

Semantic MediaWiki

Tutorial on Semantic Wikis
June 1, 2008
Tenerife, Spain
Denny Vrandečić

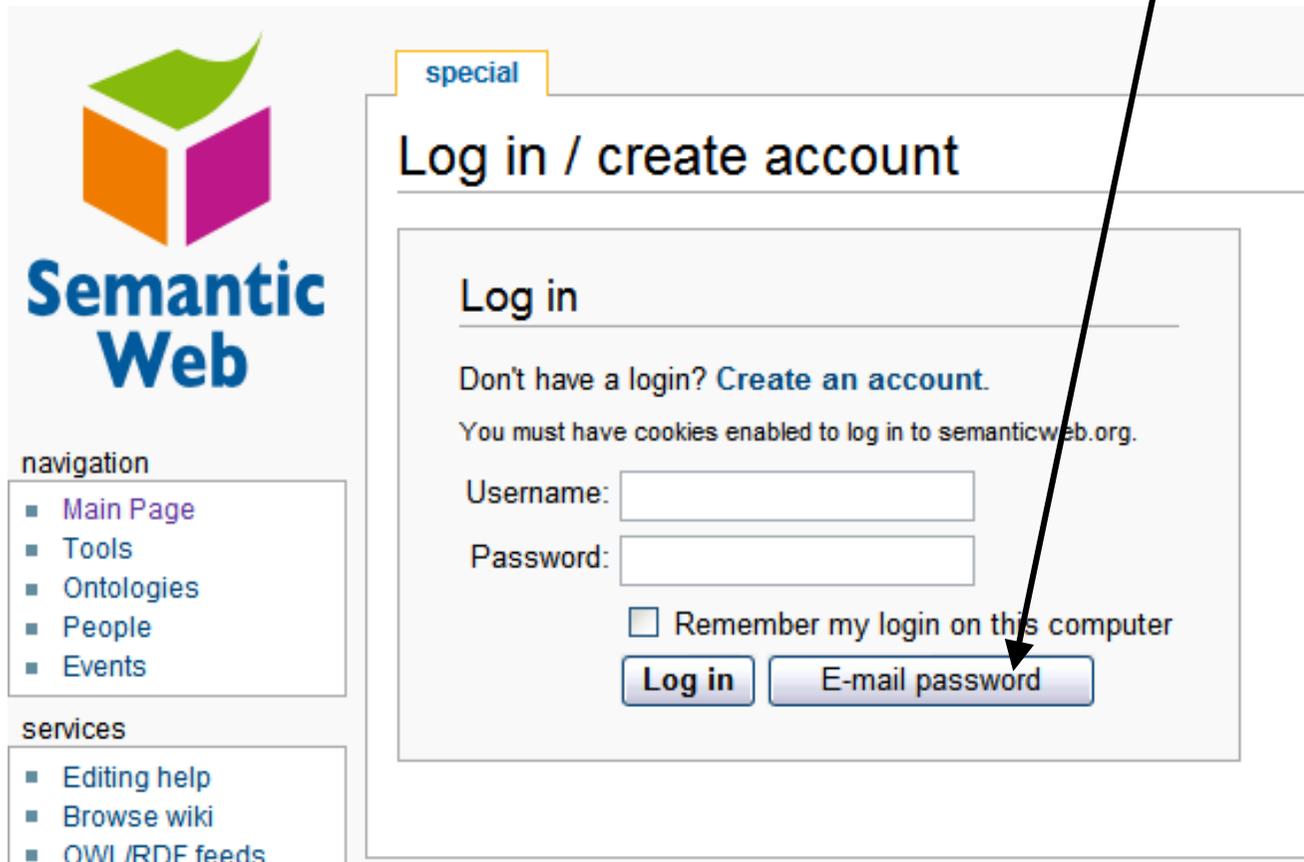
[[Overview]]

- Semantic MediaWiki (SMW)
- Create instance data with in the wiki
 - self descriptions using existing concepts and newly created concepts
 - affiliation, interests, etc.
- Collaborative ontology design with SMW
- Export data

