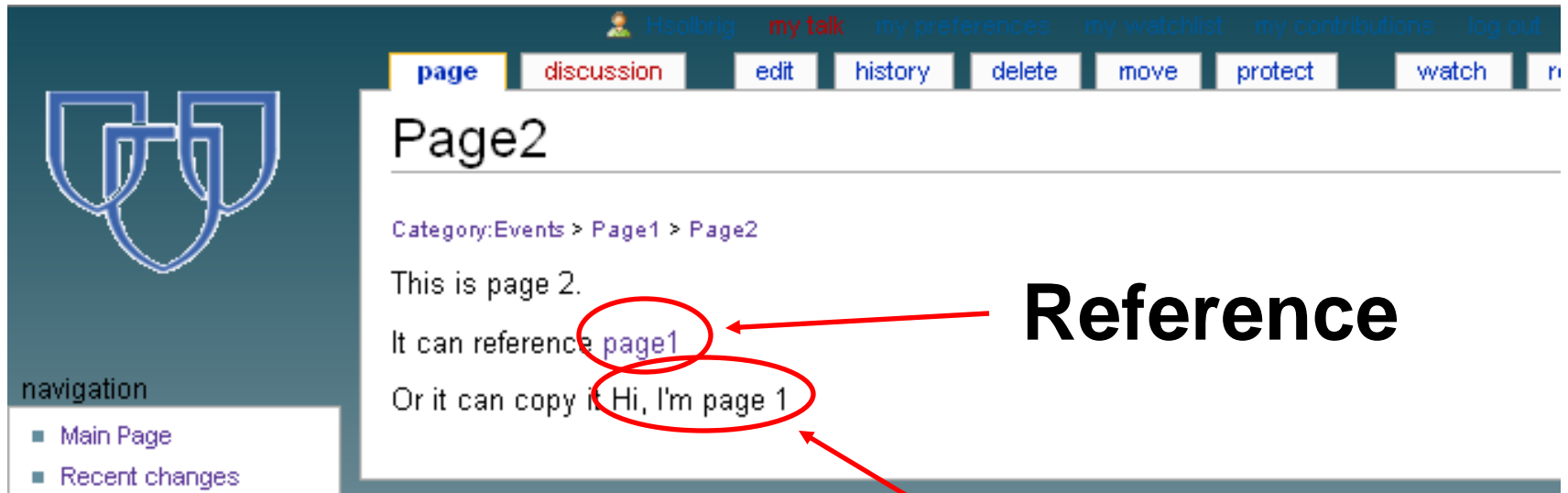
Or it can copy it `{{:page1}}`

navigation

- Main Page
- Recent changes
- Help
- About

search

# Templates



The screenshot shows a wiki page titled "Page2". At the top, there is a navigation bar with a user profile icon and the name "Hsolbrig", followed by links for "my talk", "my preferences", "my watchlist", "my contributions", and "log out". Below this is a secondary navigation bar with buttons for "page", "discussion", "edit", "history", "delete", "move", "protect", "watch", and "r". The main content area of the page is titled "Page2" and contains the following text:

Category:Events > Page1 > Page2

This is page 2.

It can reference [page1](#)

Or it can copy it: Hi, I'm page 1

On the left side of the page, there is a navigation menu with the Mayo Clinic logo and the following items:

navigation

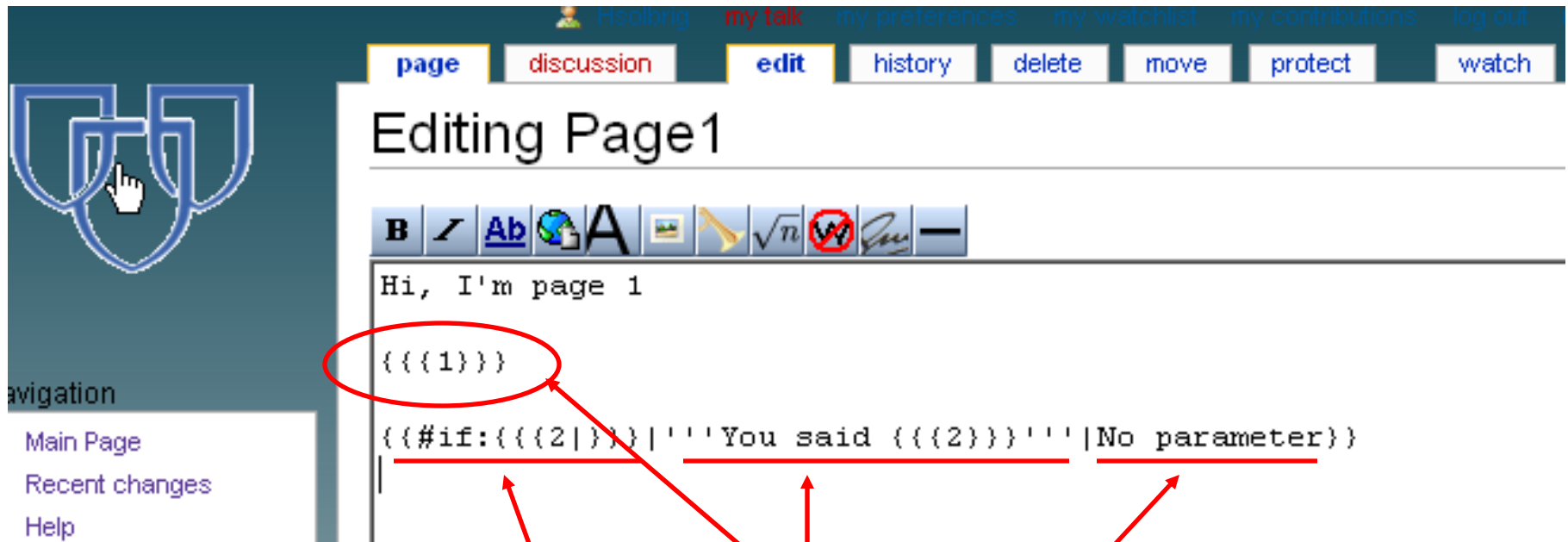
- Main Page
- Recent changes

Two red circles are drawn around the text "page1" and "Hi, I'm page 1". A red arrow points from the word "Reference" to the circle around "page1". Another red arrow points from the word "Copy" to the circle around "Hi, I'm page 1".

