

Towards Evaluating the Impact of Ontologies on the Quality of a Digital Library Alerting System



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1. The P-News System

Goals of P-News

- Improved alerting for Digital Library clients
- Improved delivery for Digital Library clients

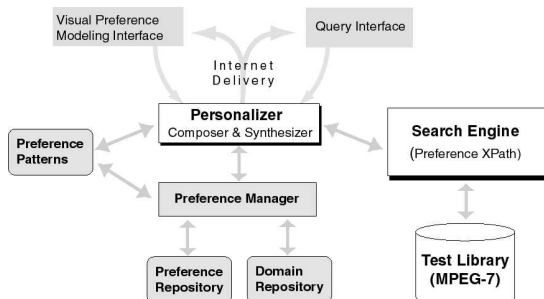


Fig. 1. Personalized notification system for MPEG-7 digital libraries

Deep personalization

- Advanced user modeling by preference patterns

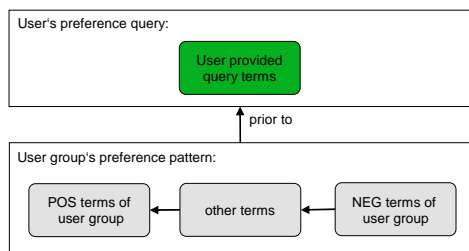


Fig. 2. Query expansion with preference patterns

3. Example

- Goal: Reducing loss of focus

→ Exploiting the semantic context of the original query term

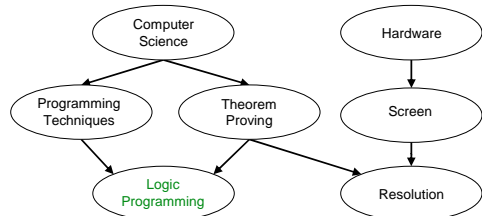


Fig. 5. Ontology prone to a loss of focus

→ Deteriorating the quality level of distracting terms

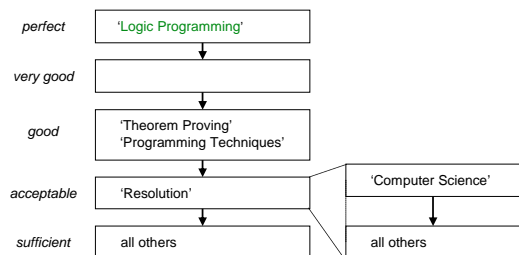


Fig. 6. Quality refinement reducing a loss of focus

2. Impact of Ontologies

Impact of Ontology

- Better query results by semantic query expansion
 - Automatic inclusion of more specific terms
 - Automatic inclusion of more generic terms
 - Automatic inclusion of related terms

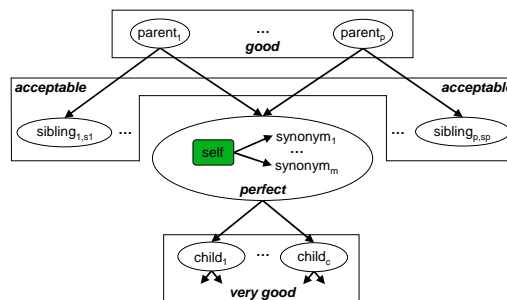


Fig. 3. Query expansion with ontology

Quality refinement

- Degree of the semantic relationship is expressed by a quality assessment

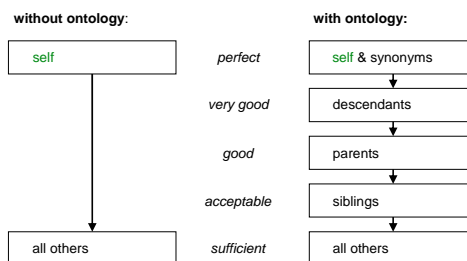


Fig. 4. Quality refinement by ontology

4. Summary and Outlook

- Generic preference modeling framework
 - Easy and consistent integration of new DL user requirements by automatic query expansion
- Strong evidence for the following conjectures
 - Use of ontologies can improve the quality of the query result
 - Ontologies are useful for reducing a loss of focus
- On-the-fly check of ontology generated concepts with online available 'world knowledge' (e.g., WordNet) to fix ambiguities

References

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- [4] Wang, Q., Balke, W.-T., Kießling, W., Huhn, A.: P-News: Deeply Personalized News Dissemination for MPEG-7 based Digital Libraries. In R. Heevy, L. Lyon (eds.): Research and Advanced Technology for Digital Libraries (ECDL 2004), Bath, UK, 256-268

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