Educational Software based on Theorem Prover Technology
Announcing a New Software Generation

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“Proving in Math Education at University and at School”
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Outline

1. A new generation of educational math software
   Early birds
   Expected features

2. A prototype of the new generation
   Demonstration
   Review of features

3. Discussion
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Structured derivation editor with erroneous step marked.
See E-Math Project http://emath.eu/
GeoGebra’s “academic relative”, see prove \{identical \ O_1 \ O_2\} at bottom left.
Socos, Abo Akademi Turku

For software “correct by construction” in education.


\[
\int -q_0 \frac{d}{dx} = c - q_0 \cdot x, \quad \ldots \rightarrow \text{ok},
\]

\[
\int -q_0 \frac{d}{dx} = c - \frac{q_0^2}{2}, \quad \ldots \rightarrow \text{not ok}
\]
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Computer-Theorem-Prover technology supports:

1. interactive, stepwise problem solving
   like traditional paper&pencil work

2. underlying knowledge is transparent
   all math knowledge in traditional notation

3. covers all of (applied) mathematics
   problem classes need formal specification and method

These features shall be demonstrated by ISAC now.
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Demonstration of the ISAC-prototype
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   - like learning to play chess on a computer

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Thank you for attention!

Opinions? Questions?