**Reference**

**Copy**

# Templates as a Macro Language



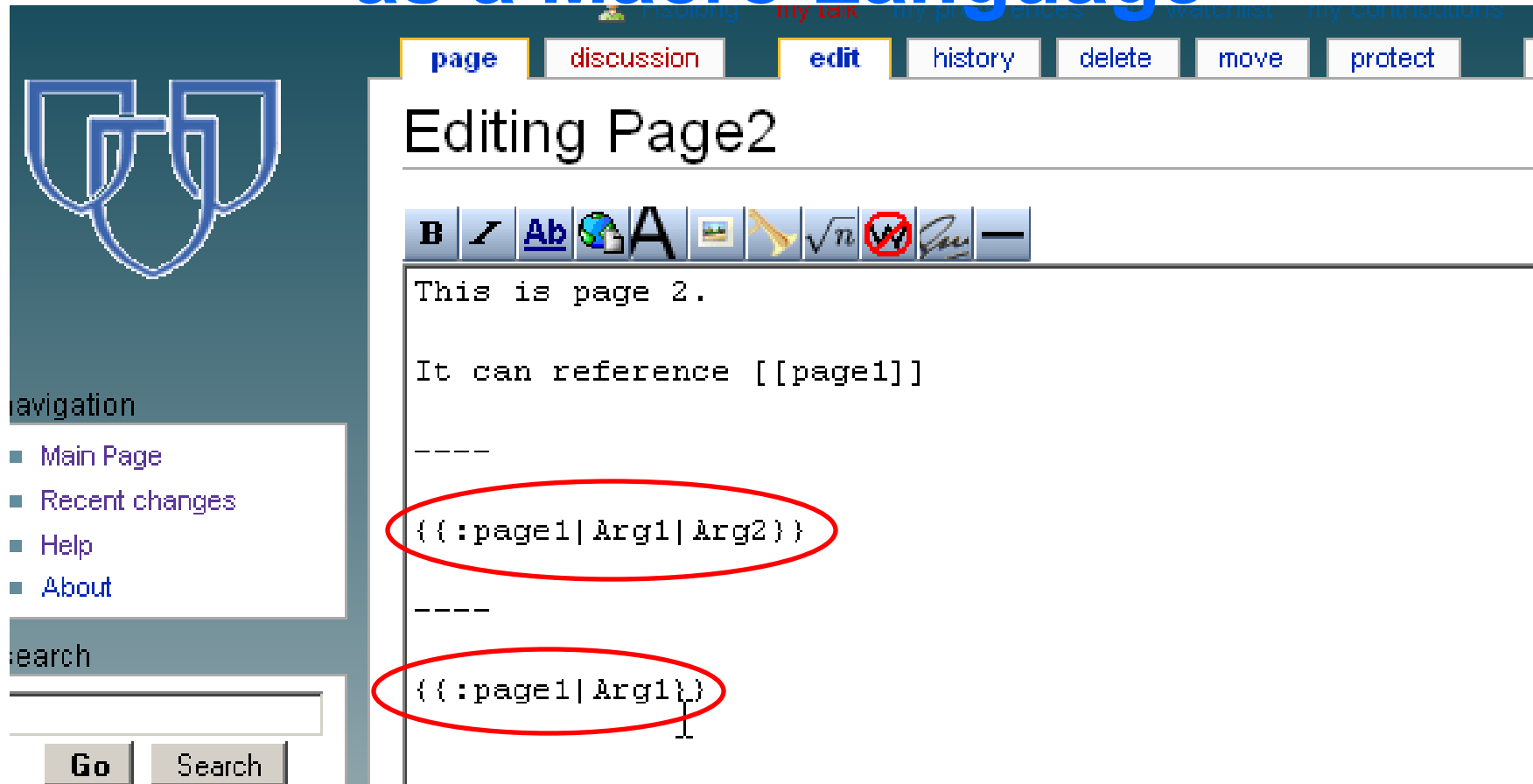
The screenshot shows a wiki editing interface. At the top, there are navigation links: "Hsoling", "my talk", "my preferences", "my watchlist", "my contributions", and "log out". Below these are action buttons: "page", "discussion", "edit", "history", "delete", "move", "protect", and "watch". The main heading is "Editing Page1". Below the heading is a rich text editor toolbar with icons for bold, italic, underline, link, unlink, image, table, math, and signature. The text area contains the following code:

```
Hi, I'm page 1  
{{{1}}}  
{{#if:{{{2|}}}|''You said {{{2}}}''|No parameter}}
```

Annotations include a red circle around the first line of code, and red arrows pointing from the text below to the first and second parameters in the code.

**Parameter Substitution  
Macro Language**

# Templates as a Macro Language



The screenshot shows a wiki editing interface. At the top, there are navigation tabs: [page](#), [discussion](#), [edit](#), [history](#), [delete](#), [move](#), and [protect](#). The main heading is "Editing Page2". Below the heading is a rich text editor toolbar with icons for bold, italic, underline, link, unlink, image, table, math, and signature. The text area contains the following content:

This is page 2.

It can reference [[page1]]

----

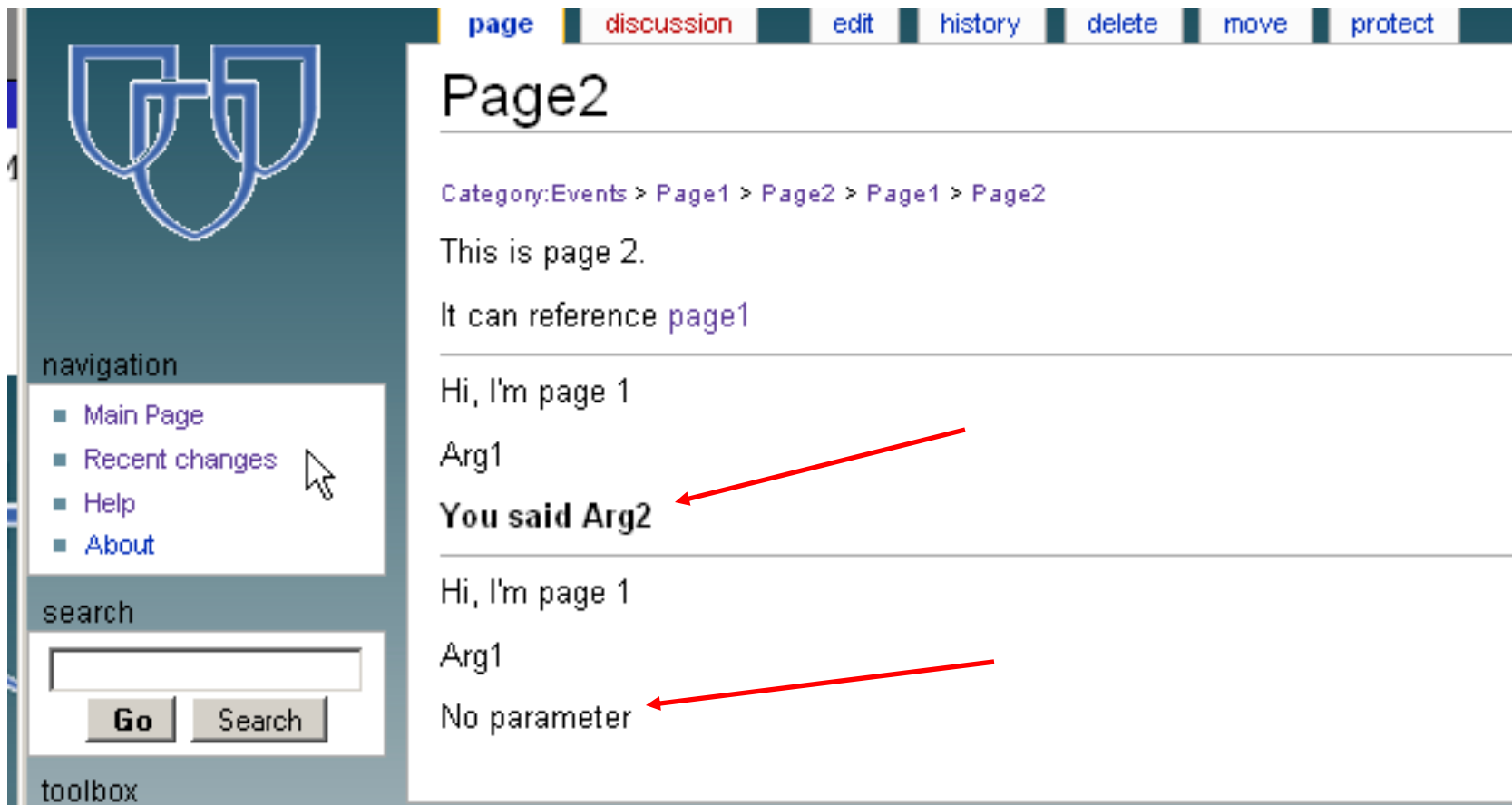
`{{:page1|Arg1|Arg2}}`

----

`{{:page1|Arg1}}`

The two macro syntax lines are circled in red. The interface also includes a navigation menu on the left with links to Main Page, Recent changes, Help, and About, and a search box at the bottom left with "Go" and "Search" buttons.