[[semanticweb.org]]

- Go to <http://semanticweb.org>
- Create a log in and log in to the site (enter your eMail in case you forget your password)
- If you forgot your password, click here

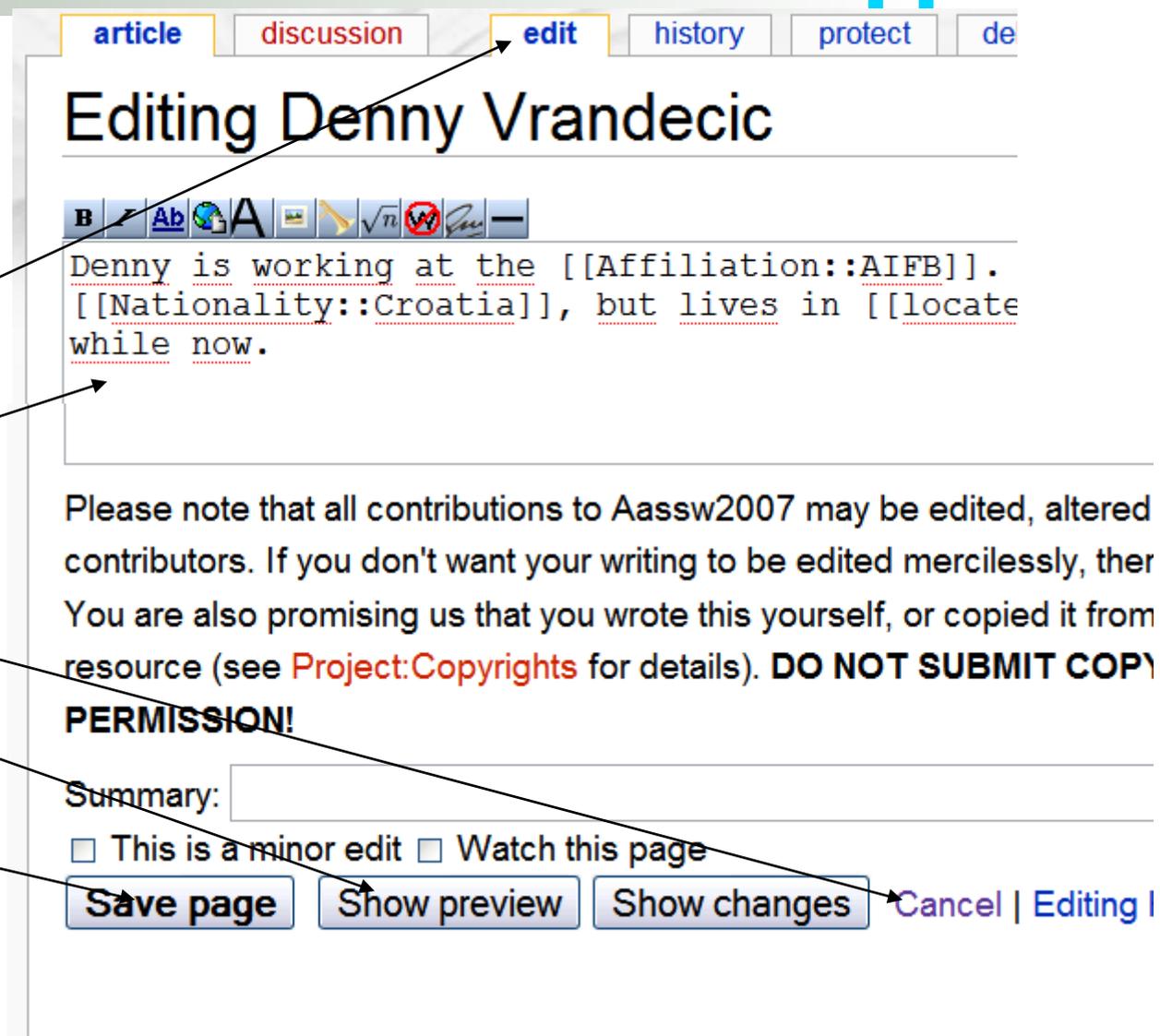
semanticweb.org is a Semantic MediaWiki wiki for the Semantic Web community and beyond. It contains information about people, projects, tools, and conferences. For testing try sandbox.ontworld.org



