Evaluating Multilingual Features in Europeana

Deriving best practices for digital cultural heritage
Europeana facts

- 42 millions objects
- Multilingual users, objects, metadata
- Text, images, video, sound
- 2300 institutions
Accessing digital cultural heritage
Crossing the language barrier

Metadata
Access System
User Query
User Interface

1
Multilingual Enrichments
1. Multilingual enrichments

De koppelaarster

Description: Litt.: Christopher Braider: Refiguring the real. Picture and modernity in word and image. 1400-1700. Princeton, 1993

Creator: Johannes Vermeer
http://dbpedia.org/resource/Johannes_Vermeer

Contributor: Johannes Vermeer

Date of creation: 

Type: StillImage

Format: schilderij/image/jpeg

Subject: koppelaarster

Auto-generated tags:

Agent Term: http://dbpedia.org/resource/Johannes_Vermeer

Agent Label: [jan vermeer] (de); [杨·弗美尔] (zh); [jan vermeer] (it); [johannes vermeer] (pt); [jan vermeer] (pl); [johannes vermeer] (sv); [johannes vermeer] (fr); [johannes vermeer] (en); [вермеер, Ян] (ru); [johannes vermeer] (es); [johannes vermeer] (nl)
Number of enriched objects, their type and vocabularies

- **Time**: Semium Time 10.2 Millions
- **Concept**: GEMET, DBpedia 9.2 Millions
- **Locations**: GeoNames 7 Millions
- **Agents**: DBpedia 144,000
What happens if automatic solutions fail?

Devaluation of curated metadata
Loss of trust from providers, users & service re-users
Irrelevant search results

We need to evaluate features to derive best practices and improve services!
Semantically incorrect enrichment

Polen (Dutch) ≠ Polen (Basque)
Evaluation method – enrichments

- 100 queries
- 1,121 records
- First result page
Correct and incorrect enrichments per type

- **Website**: 92% correct, 8% incorrect
- **User**: 100% correct
- **Light Bulb**: 78% correct, 22% incorrect

Percentage of incorrect enrichments

Correct: 78%
Incorrect: 22%

Example: Concept-Type

Impact of enrichments on retrieval

- Impact: 7%
- Potential impact: 15%
- No impact: 61%

Method provided:

- Holistic view on the quality and impact of enrichments
- Query-dependent measures may deliver different results
- Measures are system-focused and independent of the user’s point of view
- Focus on first result page -> it might be different for long tail

Task force on enrichment and evaluation:

http://pro.europeana.eu/europeanatech-task-forces/evaluation-and-enrichments
Crossing the language barrier

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Query translation

Step 2
2. Query translation

The detailed and long version of the process is in Péter Király: Query Translation in Europeana. Code4lib, Issue 27, http://journal.code4lib.org/articles/10285
Evaluation method – query translation

250 aligned queries in 3 languages

Manually Translated baseline

Automatic translation

API

Example

<table>
<thead>
<tr>
<th>Baseline</th>
<th>From 🇩🇪 to</th>
<th>From 🇬🇧 to</th>
<th>From 🇫🇷 to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stummfilm</td>
<td>-</td>
<td>Stummfilm</td>
<td>Stummfilm</td>
</tr>
<tr>
<td>Silent film</td>
<td>Silent film</td>
<td>-</td>
<td>Silent film</td>
</tr>
<tr>
<td>film muet</td>
<td>cinéma muet</td>
<td>cinéma muet</td>
<td>-</td>
</tr>
</tbody>
</table>
Results

19% Incorrect

30% No translation

51% correct

For over 80% of the queries, the automatic solution is suitable.

<table>
<thead>
<tr>
<th>Query</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unarmed</td>
<td>unarmed – Best of 25th Anniversary</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>Bulgarien (Begriffserklärung)</td>
</tr>
</tbody>
</table>
Evaluations help
• revealing workflow problems and issues
• Giving insight on the real impact of automatic solutions
• Targeting efforts and adapt algorithms
• Deriving best practices

Best practices
• Should also incorporate evaluation methodologies
Email: juliane.stiller@ibi.hu-berlin.de

Acknowledgements: All icons designed by freepik