# Templates as a Macro Language



The screenshot shows a Wiki page titled "Page2" with a navigation bar at the top containing links for "page", "discussion", "edit", "history", "delete", "move", and "protect". The page content includes a breadcrumb trail "Category:Events > Page1 > Page2 > Page1 > Page2" and the text "This is page 2. It can reference [page1](#)". Below this, a template call is shown: "Hi, I'm page 1" followed by "Arg1" and "You said Arg2". A red arrow points from "Arg1" to "Arg2". The template expansion is shown below, starting with "Hi, I'm page 1" followed by "Arg1" and "No parameter". A second red arrow points from "Arg1" in the expansion to "No parameter".

page discussion edit history delete move protect

## Page2

Category:Events > Page1 > Page2 > Page1 > Page2

This is page 2.  
It can reference [page1](#)

---

Hi, I'm page 1  
Arg1  
**You said Arg2**

---

Hi, I'm page 1  
Arg1  
No parameter

navigation

- [Main Page](#)
- [Recent changes](#)
- [Help](#)
- [About](#)

search

**Go** Search

toolbox

# Importing Ontology Using Templates



```
{{MetaLexWiki_Title|1=SKOS_Concept_Scheme(ConceptScheme)}}
{{LexWiki_Basic Data Header}}
{{LexWiki_Concept Code|1=ConceptScheme}}
{{LexWiki_PREFERRED Name|1=Concept Scheme|2=en}}
{{LexWiki_inScheme|1=SKOS|2=2006-04-18}}
{{LexWiki_Presentation|1=rdfs_label(label)|2=Concept Scheme|3=en}}
{{LexWiki_Definition|1=A set of concepts, optionally including statements
about semantic relationships between those concepts.|language=en}}
{{LexWiki_Definition|1=Thesauri, classification schemes, subject heading
lists, taxonomies, 'folksonomies', and other types of controlled vocabulary
are all examples of concept schemes. Concept schemes are also embedded in
glossaries and terminologies.|language=en}}
{{LexWiki_Definition|1=A concept scheme may be defined to include concepts
from different sources.|language=en}}
{{LexWiki_URI|1=http://www.w3.org/2004/02/skos/core#ConceptScheme}}
{{LexWiki_Basic Data Trailer}}
{{LexWiki_Concept Property Header|1=3}}
{{LexWiki_Concept Property|1=SKOS_example(example)|2=http://www.w3.org/2004/02
/skos/core/examples/ConceptScheme.rdf.xml}}
{{LexWiki_Concept Property|1=DCTerms_Date_Issued(issued)|2=2004-03-26}}
{{LexWiki_Concept Property|1=DCTerms_Date_Modified(modified)|2=2005-10-14}}
{{LexWiki_Concept Property Trailer}}
{{LexWiki_Association Header|1=1}}
{{LexWiki_Parent|1=Category:SKOS_Top_Thing(0)}}
```

# SKOS:Concept Scheme In Semantic MediaWiki

[category](#) [discussion](#) [annotate](#) [edit](#) [history](#) [delete](#) [move](#) [protect](#) [watch](#) [refresh](#)

Category:SKOS Concept Scheme(ConceptScheme)

SKOS\_Concept\_Scheme(ConceptScheme)

[Lexical](#) [Properties](#) [Associations](#) [Factbox](#)

**Concept Code:** ConceptScheme

**Preferred Name:** Concept Scheme

**Coding Scheme:** [SKOS](#) (2006-04-18)

**label:** [Concept Scheme](#) [\(en\)](#)

**Definition:** A set of concepts, optionally including statements about semantic relationships between those concepts. *(en)*

**Definition:** Thesauri, classification schemes, subject heading lists, taxonomies, 'folksonomies', and other types of controlled vocabulary are all schemes. Concept schemes are also embedded in glossaries and terminologies. *(en)*

**Definition:** A concept scheme may be defined to include concepts from different sources. *(en)*

**URI:** <http://www.w3.org/2004/02/skos/core#ConceptScheme> [↗](#)

# SKOS:ConceptScheme In Semantic MediaWiki

[category](#) [discussion](#) [annotate](#) [edit](#) [history](#) [delete](#) [move](#) [protect](#) [watch](#) [refresh](#)

## Category:SKOS Concept Scheme(ConceptScheme)

### SKOS\_Concept\_Scheme(ConceptScheme)

Lexical

Properties

Associations

Factbox

#### Facts about SKOS Concept Scheme(ConceptScheme) ⓘ

RDF feed 

DCTerms Date Issued(issued) 26 March 2004 + 

DCTerms Date Modified(modified) 14 October 2005 + 

DCTerms Has Version(hasVersion) SKOS/Versions/2006-04-18 + 


*Equivalent URI* <http://www.w3.org/2004/02/skos/core#ConceptScheme> 

LexWiki Concept Code ConceptScheme + 

*LexWiki Definition* A set of concepts, optionally including statements about semantic relationships between those concepts. *(en)*, Thesauri, classification schemes, subject heading lists, taxonomies, 'folksonomies', and other types of controlled vocabulary are all examples of concept schemes. Concept schemes are also embedded in glossaries and terminologies. *(en)*, and A concept scheme may be defined to include concepts from different sources. *(en)*

