Improving KeYmaera

Less clicking, more proving
Motivation & Initial Idea

- improve the user-KeYmaera experience
- implement convenience features in KeYmaera
- reduce the amount of clicking
Changes from initial idea

- moved over to KeYmaera 4
- added text interface
Changes in KeYmaera 4

- Client-server architecture
- Web interface
An Example!

\[(A \land B \land B \rightarrow C) \rightarrow C\]
Example: Key File

Functions.
  R a.
  R b.
  R c.
End.
Problem.
  (a & b & (b -> c)) -> c
End.
Example

An actual demonstration!
Implementation: Initial syntax

● `<formula id>>/<tactic id>`

● `ex: succ:0/dl.imply-right`
Implementation: Less verbose

- `<formula id>`:<tactic id>
- `ex: 1:imply`
Implementation: Saturated tactics

- Simple notation: add * to tactic name
- ex: -1:and*
Implementation: Autocomplete

- Three stages of suggestions
- Formula name
- Tactic name (full and short)
- Saturated
Implementation: Multiple tactics

- Separated by newlines or semicolons
- Faster, but requires advanced knowledge
- No autocompletion
Next steps

- Allow multi-formula tactics (ex: axiom close)
- Allow interactive tactics (ex: loop ind)
Summary

• Added text-based interface
• Has autocompletion
• Ability to apply multiple tactics