The screenshot shows the 'special' page for logging in or creating an account on semanticweb.org. The page features the Semantic Web logo on the left, a navigation menu with links to Main Page, Tools, Ontologies, People, and Events, and a services menu with links to Editing help, Browse wiki, and OWL/RDF feeds. The main content area is titled 'Log in / create account' and contains a 'Log in' section with a 'Create an account' link, a note about cookies, and input fields for 'Username:' and 'Password:'. There is a checkbox for 'Remember my login on this computer' and two buttons: 'Log in' and 'E-mail password'. An arrow from the third bullet point in the list above points to the 'E-mail password' button.

[[Editing the wiki

- Go to your own page (the page with your name)
- Click on “edit”
- Try to add or change text
- You can cancel anytime, preview (just for you), or save the changes so that everyone can see them



The screenshot shows a wiki editing interface. At the top, there are navigation tabs: 'article', 'discussion', 'edit', 'history', 'protect', and 'de'. The 'edit' tab is selected. Below the tabs is the title 'Editing Denny Vrandecic'. Underneath is a rich text editor toolbar with icons for bold, italic, link, unlink, image, table, undo, redo, and a minus sign. The text area contains the following text: 'Denny is working at the [[Affiliation::AIFB]]. [[Nationality::Croatia]], but lives in [[locate while now.]]'. Below the text area is a warning message: 'Please note that all contributions to Aassw2007 may be edited, altered contributors. If you don't want your writing to be edited mercilessly, then You are also promising us that you wrote this yourself, or copied it from resource (see [Project:Copyrights](#) for details). **DO NOT SUBMIT COPY PERMISSION!**'. Below the warning is a 'Summary:' field. At the bottom, there are two checkboxes: 'This is a minor edit' and 'Watch this page'. Finally, there are three buttons: 'Save page', 'Show preview', and 'Show changes', followed by a link 'Cancel | Editing I'.

[[Quick overview of wiki markup]]

- "'three apostrophes'" will make text **bold**
- "'two apostrophes'" will make text *italic*
- [[Text in double square brackets]] will be links to the page named as the text in the brackets
- [[Link target|link text]] will display a link that looks like link text but links to link target
- The wiki is case sensitive – but not on the first letter of a link
- The wiki is Unicode

[[Overview of semantic markup]]

- To add a page P to category C type [[Category:C]] on page P
- To make a typed link of type R from page P1 to page P2 type [[R::P2]] on page P1
- To state the value V of an attribute A on page P type [[A::V]] on page P
- Example:

Editing Busan



```
Busan is a city in [[located in::Korea]]  
with a population of [[population::3,635,389]].  
[[Category:City]]
```

[[Data values and types]]

- Attributes like [[birthdate::February 27 1978]] or [[population::3,635,389]] must know the **type** of the value
- This is done by adding [[has type::T]] on the page of the attribute
- Available, predefined types:
 - Annotation URI
 - Date
 - Email
 - Enumeration
 - Geographic coordinate
 - Number
 - Page
 - String
 - Temperature
 - Text
 - URL