LexWiki Preferred Name Concept Scheme + 

Rdf type(type) Rdfs Class(Class) + 

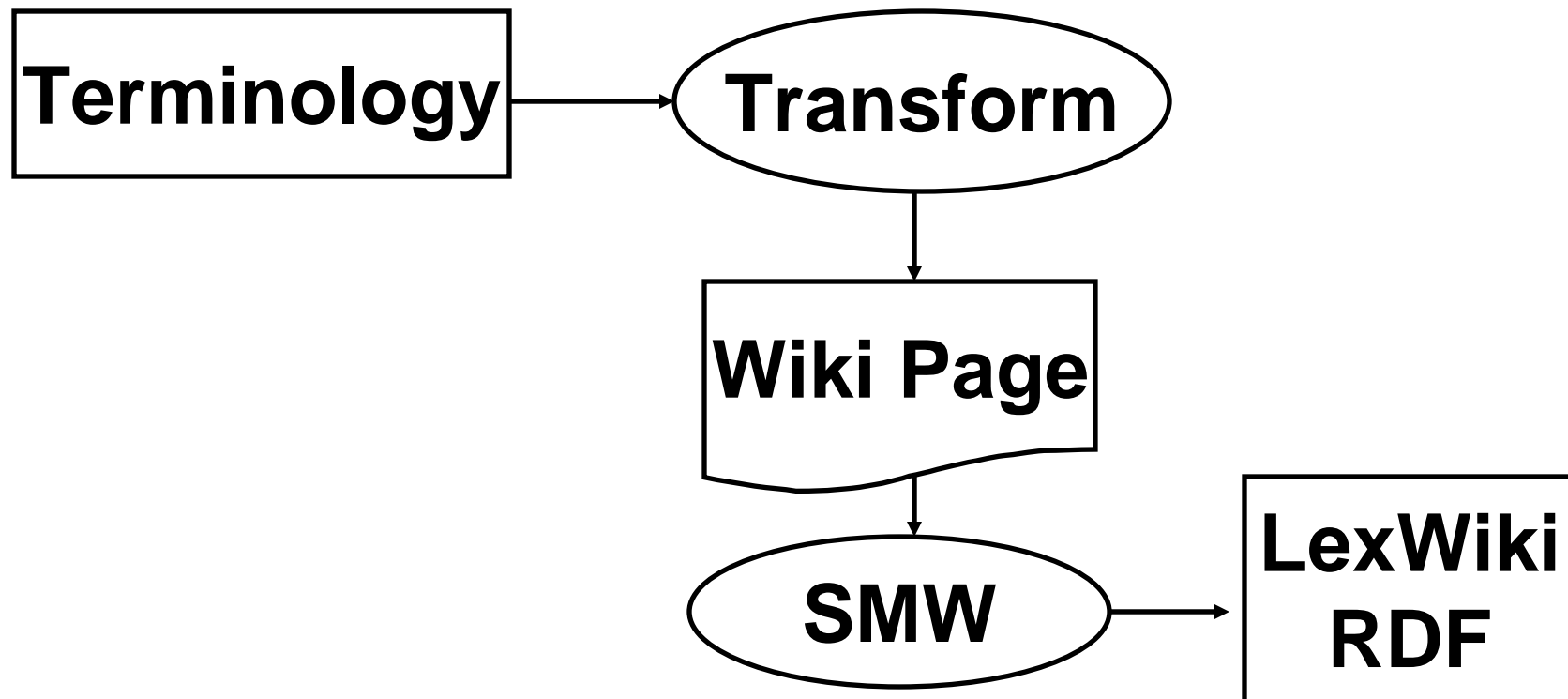
Rdfs label(label) Concept Scheme + 

SKOS example(example) <http://www.w3.org/2004/02/skos/core/examples/ConceptScheme.rdf.xml> 

SKOS in scheme(inScheme) SKOS + 



# Importing an Ontology Using Semantic Templates



# Semantic Templates

**{{Template1}}**

**{{Template2}}**

**[[property::value]]**

## Templates:

- 1) Both rendering and mapping
- 2) Rendering can be redefined

## Properties:

- 1) Must be consistent and fixed
- 2) Should use RDF / DC / SKOS / ...

# Sample from Dublin Core

## Facts about DC Creator(creator) ⓘ

RDF feed 

DCTerms Date Issued(issued) 2 July 1999 + 🔍

DCTerms Date Modified(modified) 14 January 2008 + 🔍

DCTerms Description(description) Examples of a Creator include a person, an organization, or a service. Typically, the name of a Creator should be used to indicate the entity.

DCTerms Has Version(hasVersion) DCVersions/1.1 + 🔍, and <http://dublincore.org/usage/terms/history/#creator-006> + 🔍

*Equivalent URI* <http://purl.org/dc/elements/1.1/creator> 

*Has type* String

*Imported from* [DC:creator](#)  (Dublin Core Metadata Element Set, Version 1.1 )

LexWiki Concept Code creator + 🔍



LexWiki Definition An entity primarily responsible for making the resource. (*en-US*)

LexWiki Preferred Name Creator + 🔍

Rdf type(type) Rdf Property(Property) + 🔍

Rdfs label(label) Creator + 🔍

SKOS in scheme(inScheme) DC + 🔍

SKOS note(note) A second property with the same name as this property has been declared in the dcterms: namespace (<http://purl.org/dc/terms/> ) . See the Introduction to the document "DCMI Metadata Terms" (<http://dublincore.org/documents/dcmi-terms/> ) for an explan...

# Semantic MediaWiki

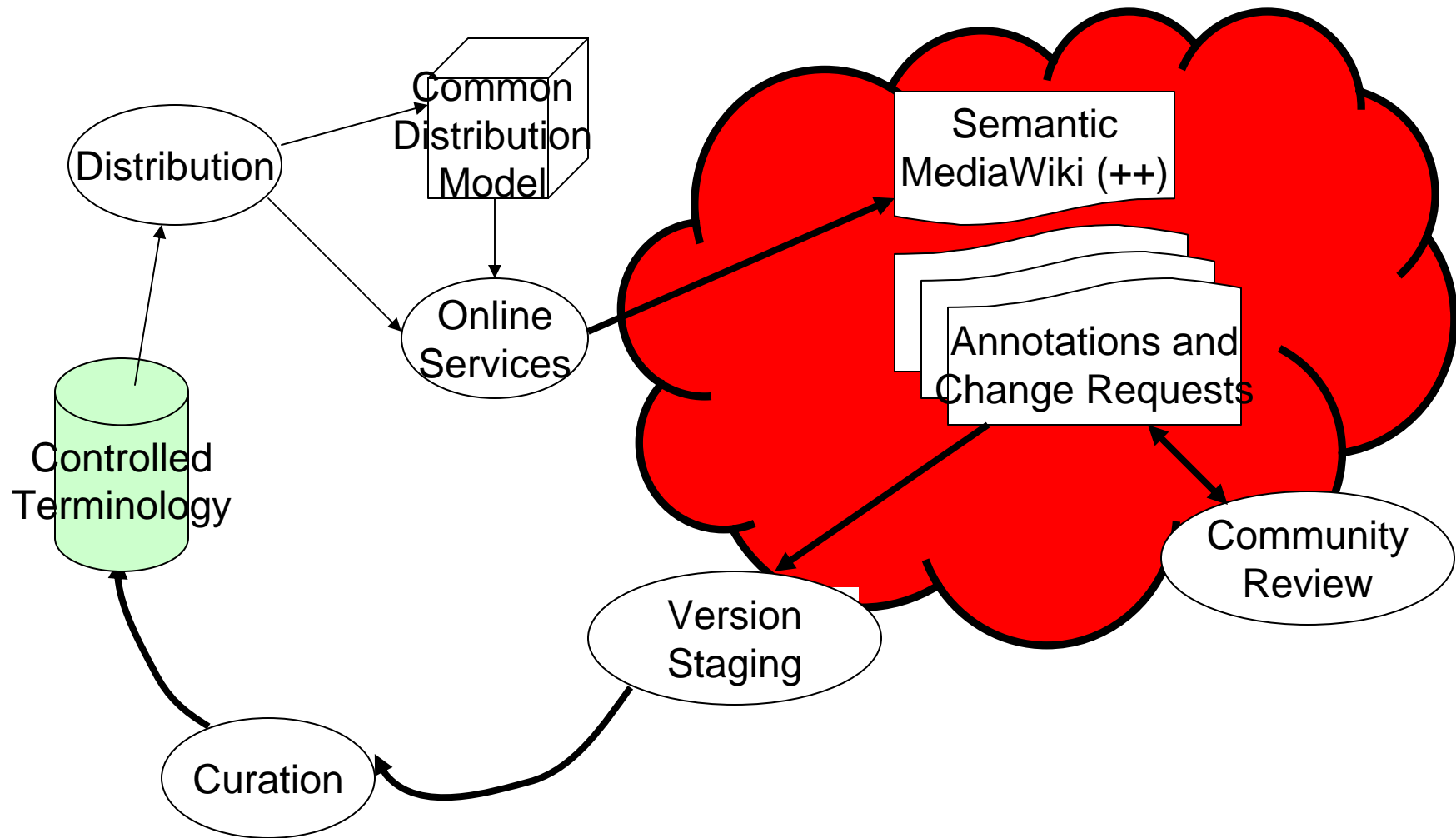
**The obvious next step...**

**... use the wiki for creation and  
improvement of terminology content**

# Outline

- MediaWiki – what it is, how it works
- Semantic MediaWiki – MediaWiki meets the Semantic Web
- **Vocabulary Development in Semantic MediaWiki**

# Semantic MediaWiki Workflow



# BiomedGT



File Edit View History Bookmarks Tools Help

http://biomedgt.nci.nih.gov/index.php/Main\_Page

Google News Microsoft Outlook Web Access Main Page - LexWiki Editing Template:LexWiki Presentation ...

