

Spoofax: A Stratego Editor

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Motivation

- Short-term:
 - provide a decent editor for Stratego;
 - scratch an itch.
- Long-term:
 - provide an extensible, interactive environment for Stratego/XT;
 - investigate bindings between Stratego and Java.

Editor Features

- Based on Eclipse
- Syntax highlighting for SDF and Stratego.
- An outliner view.
- Primitive content assistance.
- *Easy* deployment.

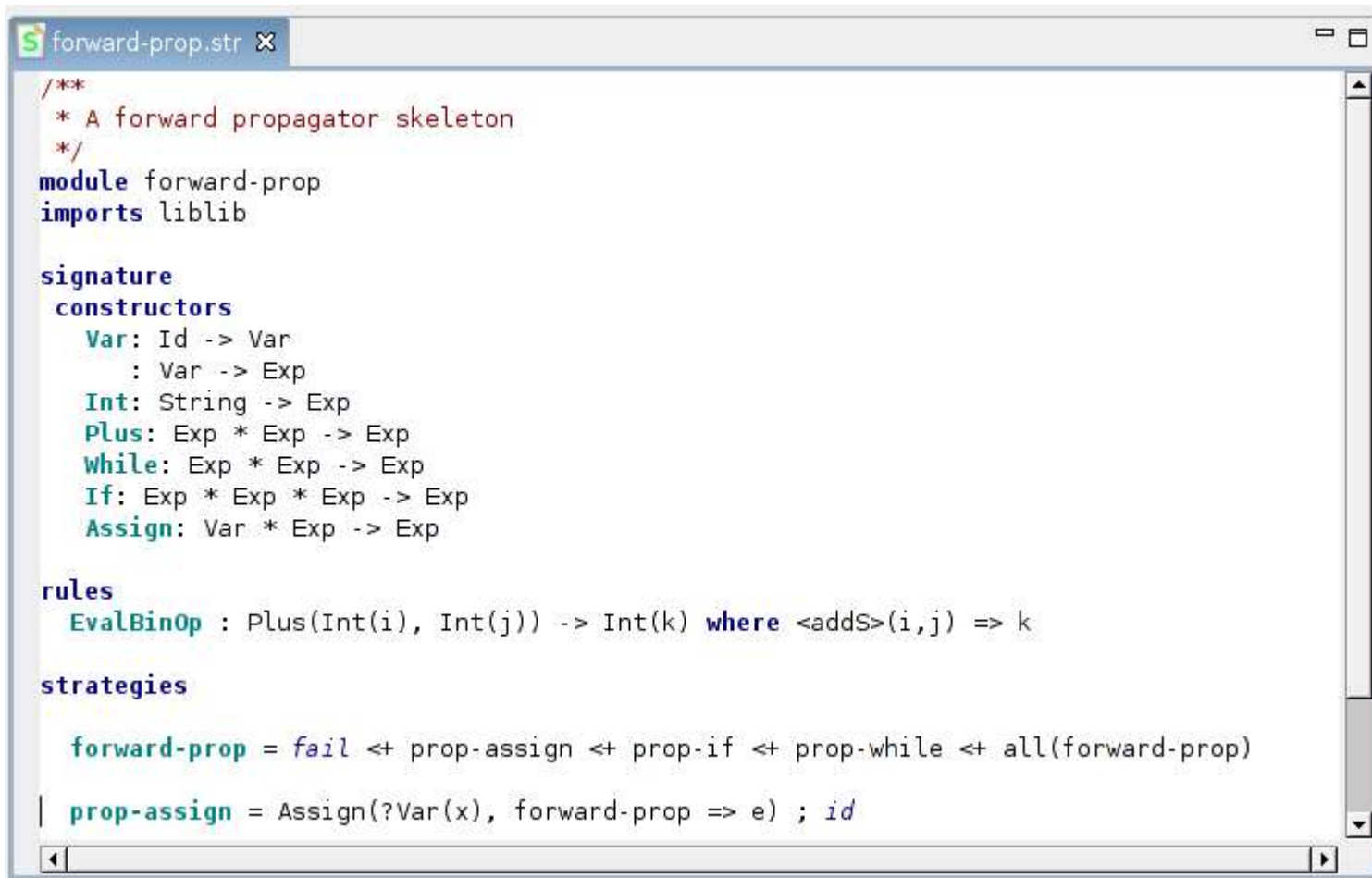
Eclipse

- Open-sourced tools platform initially sponsored by IBM.
 - 2 million lines of Java code
 - licensed under the IBM Common Public License, v1.0
- Not restricted to Java
 - C/C++, Fortran, Python, C#, PHP, Scheme, XML, HTML
 - Modellers, GUI editors, Lotus Notes E-Mail client,

Syntax Highlighting

- Recognizes *keywords, documentation, comments, declarations (rules, strategies, constructors)*.
- Driven by a light-weight, fast (almost) context-free parser.
- On document change, the parser will reparse only damaged regions.
- Customizable formatting
 - color, slant, boldness

