MIZAR in MathWiki

Adam Naumowicz
adamn@mizar.org
Institute of Computer Science
University of Bialystok, Poland
MathWiki task inventory

- Interactive Proof Interface
- Online Working Environment
- Database Management
- Semantic Aspects
- Contents
- Common Proof Language

Adam Naumowicz, Institute of Comp. Sci., University of Bialystok
• **MIZAR** is a command line ("batch") tool
  
  – “lazy interaction”
  
  – stepwise refinement
• **MIZAR** is a command line ("batch") tool
  – "lazy interaction"
  – stepwise refinement

• processing incomplete proofs is done in a "natural" way
MIZAR is a command line ("batch") tool
  – “lazy interaction”
  – stepwise refinement

processing incomplete proofs is done in a “natural” way

a local database can be created and distributed among users
• **MIZAR** is a command line ("batch") tool
  – "lazy interaction"
  – stepwise refinement

• processing incomplete proofs is done in a "natural" way

• a local database can be created and distributed among users

• several collaborative projects (CCL, JORDAN)
Online working environment

- MIZAR on-line processors, e.g. http://www.wakasato.org/mizar/
• MIZAR on-line processors, e.g. http://www.wakasato.org/mizar/

• binary distribution on several platforms - fairly easy to install!
• MIZAR on-line processors, e.g. http://www.wakasato.org/mizar/

• binary distribution on several platforms - fairly easy to install!

• moderate resources required
Online working environment

- **MIZAR on-line processors**, e.g. http://www.wakasato.org/mizar/
- binary distribution on several platforms - fairly easy to install!
- moderate resources required
- most advanced interface - Emacs-mode by Josef Urban
• MIZAR on-line processors, e.g. http://www.wakasato.org/mizar/

• binary distribution on several platforms - fairly easy to install!

• moderate resources required

• most advanced interface - Emacs-mode by Josef Urban

• hybrid solution is probably most feasible (on/off-line work)
• MML is subject to constant revisions!
• MML is subject to constant revisions!
  – e.g. the arithmetic of real numbers
  – better formulation
  – employing new features (adjectives)
• MML is subject to constant revisions!
  – e.g. the arithmetic of real numbers
  – better formulation
  – employing new features (adjectives)

• integrity
  – e.g. two approaches to lattice theory
• MML is subject to constant revisions!
  – e.g. the arithmetic of real numbers
  – better formulation
  – employing new features (adjectives)

• integrity
  – e.g. two approaches to lattice theory

• notations
  – 120 different +’s
  – overloading and redefinitions
- MML is subject to constant revisions!
  - e.g. the arithmetic of real numbers
  - better formulation
  - employing new features (adjectives)

- integrity
  - e.g. two approaches to lattice theory

- notations
  - 120 different +’s
  - overloading and redefinitions

- Encyclopedia of Mathematics in Mizar (EMM) - better organised
• MML is subject to constant revisions!
  – e.g. the arithmetic of real numbers
  – better formulation
  – employing new features (adjectives)

• integrity
  – e.g. two approaches to lattice theory

• notations
  – 120 different ’s
    – overloading and redefinitions

• Encyclopedia of Mathematics in Mizar (EMM) - better organised

• dividing into classical/abstract parts or arithmetic-dependent/arithmetic-independent parts
Mizar Mathematical Library (version 4.87.985) includes:

- 985 articles written by 198 authors
- 45002 theorems
- 8524 definitions
- 753 schemes
- 7511 registrations
- 6320 symbols
• Mizar Mathematical Library (version 4.87.985) includes:
  – 985 articles written by 198 authors
  – 45002 theorems
  – 8524 definitions
  – 753 schemes
  – 7511 registrations
  – 6320 symbols

• refereeing process started in 2006 ("human judgement what is good and what is not")
• Mizar Mathematical Library (version 4.87.985) includes:
  – 985 articles written by 198 authors
  – 45002 theorems
  – 8524 definitions
  – 753 schemes
  – 7511 registrations
  – 6320 symbols

• refereeing process started in 2006 (“human judgement what is good and what is not”)

• traditional refereeing - “positive” (printing costs, not easy access, only most important results are published) - Why should that be accepted?
• Mizar Mathematical Library (version 4.87.985) includes:
  – 985 articles written by 198 authors
  – 45002 theorems
  – 8524 definitions
  – 753 schemes
  – 7511 registrations
  – 6320 symbols

• refereeing process started in 2006 ("human judgement what is good and what is not")

• traditional refereeing - "positive" (printing costs, not easy access, only most important results are published) - Why should that be accepted?

• MML refereeing policy - "negative" (only really poor articles are rejected) - Why should that be rejected?
• Mizar Mathematical Library (version 4.87.985) includes:
  – 985 articles written by 198 authors
  – 45002 theorems
  – 8524 definitions
  – 753 schemes
  – 7511 registrations
  – 6320 symbols

• refereeing process started in 2006 (“human judgement what is good and what is not”)

• traditional refereeing - “positive” (printing costs, not easy access, only most important results are published) - *Why should that be accepted?*

• MML refereeing policy - “negative” (only really poor articles are rejected) - *Why should that be rejected?*

• Freek’s proposal (preliminaries section)
• Mizar Mathematical Library (version 4.87.985) includes:
  – 985 articles written by 198 authors
  – 45002 theorems
  – 8524 definitions
  – 753 schemes
  – 7511 registrations
  – 6320 symbols

• refereeing process started in 2006 (“human judgement what is good and what is not”)

• traditional refereeing - “positive” (printing costs, not easy access, only most important results are published) - Why should that be accepted?

• MML refereeing policy - “negative” (only really poor articles are rejected) - Why should that be rejected?

• Freek’s proposal (preliminaries section)

• authorship issues
• Formalized Mathematics: http://fm.mizar.org/
• Formalized Mathematics: http://fm.mizar.org/

• Journal of Formalized Mathematics: http://mizar.org/JFM/
• Formalized Mathematics: http://fm.mizar.org/

• Journal of Formalized Mathematics: http://mizar.org/JFM/

• XML-based semantic presentation:
  http://lipa.ms.mff.cuni.cz/~urban/xmlmml/html_abstr.4.87.985/
Semantics aspects

• Formalized Mathematics: http://fm.mizar.org/

• Journal of Formalized Mathematics: http://mizar.org/JFM/

• XML-based semantic presentation:
  http://lipa.ms.mff.cuni.cz/~urban/xmlmml/html_abstr.4.87.985/

• MMLQuery search language/engine: http://mmlquery.mizar.org/
● PA languages should still evolve in the direction of the natural language (to reduce the de Bruijn factor)
• PA languages should still evolve in the direction of the natural language (to reduce the de Bruijn factor)
  – adjectives, binders, ellipsis, etc.
• PA languages should still evolve in the direction of the natural language (to reduce the de Bruijn factor)
  – adjectives, binders, ellipsis, etc.

• we should support translations (translation into a language should be done by its “native” users), parallel developments, cross-linking facilities, etc.