Log in / create account

**BIOMEDGT**

search

Go Search

navigation

- Main Page
- Current events
- Recent changes
- TODO List
- Help

terminologies

- BiomedGT
- CTCAE Subject Terms
- NanoTech Domain
- CRCH Nutrition Terms
- Biospecimen
- Semantic Type

**main page** discussion view source history

## Main Page

### BiomedGT Collaborative Ontology Development Wiki

*(Alpha 2 Release Jul 15 2008)*

### About BiomedGT

The Biomedical Grid Terminology ([BiomedGT](#)) is an open, collaboratively developed terminology for translational research. BiomedGT builds on the strengths of the NCI Thesaurus, including concept orientation, description logic, and public accessibility. While the current terminology has been seeded with NCI Thesaurus content, it is being restructured to facilitate open content development. The goal is to evolve BiomedGT into a set of federated sub-terminologies, with content maintained by experts in the relevant research communities.

**NOTE:** The original biomedgt.org site will be revamped to carry a current image of the NCI Thesaurus. It can still be found at <http://biomedgt.wiktology.com/>

### About This Wiki

The BiomedGT Wiki is a new tool that enables groups of domain experts to collaboratively develop and maintain terminologies, including BiomedGT, subsets of BiomedGT, and other standalone terminologies. This wiki is being developed by the [National Cancer Institute Center for Bioinformatics](#), [Apelon, Inc.](#), and the [Mayo Clinic Division of Biomedical Informatics](#). We welcome your help in developing terminology in your specialty area and in fine tuning the use of the wiki as a collaborative terminology development tool.

The terminology content developed in this wiki will be transferred to and integrated into the BiomedGT terminology and/or converted into LexGrid format. This will make the terminology available to the Cancer Bioinformatics Grid (CBIG) community and other interested users. An integration



search

navigation

- [Main Page](#)
- [Current events](#)
- [Recent changes](#)
- [TODO List](#)
- [Help](#)

terminologies

- [BiomedGT](#)
- [CTCAE Subject Terms](#)
- [NanoTech Domain](#)
- [CRCH Nutrition Terms](#)
- [Biospecimen](#)
- [Semantic Type](#)
- [CTCAE\\_Category](#)

content search

- [Query ConceptCode](#)
- [Query Preferred Name](#)

workflow

- [Create / Update Package](#)
- [Bug Reporting](#)

**article**

[discussion](#)

[edit](#)

[history](#)

[move](#)

[watch](#)

## BGT

### Contents [hide]


- 1 [Biomed Grid Terminology \(BGT\)](#)
- 2 [Root Nodes](#)
  - 2.1 [Categories](#)
  - 2.2 [Properties](#)
  - 2.3 [Roles](#)
  - 2.4 [Associations](#)

## Biomed Grid Terminology (BGT)

BiomedGT was seeded with NCI Thesaurus content, but is being evolved towards a collaboratively developed set of subontology maintained by experts in the domain area.

## Root Nodes

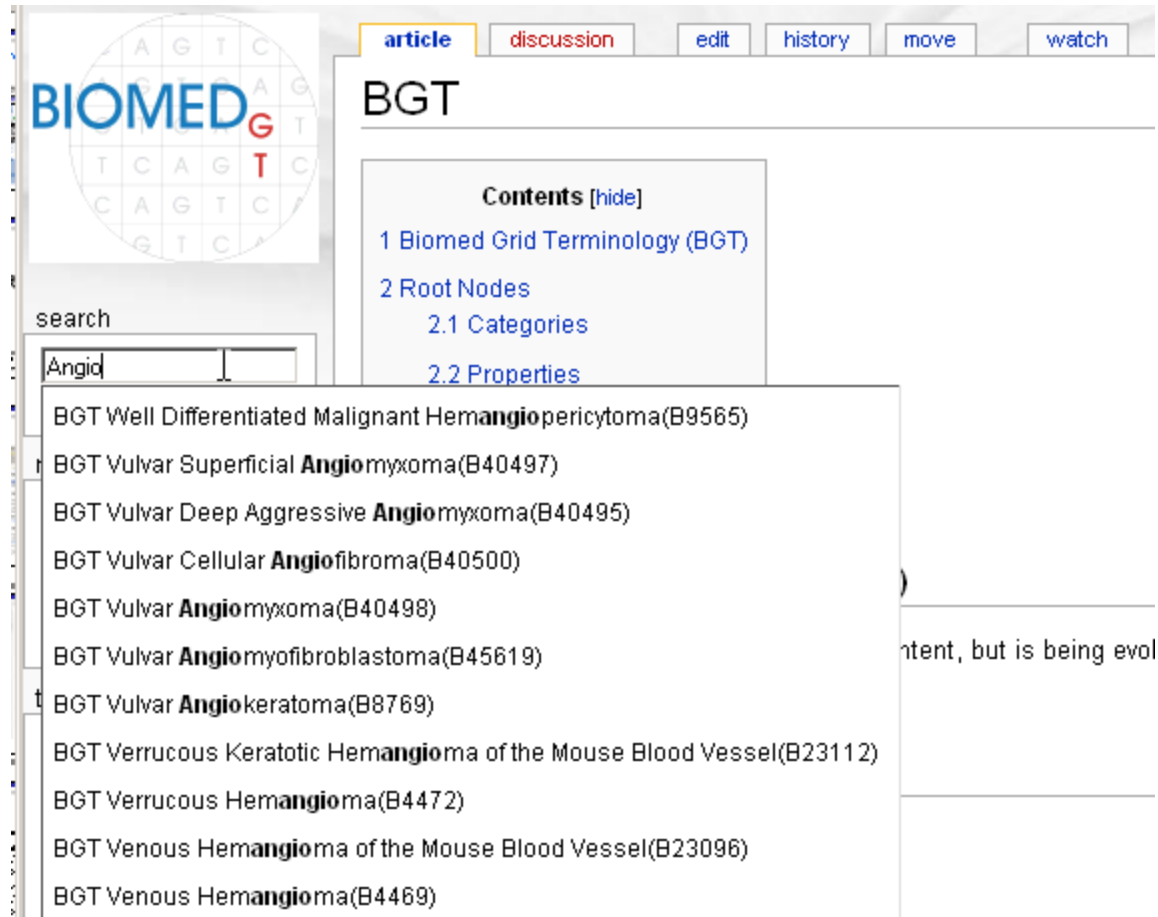
### Categories

- [−] [BGT TopThing\(@\)](#)
  - [+] [BGT Abnormal Cell Kind\(B196\)](#)
  - [+] [BGT Activity Kind\(B178\)](#)
  - [+] [BGT Anatomy Kind\(B186\)](#)
  - [−] [BGT Biological Process Kind\(B177\)](#)
    - [−] [BGT Biological Process\(B18001\)](#)
      - [+] [BGT Cellular Process\(B20653\)](#)
      -  [BGT Multicellular Process\(B21297\)](#)
        - [•] [BGT Angiogenic Inhibition\(B26217\)](#)
        - [+] [BGT Cell Adhesion Process\(B41687\)](#)
        - [+] [BGT Cell Proliferation\(B18754\)](#)