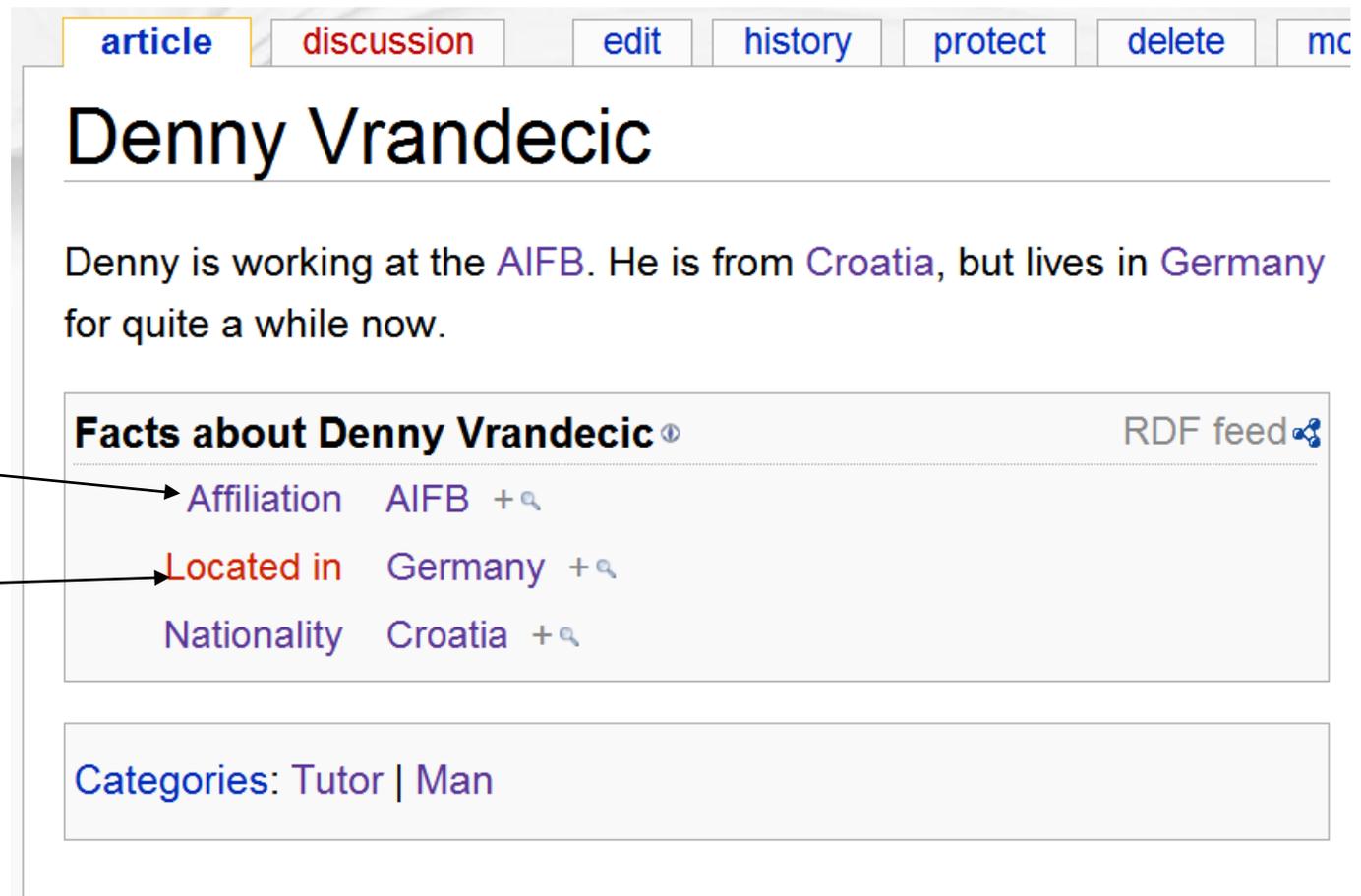
[[Add your own information]]

- Now add information about yourself
- For example: nationality, affiliation, age, birthday, hair color, likes...

