SUPeRB: using an automated publication helper in 9012 at SINTEF ICT

Luís Miguel Cabral
Diana Santos & Luís Costa

Goals of this presentation

- Present SUPeRB as a useful tool for the department
  - For everyone
  - For project and group leaders specially
  - For Stine and/or publication managers
  - For Bjørn and other forskningsjefer
- Request feedback from the audience

In a nutshell

- SUPeRB is (among other things)
  - a publication manager
  - a set of tools for publication-related tasks
  - a publication repository
  - a publication-related environment
    - publication-related ontologies
  - a Web service that provides publication related info

History of SUPeRB

- Born from the need to maintain a catalogue of publications devoted to the computational processing of Portuguese
- Development started in 2000 by Paulo Rocha, who basically created a home-made database and HTML interface pages with a set of predefined obligatory attributes
- Luís Miguel took over since he joined Linguateca's node at SINTEF in 2005
  - wrote his MSc dissertation on it, 2007
  - continued development since both for the Natural Language Technologies Group at SINTEF and for LInguateca

Publications or presentations on SUPeRB

- Luís Miguel Cabral. SUPeRB - **S**istema **U**niformizado de **Pe**squisa de **R**eferências **B**ibliográficas. Tese de Mestrado. Faculdade de Engenharia da Universidade do Porto. Março 2007.
- Luís Miguel Cabral, Diana Santos & Luís Fernando Costa. "SUPeRB: Building bibliographic resources on the computational processing of Portuguese". In *Propor 2008 Special Session: Applications of Portuguese Speech and Language Technologies* (Curia, Portugal, 10 September, 2008).
- Luís Miguel Cabral, Diana Santos & Luís Fernando Costa. "SUPeRB - Gerindo referências de autores de língua portuguesa". In *VI Workshop Information and Human Language Technology (TIL'08)* (Vila Velha, ES, Brazil, 28-29 October 2008).

Relevant design options

- Each task can be user-supervised
- Multilingual capabilities (PT, EN, NO) to present references
  - places, dates
  - conventions
  - sorting
- Scheduling for publication-related tasks
  - checking missing fields
  - making available electronic versions

SUPeRB features (1)

1. Browse a complex publication database
   - Multiple views
   - Graphical aggregation
   - Faceted navigation
2. Ease of import/export
   1. Create a SUPeRB database with a minimum work
   2. Export it to many formats
   3. Invoke in on the fly as a Web service

SUPeRB features (2)

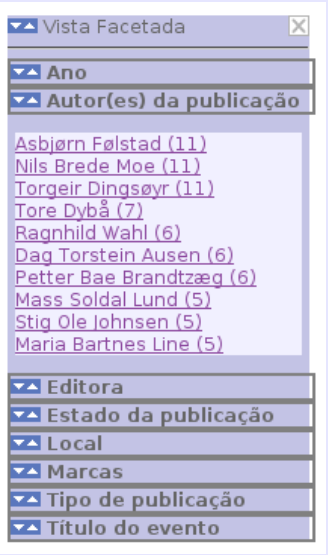
1. Add user-generated content
   - Tags such as in del.icio.us
   - Ontology translation (user-tampered-with categories)
   - On-the-fly categories
2. Allows easy reporting
   - abstract of complex questions
3. Helps maintenance
   - URLs, temporal periods where a paper cannot be published on the Web, name change

Demo / presentation

- Disclaimer: ☺
  - Some of the features may still include bugs
  - Some things may have usability problems
  - Translation into other languages has not been properly reviewed
- After all, our aim is that you think it is worthwhile to develop (=put money on) SUPeRB further on
- For this demo we gathered Ca. 240 Publications from IKT and created a new catalogue