# Browsing



# BiomedGT Content search



The screenshot displays the BiomedGT interface. At the top left is the Mayo Clinic logo. The main header is 'BiomedGT Content search'. Below the header, there are navigation tabs: 'article' (selected), 'discussion', 'edit', 'history', 'move', and 'watch'. The main content area is titled 'BGT'. A 'Contents [hide]' section lists the following items:

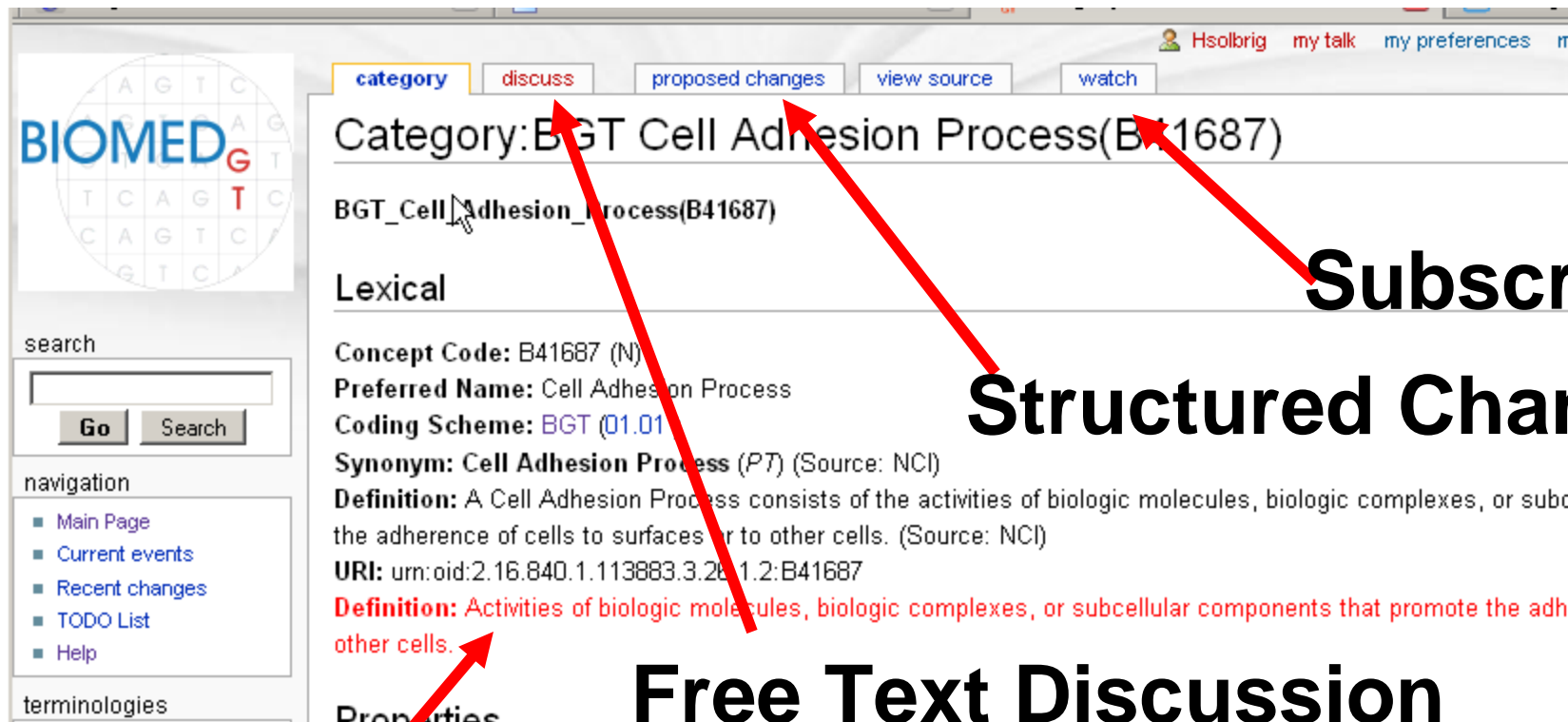
- 1 Biomed Grid Terminology (BGT)
- 2 Root Nodes
  - 2.1 Categories
  - 2.2 Properties

Below the contents is a search bar with the text 'Angio' entered. A dropdown menu shows the following search results:

- BGT Well Differentiated Malignant Hem**angio**pericytoma(B9565)
- BGT Vulvar Superficial **Angio**myxoma(B40497)
- BGT Vulvar Deep Aggressive **Angio**myxoma(B40495)
- BGT Vulvar Cellular **Angio**fibroma(B40500)
- BGT Vulvar **Angio**myxoma(B40498)
- BGT Vulvar **Angio**myofibroblastoma(B45619)
- BGT Vulvar **Angio**keratoma(B8769)
- BGT Verrucous Keratotic Hem**angio**ma of the Mouse Blood Vessel(B23112)
- BGT Verrucous Hem**angio**ma(B4472)
- BGT Venous Hem**angio**ma of the Mouse Blood Vessel(B23096)
- BGT Venous Hem**angio**ma(B4469)

On the right side of the search results, there is a partial view of a table with the text 'tent, but is being evol'.

# BiomedGT



category discuss proposed changes view source watch

Category: BGT Cell Adhesion Process (B41687)

BGT\_Cell\_Adhesion\_Process (B41687)

Lexical

Concept Code: B41687 (N)

Preferred Name: Cell Adhesion Process

Coding Scheme: BGT (01.01)

Synonym: Cell Adhesion Process (PT) (Source: NCI)

Definition: A Cell Adhesion Process consists of the activities of biologic molecules, biologic complexes, or subcellular components that promote the adherence of cells to surfaces or to other cells. (Source: NCI)

URI: urn:oid:2.16.840.1.113883.3.26.1.2:B41687

Definition: Activities of biologic molecules, biologic complexes, or subcellular components that promote the adherence of cells to surfaces or to other cells.

Properties

Subscribe

Structured Changes

Free Text Discussion

Pending Changes

# Forms Based Entry



arch

es

t Terms  
ain  
Terms

ory

tCode  
ad Name

e

es

## LexWiki Form: Proposal:BGT Cell Adhesion Process v1(B41687)

Meta **Lexical** Properties Associations

Concept code

Concept code:

Concept category

Concept type:

Preferred name

Preferred name:

Coding Scheme

Coding scheme:


Synonyms

Name:

# BiomedGT

- **Staging are for the revision of the NCI Thesaurus**
- **Semantic MediaWiki / Protégé Editor**

# WHO ICD 11

 129.176.151.28 [talk for this ip](#) [log in / create account](#)

[article](#) [view source](#) [history](#)

## LexWiki

(Redirected from [Main Page](#))

# ICD10+ Collaborative Revision Platform

This is a ICD10+ collaborative content development platform based on Semantic MediaWiki.