- Save or preview to see if and how the information has been understood

- Blue links mean there is a page about it

- Red link means there is no page about it



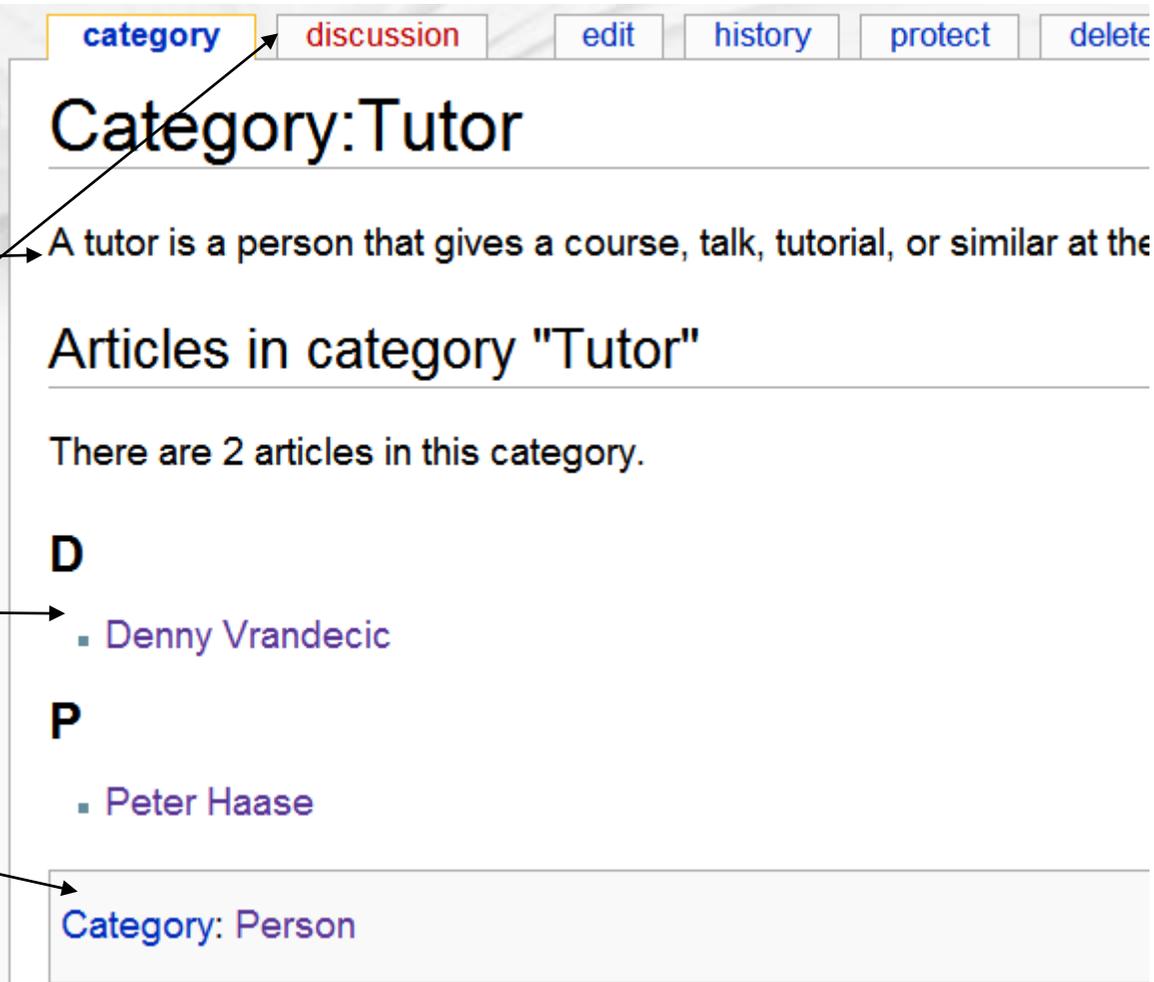
The screenshot shows a wiki page for "Denny Vrandecic". At the top, there are navigation tabs: "article" (highlighted), "discussion", "edit", "history", "protect", "delete", and "more". Below the tabs is the title "Denny Vrandecic". The main text reads: "Denny is working at the [AIFB](#). He is from [Croatia](#), but lives in [Germany](#) for quite a while now." Below the text is a section titled "Facts about Denny Vrandecic" with an "RDF feed" link. The facts are listed as follows:

Property	Value	Action
Affiliation	AIFB	+ ?
Located in	Germany	+ ?
Nationality	Croatia	+ ?

At the bottom, there is a "Categories" section with the text "Tutor | Man".