Faceted navigation

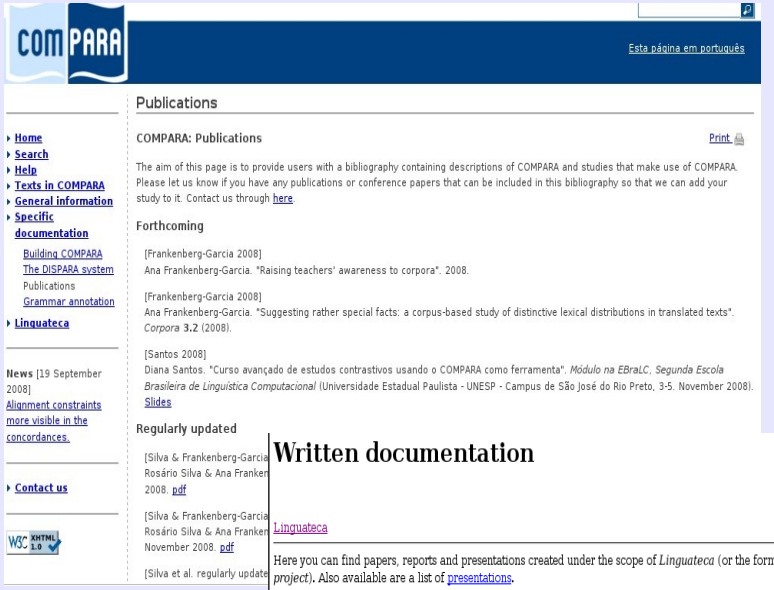
- Allows users to refine a search based on faceted classification oriented by authors, publication category, places, date, etc.
- Allows viewing one refinement at a time instead of all search fields at once

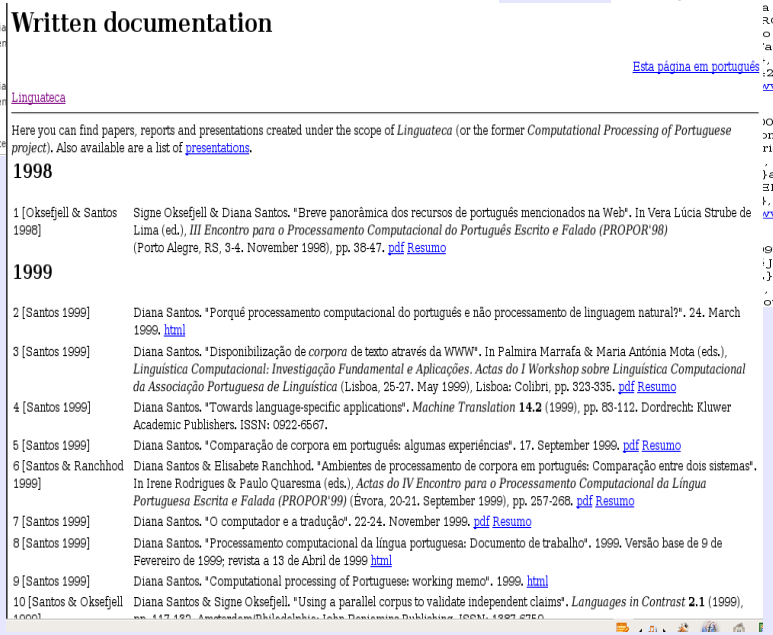


Publications lists

- Are generate both by administrator and users as a complement of the search interface allowing to personalise search restrictions as well as the configuration for design of page

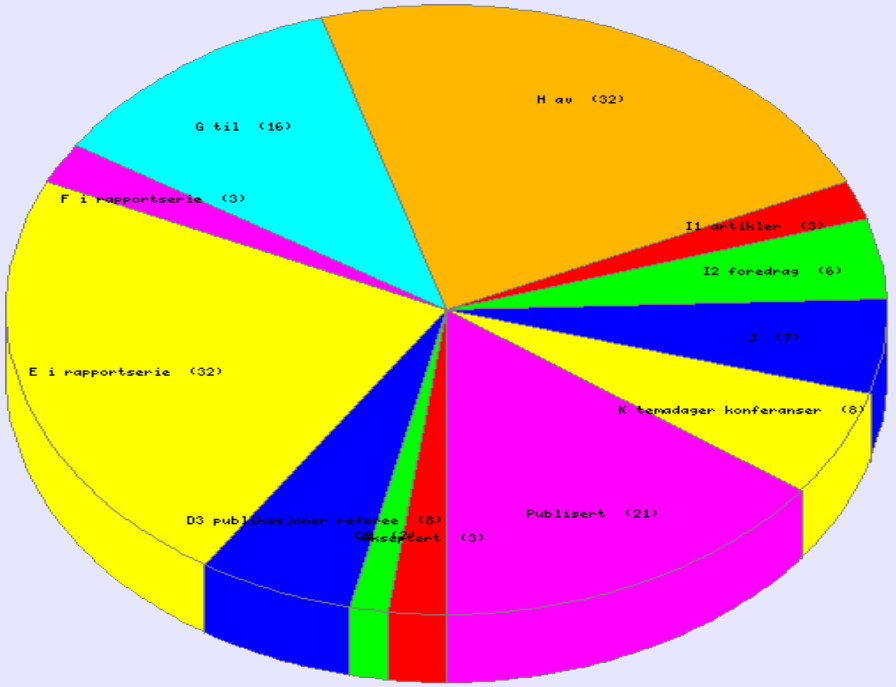
Superb can generate publications lists in different shapes and sizes