See [Quick Start Guide - A walk through the wiki and workflow process](#)

[ICD10 Classifications](#)

[LexWiki SandBox](#)

[User Scenarios](#)


[Getting Started](#)

## ICD10 Classifications

- [ICD10WHO](#) - The Second Edition of the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10).
- [ICD10CM](#) - The 2007 release of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM).
- [ICECI](#) - The International Classification of External Causes of Injury (ICECI) is a system of classifications to enable systematic description of how injuries occur. The ICECI is a Related Classification in the World Health Organization Family of International Classifications (WHO-FIC).
- [Orphanet Classification Of Rare Diseases](#) - from Orphanet.



LexWiki ICD

search 

navigation

- [Main Page](#)
- [Task List](#)
- [Recent changes](#)
- [Help](#)
- [Feedback](#)
- [MeetingNotes](#)

icd10 classifications

- [ICD10WHO](#)
- [ICD10CM](#)
- [ICECI](#)
- [Orphanet](#)
- [QueryByCode](#)

browsing

- [All Proposals](#)
- [ICD10 Proposals](#)
- [ICD10 Index](#)

# LexWiki

## Next Steps:

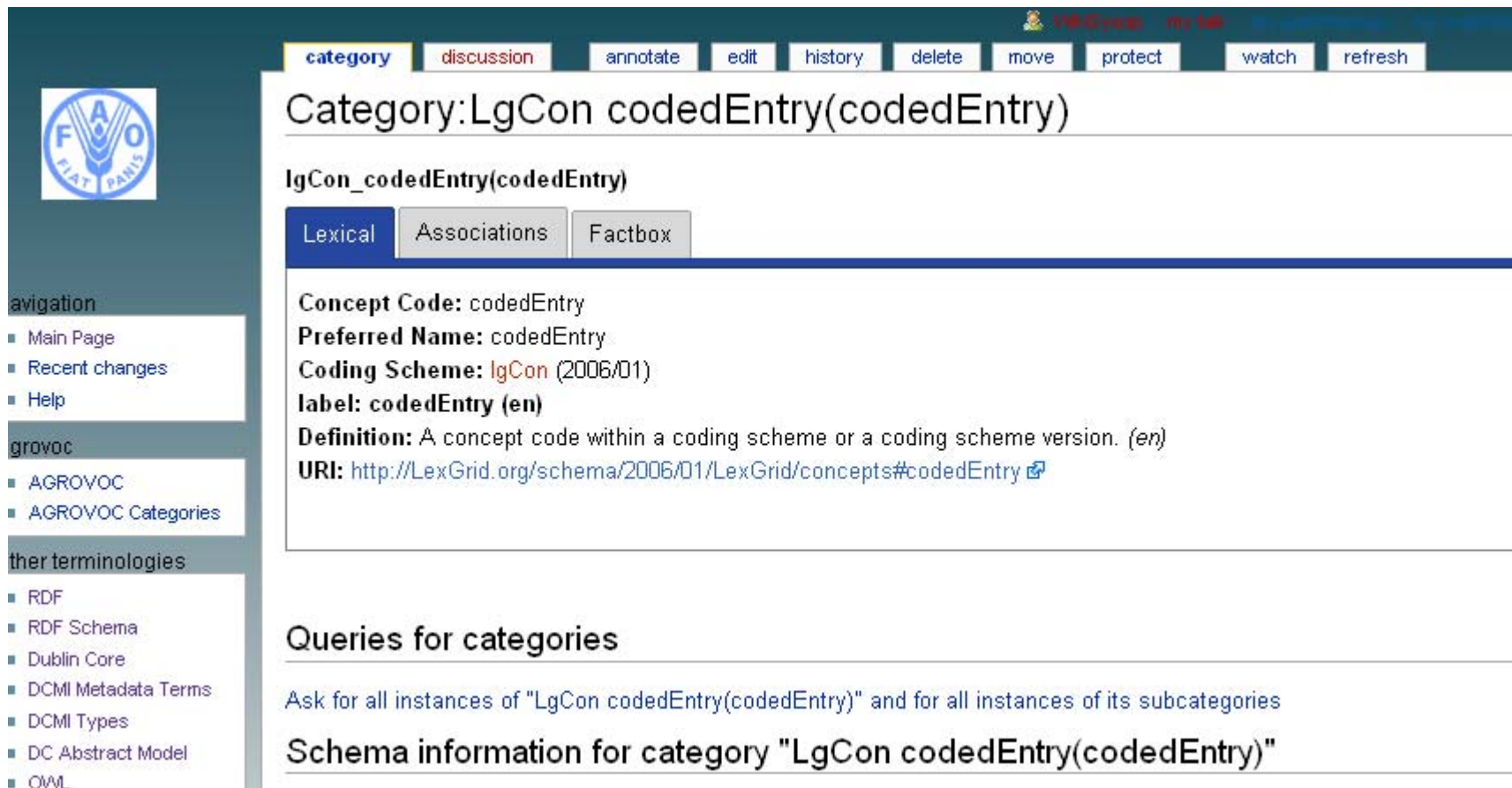
- **Move for a “pure” RDF core in Semantic Mediawiki**
- **Create an RDF Model of LexGrid w/ full RDF/RDFS/DC/SKOS/... mappings**
- **Expand the model to terminology + metadata**
  - **11179 Ed 3 as framework**
  - **XMDR as implementation**

# Semantic MediaWiki

## Some questions regarding categories and relations

- **Are categories really type / subclass relationships...**
  - ... or maybe just BT / LT?
- **Is it practical to assign roles everywhere...**
  - ... or maybe just start w/ RT?
- **Is there value in a SKOS rendering...**
  - ... or should we just “bite the bullet”?

# Data Models in SMW



The screenshot displays the SMW interface for the category **Category:LgCon codedEntry(codedEntry)**. The top navigation bar includes tabs for **category**, **discussion**, **annotate**, **edit**, **history**, **delete**, **move**, **protect**, **watch**, and **refresh**. The left sidebar contains navigation links for **Navigation** (Main Page, Recent changes, Help), **grovoc** (AGROVOC, AGROVOC Categories), and **Other terminologies** (RDF, RDF Schema, Dublin Core, DCMI Metadata Terms, DCMI Types, DC Abstract Model, OWL). The main content area shows the category title, a sub-section **IgCon\_codedEntry(codedEntry)**, and three tabs: **Lexical** (selected), **Associations**, and **Factbox**. The **Lexical** tab displays the following information:

- Concept Code:** codedEntry
- Preferred Name:** codedEntry
- Coding Scheme:** IgCon (2006/01)
- label:** codedEntry (en)
- Definition:** A concept code within a coding scheme or a coding scheme version. (en)
- URI:** <http://LexGrid.org/schema/2006/01/LexGrid/concepts#codedEntry>

Below the information, there is a section titled **Queries for categories** with the text: "Ask for all instances of 'LgCon codedEntry(codedEntry)' and for all instances of its subcategories". At the bottom, there is a section titled **Schema information for category "LgCon codedEntry(codedEntry)"**.