Collaborative ontology engineering



- There are pages describing categories and properties
 - Informal description
 - Can be discussed
 - Can be edited
 - Extensional description
 - List of all instances
 - But: only direct ones
 - Supercategories
- 
- The screenshot shows a MediaWiki page for the category 'Tutor'. At the top, there is a navigation bar with buttons for 'category', 'discussion', 'edit', 'history', 'protect', and 'delete'. Below this is the title 'Category: Tutor'. The main content area contains an informal description: 'A tutor is a person that gives a course, talk, tutorial, or similar at the'. Below the description is a section titled 'Articles in category "Tutor"' which states 'There are 2 articles in this category.' and lists two instances: 'Denny Vrandečić' and 'Peter Haase'. At the bottom, there is a link to the supercategory 'Category: Person'. Arrows from the list on the left point to the 'category' button, the informal description, the list of instances, and the 'Category: Person' link.

[[Social aspects]]

- Task: come up with a vocabulary and the relation between the vocabularies for the whole group, using the wiki
 - How to decide which properties and categories are important?
 - How to define the properties or categories?
 - How to ensure high quality data? What does it mean?
 - How to control the wiki knowledge base and its growth?
- Browse the wiki to see the results and connections

Busan

From Wikipedia, the free encyclopedia

Korean topics + ⓘ Body	
Busan Arts College + ⓘ, Busan Polytechnic College + ⓘ, Busan Kyungsang College + ⓘ, ... City	
Song Chong-Gug + ⓘ Cityofbirth	
Lotte Giants + ⓘ, Busan Transportation Corporation + ⓘ Location	
	Dialect Gyeongsang Dialect + ⓘ
	Region Yeongnam + ⓘ
	Categories Busan + ⓘ, Cities in South Korea + ⓘ, Coastal cities + ⓘ

[[Querying the knowledge]]



- Go to Special:Ask
- Enter a query
- Queries look like this:
 - Conditions on a category: [[Category:X]]
 - Conditions on a property: [[R::X]]
 - Property conditions can be ranges, [[R::>X]], [[R::<X]]
 - Property conditions: any value [[R::+]]
 - Print statements: ?R (columns in answer)
- Examples follow
- See also online docs

special

Query	Additional printouts (optional)
[[Category:Conference]]	?Has location city

[\[Add sorting condition\]](#)
Find results
[Hide query](#) | [Querying help](#)

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

	Has location city
AAAI2007	Vancouver
AAAI2008	Chicago
AAAI2007	Chicago

[[Query examples]]

- `[[population::>1,000,000]]` anything with a population of over a Million
- `[[located in::Korea]]` anything that is located in Korea
- `[[affiliation::+]]` anything that has any stated affiliation
- `[[Category:Tutor]]` all tutors
- `[[Category:Tutor||Student]]` all tutors and students (logical or)
- Conjunctive meaning of combinations of any of these query atoms, i.e. `[[Category:Tutor]] [[Category:Student]]` everyone who is both

[[Querying and social aspects]]

- Querying can only be done on aligned vocabularies
 - If half of the people use “affiliation” and the other half “works for” you cannot query the knowledge easily
- Inside SMW, information integration usually happens with social tools, not with technology
- Gardening tools can help with aligning vocabularies, but not replace them
 - Tools that allow you to rename a property throughout the wiki
 - Or to join two different names
- Can also be solved with reasoning, as we will see later

Exporting the data

- Every page can export its knowledge as RDF
- Other exports also available: RSS, iCalendar, SPARQL

Discussion edit history protect delete

Denny Vrandecic

at the AIFB. He is from Croatia, but lives in Germany now.