- 



Viewing results in graphics

- Publications by year (co-author, category)



Import / export facilities so far

- Suports several formats (BibTex, RIS, EndNote, Text)
- Extract references from Web documents & pages

```
@misc{cabral2006:siemesbreve:uem,
   author={Luís M. Cabral},
   title={{SIEMES} e uma breve introdução ao {REPENTINO}},
   year={2006},
   booktitle={{E}ncontro do {HAREM}},
   location={Porto, Portugal},
   month={15 de Julho},
   url="http://www.linguateca.pt/documentos/SIEMES_HAREM.pdf"
}
```

Linguateca's (SUPeRB-based) present catalogue

- References included
  - Ca. 1,600 references
  - Ca. 1200 links for the electronic version(s) of the document (paper or presentation)
- Publication-related data
  - Ca 2,263 authors
  - Ca. 400 conferences
  - Ca. 250 publishers

SUPeRB

Sistema Uniformizado de Pesquisa de Referências Bibliográficas

- Is an semi-automatic system which helps in the search and the managing of bibliographic information
  - Extraction of new bibliographic information
  - Management of the bibliographic information within a catalogue
    - Add and edit
    - Tag
    - Validate
    - Generate summary pages

Using SUPeRB

- Two kinds of users
  - Repository user, allowed to search, suggest and tag bibliographic references
  - Repository manager, responsible for validating users actions and generate final data
- Input
  - Expression composed by a set of keywords
  - Partial reference
  - Link to a web document
- Output
  - Relevant bibliographic content, properly formatted for use or storage

Availability

http://www.linguateca.pt/SUPeRB/

- Manages Linguateca's catalogue
- Source code available separately
- Full documentation so far only in Portuguese

Example 1: Report to Portuguese FR

- Usually, it would be enough to select all publications marked with the tag *Linguateca*
- However, burocrats have often new requirements
  - Two new tags: SEMACK, AMBITO
  - Further info: when was a “to appear” publication submitted, and when was expected to appear
- Plus, reports on consecutive years should not repeat publications in the same category
  - Except for the “regularly updated” category of documentation

Editing books with many authors

- Creating a tag for each new book
- (Re)using the publications already in SUPeRB
- Merging (and validating) from several chapters
- Self-reference
  - This volume

Send group production to Stine

(to be improved)

- Find publications per kvartal (3 months)
- Use a tag for “sent preliminary version to Stine”
  - To tell her it is an update
  - To watch out for updates
- Use SINTEF categories instead of native ones

Publication production in the department

- A tag for each group (and project)
- Graphical distribution of production in the department
- Average number of publications per person, per publication channel, per project, ...
- Preferred publication arenas
- Temporal evolution of publication practice
- (Future) Search level (0,1,2) through access to the corresponding Webservice
- Export in the format required by Doris/SINTEF