# Data Models in SMW

[category](#) [discussion](#) [annotate](#) [edit](#) [history](#) [delete](#) [move](#) [protect](#) [wa](#)

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Category:LgCon codedEntry(codedEntry)

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IgCon\_codedEntry(codedEntry)

[Lexical](#) [Associations](#) [Factbox](#)

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**Parent:** [versionableAndDescribable](#)(*primitive*)

- codedEntry** domainFor [hasConceptCode](#)
- codedEntry** domainFor [hasConceptStatus](#)
- codedEntry** domainFor [isActive](#)
- codedEntry** domainFor [isAnonymous](#)
- codedEntry** domainFor [hasPropertyLink](#)
- codedEntry** domainFor [hasInstruction](#)
- codedEntry** domainFor [hasComment](#)
- codedEntry** domainFor [hasPresentation](#)
- codedEntry** domainFor [hasProperty](#)
- codedEntry** domainFor [hasDefinition](#)

[hasConcept](#) hasRange [codedEntry](#)(*inferred*)

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# Data Models in SMW


[category](#) [discussion](#) [annotate](#) [edit](#) [history](#) [delete](#) [move](#) [protect](#) [watch](#) [refresh](#)

Category:LgCon codedEntry(codedEntry)

IgCon\_codedEntry(codedEntry)

[Lexical](#) [Associations](#) [Factbox](#)

## Facts about LgCon codedEntry(codedEntry)

RDF feed 



DCTerms Has Version(hasVersion) [IgCon/Versions/2006/01](#) + 

*Equivalent URI* <http://LexGrid.org/schema/2006/01/LexGrid/concepts#codedEntry> 

LexWiki Concept Code [codedEntry](#) + 

LexWiki Definition [A concept code within a coding scheme or a coding scheme version. \(en\)](#)

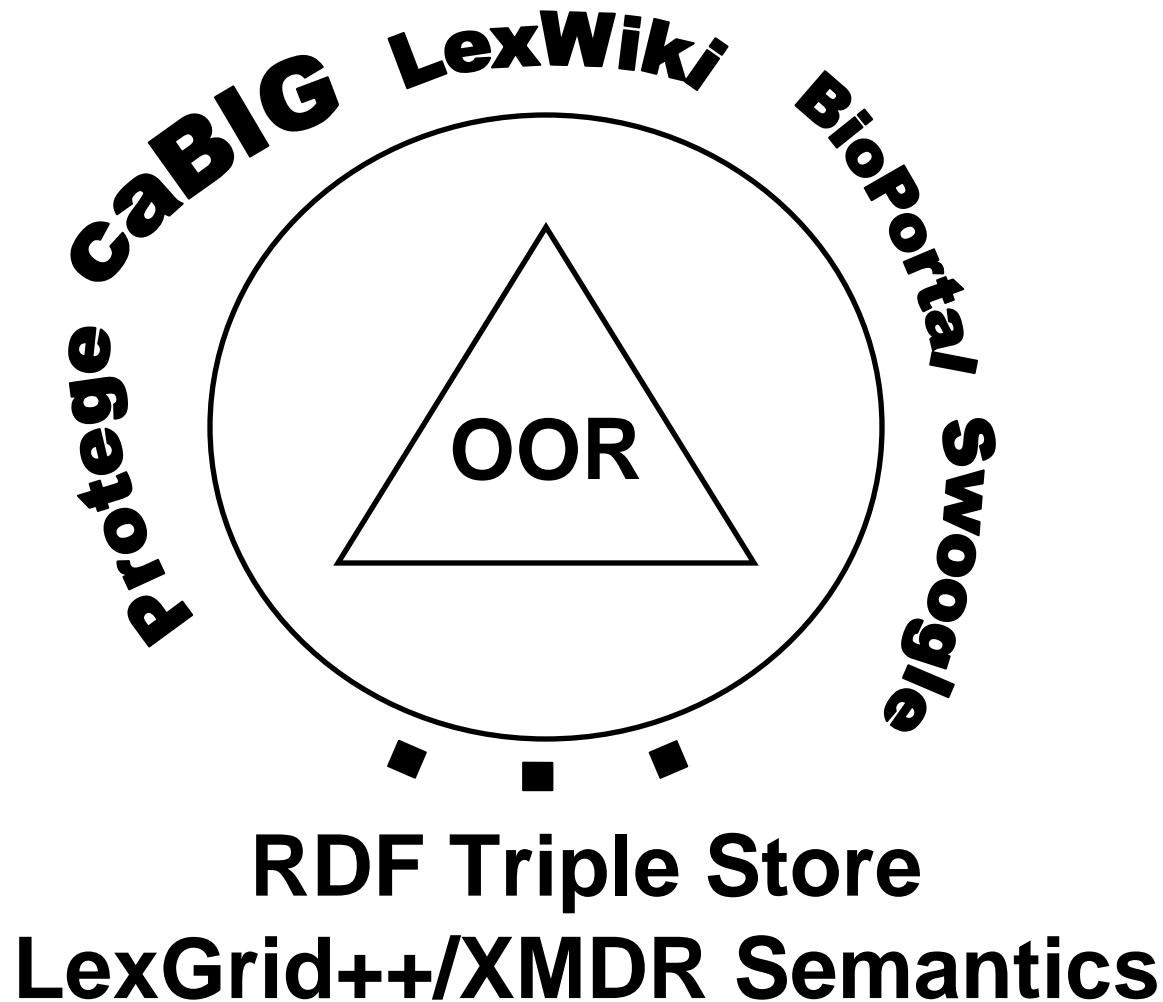
LexWiki Preferred Name [codedEntry](#) + 

Rdfs domain(domain) [LgCon hasConceptCode\(codedEntryConceptCode\)](#) + , [LgCon hasConceptStatus\(codedEntryConceptStatus\)](#) + , [LgCon isActive\(codedEntryIsActive\)](#) + , [LgCon isAnonymous\(codedEntryIsAnonymous\)](#) + , [LgCon hasPropertyLink\(codedEntryPropertyLink\)](#) + , [LgCon hasInstruction\(codedEntryInstruction\)](#) + , [LgCon hasComment\(codedEntryComment\)](#) + , [LgCon hasPresentation\(codedEntryPresentation\)](#) + , [LgCon hasProperty\(codedEntryProperty\)](#) + , and [LgCon hasDefinition\(codedEntryDefinition\)](#) + 

Rdfs label(label) [codedEntry](#) + 

SKOS in scheme(inScheme) [LgCon](#) + 

# OOB Implementation



## Credits

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The picture of the “wiki wiki” bus was taken from <http://en.wikipedia.org/wiki/Wiki>

# References

- <http://www.mediawiki.org/wiki/MediaWiki/>
- [http://en.wikipedia.org/wiki/Main\\_Page](http://en.wikipedia.org/wiki/Main_Page)
- [http://semantic-mediawiki.org/wiki/Semantic\\_MediaWiki](http://semantic-mediawiki.org/wiki/Semantic_MediaWiki)
- [http://www.mediawiki.org/wiki/Extension:Semantic\\_Forms](http://www.mediawiki.org/wiki/Extension:Semantic_Forms)
- <http://wiki.ontoprise.de/ontoprisewiki/>
- <http://biomedqt.nci.nih.gov/>
- <http://informatics.mayo.edu/whodev/>
- <http://lexgrid.org/>
- <http://www.xmdr.org/>
- <http://wiktolog.com/agrovoc/>
- <https://cabig-kc.nci.nih.gov/Vocab/KC/>
- Your faithful narrator: [solbrig.harold@mayo.edu](mailto:solbrig.harold@mayo.edu)