



Implementing Dynamic Visualization as an Alternative Interface to a Digital Mathematics Library

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EuDML
*The EUROPEAN DIGITAL
MATHEMATICS LIBRARY*



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DML-CZ

DML-CZ: vast amount of data:

28,000 articles in 11 journals, 5 proceedings series and 28 monographs

browsing?

searching!



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DML-CZ

Search

Search Scope:	<input type="text" value="All of DML-CZ"/>
Full Text Search:	<input type="text" value="Došlý"/>
<input type="button" value="Go"/>	

Your query "Došlý" produced 41 results.

Search Results

Now showing items 1-30 of 41

[1](#) [2](#)

[Next Page](#)

DOŠLÝ, ONDŘEJ: [Representation of solutions of general linear differential systems of the second order](#). (English). Czechoslovak Mathematical Journal, vol. 35 (1985), issue 3, pp. 444-454

DOŠLÝ, ONDŘEJ; FIEDLER, FRANK: [A remark on Nehari-type oscillation criteria for self-adjoint linear differential equations](#). (English). Commentationes Mathematicae Universitatis Carolinae, vol. 32 (1991), issue 3, pp. 447-462

DOŠLÁ, ZUZANA; DOŠLÝ, ONDŘEJ: [Singular quadratic functionals of one dependent variable](#). (English). Commentationes Mathematicae Universitatis Carolinae, vol. 36 (1995), issue 2, pp. 219-237

DOŠLÝ, ONDŘEJ: [Sixty years of professor František Neuman](#). (English). Czechoslovak Mathematical Journal, vol. 48 (1998), issue 1, pp. 177-183



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 Volume 35 >
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Method LSI


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[On transformations of ...](#) 


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Visualization. Why?

“the visual representation of large-scale collections of non-numerical information”

“visualization helps accelerating the cognitive process”

[Tufte, 1990]



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Visualization Demo



Visualization

What to display?

Relationships!

- structural (e.g. article in serial)
- semantic (e.g. classification of articles)
- mixed (e.g. author of articles)



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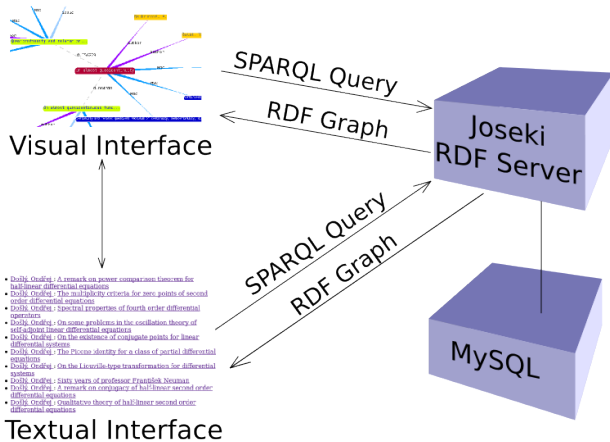
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Architecture





Data: Conversion to RDF

- selecting only the appropriate data for visualization
- assigning IDs for articles, issues, journals and authors
- adding short titles for the visualization
- adding Mathematics Subject Classification [Jon and Eilbeck, 2010]
- conversion of similarities



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RDF Server

- Joseki¹
- data stored in MySQL²
- provides SPARQL for queries[Prud'hommeaux and Seaborne, 2008]

¹<http://joseki.sourceforge.net>

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Interaction between the Visual Browser and HTML page

- Java \longleftrightarrow HTML (via Java Applet methods)
- better comfort: AJAX³
- processing results of SPARQL queries
result is a RDF graph

³Asynchronous Javascript And XML



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Future Work

What do we need for the future work?

Feedback from users!

We need **user-friendly** feedback form



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enhancements in

- appearance
- speed
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