Acknowledgements

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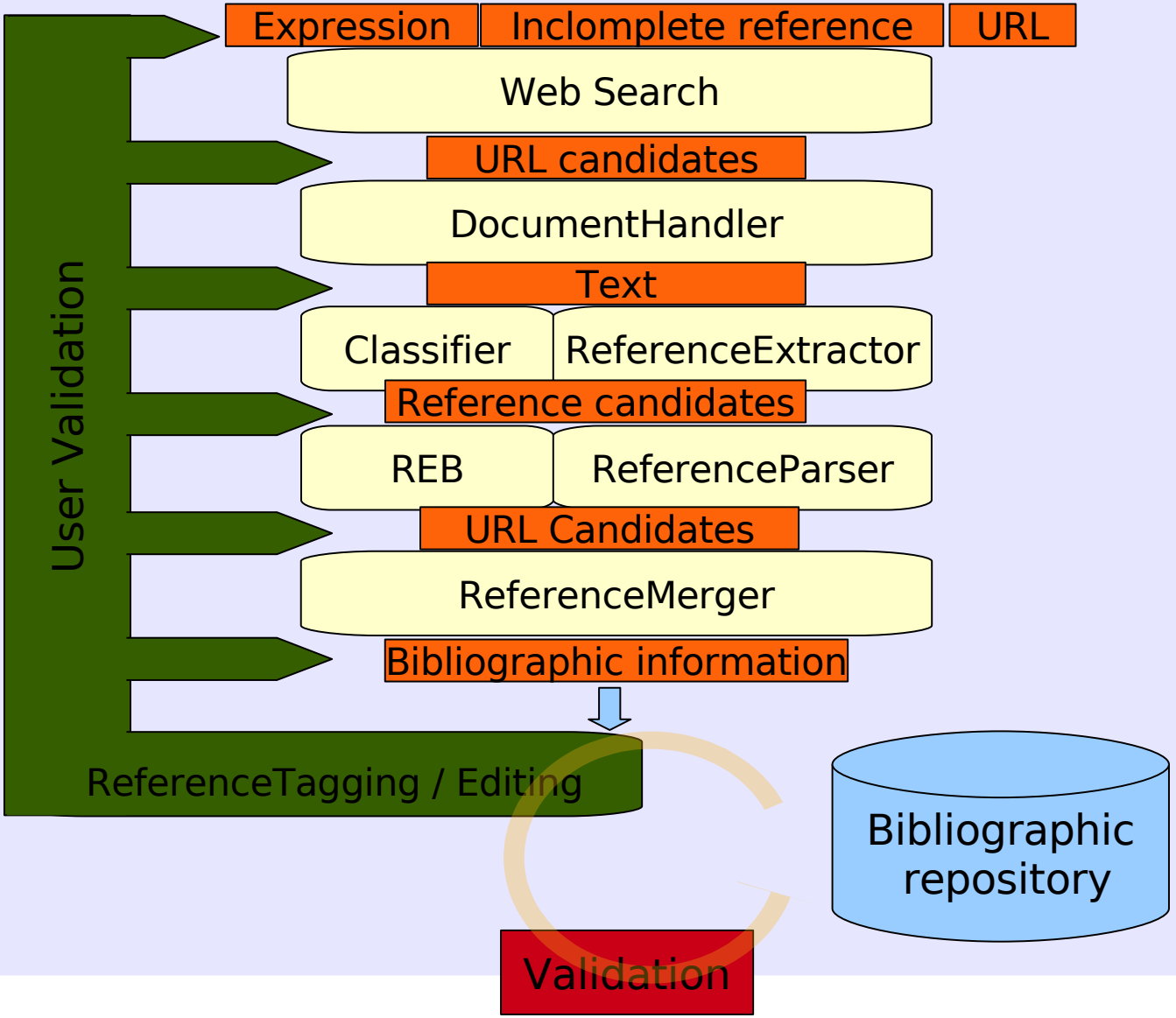
- and improved with SINTEF internal funding

END!

Architecture



WebSearch
Searching the Web

- Module responsible for processing expressions given by users, rewriting then and generating multiple expressions
  - joins specific domain words into the expressions,
  - queries search APIs (Google API, Yahoo API)
  - Returns URLs to relevant digital documents on the Web

DocumentHandler

Convert documents into text

- Obtain the content from different file formats
  - Gets remote documents if necessary
  - Converts documents formats into text
    - Using publicly available programs
    - Can be easily configured to use other programs

ReferenceExtractor

Finding references from unstructured text

- Capable of identifying and delimiting bibliographic references
  - Relies first on classification methods to match the document structure to expected genres (article, dissertation, homepage, ...)
  - Handles each structure in a different way
    - Article's header
    - Article's reference section
    - List of references

ReferenceParser

Parsing bibliographic references

- Takes one bibliographic reference and obtains its bibliographic elements (author, date, etc.), using a combination of methods
  - Paratools (Jewell)
  - Heuristics
  - Ontology based validation (*REB*) before user validation
- *REB* (Repositório de Elementos Bibliográficos) is both:
  - An ontology of authors, conferences and places allowing relations between elements (dealing for instance with abbreviations)
  - A set of similarity detection methods (both used for updating the ontology and validating the reference)

ReferenceMerger

Avoiding duplicates

- Identifies duplicates or partial references (different parts of the same reference)
- Merges a set of partial references, combining the distinct elements in each
- Checks whether the reference is already in the catalogue and if it needs updating

Other Modules

- *ReferenceTagger*
  - Allows users to provide additional information by assigning tags
- *ReferenceConverter*
  - Provides conversion between different bibliographic formats (BibTeX, EndNote, etc.)

Concluding remarks

- Motivated by a practical problem
- System used in practice
- An example of information extraction of a specific kind of information (references)
- Potential usefulness in virtually any scientific area with Portuguese speaking authors
- Publicly available