

Matita

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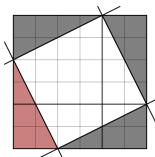
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History 1/2

HELM - Hypertextual Electronic Library of Mathematics (1999 -)

- **XML** specification of Coq's Calculus of (co)Inductive Constructions **CIC**
- **Exportation** module for Coq's proof terms
- Management of a distributed **Library** (45000 theorems)
- **Type Checker** based on Environment reconstruction (on-demand)
- XML-based natural language **proof rendering**
- **MathML rendering** component with semantic selection



History 2/2

IST-2001-33562 - MoWGLI (2002 - 2005)

- Relational **metadata** for unification approximation
- Whelp **search engine**
- Disambiguating **parser**
- **Unification** and **refinement**



Matita (2004 -)

What was missing?

- Tactics and tacticals
- Proof scripts
- Authoring interface



Motivations

- For fun!
- Reaching a **critical mass** of developers/systems
- Compatibility and **direct competition** with another system
- Quest for a **lightweight** implementation (how small can Coq be?)
- Cross-fertilization with **MKM technology**



System description 1/2

- Interactive Theorem Prover
- (Variant of) Calculus of (co)Inductive Constructions
- Procedural proof language
- CtCoq/Proof General like Authoring interface
- Written in OCaml and GTK



System description 2/2

Peculiarities for the user:

- Compatibility with Coq's library (proof terms)
- Global view of the library
- Whelp integration
- Browsing interface
- Ambiguous notation
- Tinycals



Demo

Demo!



Comparison with Coq

Comparison with Coq:

- About the same functionalities, alternative algorithms
- Smaller source size (see last slide)
- Smaller API size (989 vs 4286)
- Young: less optimizations, more bugs ;-)
- Tiny standard library



Future developments

- Consolidation before experimentation
- Proof automation (integration with theorem prover tech.)
- Versioning
- Integration with Wiki technology

- As a test-bench...
 - Suggestions for collaboration?