Syntax Highlighting (2)



```
forward-prop.str x
/**
 * A forward propagator skeleton
 */
module forward-prop
imports liblib

signature
constructors
  Var: Id -> Var
      : Var -> Exp
  Int: String -> Exp
  Plus: Exp * Exp -> Exp
  While: Exp * Exp -> Exp
  If: Exp * Exp * Exp -> Exp
  Assign: Var * Exp -> Exp

rules
  EvalBinOp : Plus(Int(i), Int(j)) -> Int(k) where <addS>(i,j) => k

strategies

  forward-prop = fail <+ prop-assign <+ prop-if <+ prop-while <+ all(forward-prop)
  prop-assign = Assign(?Var(x), forward-prop => e) ; id
```

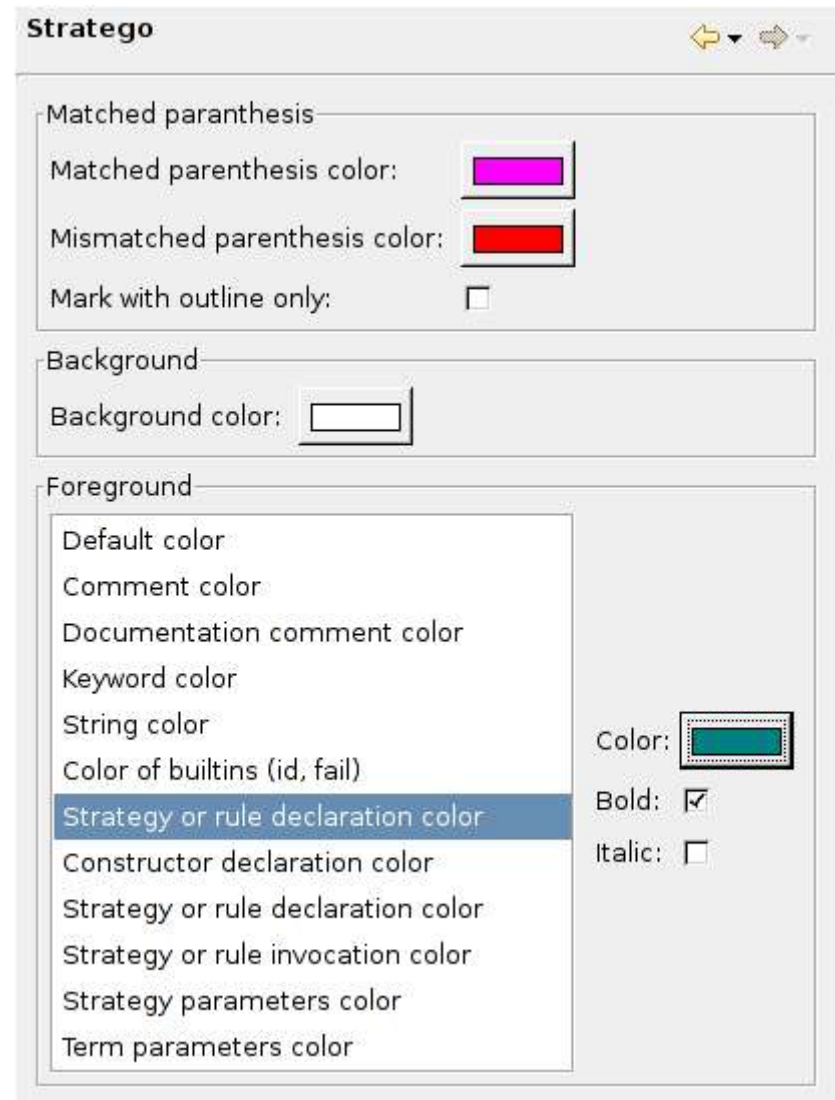
Outliner

- Recognizes declarations
 - *module, imports, constructors, rules, strategies.*
- Allows document navigation.



Preferences

- Configure
 - parenthesis matcher
 - colors
- Instantly reflected into the editor



Content Assistant

- Uses a context sensitive “outline parser” to record all available declarations.
- Allows to select from a list of declarations, based on context
 - rules/strategies or constructors
- Auto completion proposal after
 - ! for constructors
 - < for rules/strategies

Details

- ~4000 lines of Java code
- Implementation took ~1 full week.
- License: IBM Common Public License v1.0
- Downloads, bug reports, documentation(!) and roadmap

www.spoofax.org

Future Work

- Parser improvements
 - replace hand-written outline parser with SGLR
 - add documentation parser and pretty-printer
- Improve content assistance
 - Environment-aware
 - Help popups
- Indentation
 - auto-indentation, pretty-printing

Conclusion

- Already an improvement over the emacs mode.
- **But**, Eclipse is a resource hog!