Denny Vrandecic

RDF feed

AIFB +
Germany +
Croatia +

Man

```

xmlns:wiki="&wiki;"
xmlns:property="&property;"
<!-- Ontology header -->
<owl:Ontology rdf:about="">
  <smw:exportDate rdf:datatype="http://www.w3.org/2001/XMLSchema#date" />
</owl:Ontology>
<!-- exported page data -->
<smw:Thing rdf:about="&wiki;Denny_Vrandecic">
  <rdfs:label>Denny Vrandecic</rdfs:label>
  <smw:hasArticle rdf:resource="&wikiurl;Denny_Vrandecic" />
  <rdfs:isDefinedBy rdf:resource="&wikiurl;Special:ListPages" />
  <rdf:type rdf:resource="&wiki;Category-3AMan" />
  <rdf:type rdf:resource="&wiki;Category-3ATutor" />
  <property:Affiliation rdf:resource="&wiki;AIFB" />
  <property:Located_in rdf:resource="&wiki;Germany" />
  <property:Nationality rdf:resource="&wiki;Croatia" />
</smw:Thing>
<!-- auxilliary definitions -->
<smw:Thing rdf:about="&wiki;Croatia">
  <rdfs:label>Croatia</rdfs:label>
  <smw:hasArticle rdf:resource="&wikiurl;Croatia" />
  <rdfs:isDefinedBy rdf:resource="&wikiurl;Special:ListPages" />
</smw:Thing>

```

[[Why semantics?]]

- Simpler browsing
- Up to date lists through inline queries

```
{#ask:  
  [[Category:Person]]  
  [[affiliation::AIFB]]  
}}
```
- Many formats (Google Maps, Timeline, Images ...)
 - Timeline, developer::David Huynh, Simile, MIT
 - Semantic Layers, developer::Matt Williamson, NOAA National Weather Service

[[Semantic Forms]]

- Example from <http://www.chickipedia.com>
- Semantic Forms developer::Yaron Koren

Edit Scarlett Johansson

[Chick](#) | [Talk](#) | [Edit](#) | [History](#) | [Rename](#) | [Watch](#) | [Links In](#) |

“ One of the best things for a woman to hear is that she's sexy ”

Birthday:
 Height:
 Hookups:
 Vices:
 Category:
 Birthname:
 Hometown:
 Nickname:
 Job:
 Hobbies:
 Assets:
 Ethnicity:
 Country of Origin:

Forms can make the wiki look like a database application, but remain still much more flexible.

Chicks she's worked with:

- Natalie Portman × Thora Birch × Hilary Swank × Rachel Miner × Penelope Cruz × Selma Blair × Kristin Scott Thomas ×
- Thora Birch × Hilary Swank × Rachel Miner × Penelope Cruz × Selma Blair ×

[Insert Image\(s\)](#)

[Help](#)

[[Languages]]

- Localizations
 - Arabic
 - German
 - English
 - French
 - Italian
 - Korean
 - Dutch
 - Polish
 - Russian
 - Slovak
 - Simplified Chinese
 - Traditional Chinese
 - **Japanese**
 - **Norwegian**
 - **Portuguese**
 - **Occitan**
- Following translations projects have started
 - Afrikaans
 - Bulgarian
 - Esperanto
 - Spanish
 - Hebrew
 - Suomi
 - Hindi
 - Haitian
 - Luxembourgian
 - Marahi
 - Polish
 - Swedish
 - Vietnamese

[Full statistics](#)

- Thanks to BetaWiki, localization requires no programming anymore, developer::Siebrand Mazeland

[[Anyone using it?]]

- WikiMaas
- Sydney Directory
- LIOWiki – Internal KM
- Wikicompany
- VaniSource
- SpieleWiki – German, on games
- ArchiPlanet
- Bionik-Wiki
- Bible Wiki
- BO Wiki (Medizin)
- CASE Wiki
- Centiare
- Chemistry SW
- Chickipedia
- Creative Commons
- Discourse DB
- Eureka Science Journal Watch
- Gothic Almanach
- Human Cell
- iNature
- JurisPedia
- MathWeb
- Yugioh@Wikia
- Northern Ireland Gov't Wiki
- PhiloWiki
- Placeography
- Reformed Word
- ScubaWiki
- OneWorldWiki
- MIT Simile
- TechPresentations
- [See more complete list](#)

Wikia offering it as an option

Thank you for your attention!

<http://semantic-mediawiki.org>

<http://semanticweb.org>

<http://www.aifb.de>