Introducing $abc$

- why we are building it -
A workbench for AOP research

- **Extensions:**
  - Parametric introductions
  - Symmetric class composition (Hyper/J, GenVoca)
  - Trace cuts
  - Dataflow pointcuts
- **New static checks:**
  - Pure aspects
- **Optimisations:**
  - Eliminate runtime overheads for cflow
  - Avoid closures in around
Requirements

**Syntactic changes** should be easy
⇒ Generate parser from grammar

**Frontend** framework designed for extensibility:
- Changes to environment type
- Augment existing type objects
- Same override on many existing AST classes
- Override in middle of AST inheritance hierarchy

**Backend** framework:
- Clean intermediate representation
- Rich set of existing analyses
- Easy to plug in new transformations

**Polyglot**: extensible Java compiler

**jflex + javacup**: parser generator

**Soot**: manipulate classfiles, 3-addr IR for analysis and transformation
abc team

- Chris Allan - Oxford (tracecuts)
- Pavel Avgustinov - Oxford (test harness, privileged, lexer)
- Aske Simon Christensen - Århus (architecture, decl parents, pattern matcher)
- Laurie Hendren - McGill (grammar and scanner, initial weaver)
- Sascha Kuzins - Oxford (around weaver)
- Jennifer Lhotáč - McGill (JavaToJimple, initial weaver)
- Ondrej Lhoták - McGill (initial weaver, soot class and method handling)
- Oege de Moor - Oxford (frontend, intertype weaver)
- Damien Sereni - Oxford (cflow optimisations)
- Ganesh Sittampalam - Oxford (pointcut matching, advice weaver, optimisations, class and method handling)
- Julian Tibble - Oxford (EAJ language extensions)
Suggested schedule

Morning:
introductory talks about abc
(why, what and how)

Afternoon: discuss
• difficult points in language design
• plans for future of AspectJ
• opportunities for ajc/abc collaboration
Plan for the morning

- Architecture (Aske Simon Christensen)
- Scanner and Parser (Laurie Hendren)
- Polyglot and frontend (Oege de Moor)
- Introduction to Soot (Ondrej Lhoták)
- Advice weaver (Ganesh Sittampalam)
- Around weaver (Sascha Kuzins)
- Language extensions (Julian Tibble)
- Current status and plans (Oege de Moor)