Visualization of Software and Activity

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what we already know

- from studies of software development
  - complexity of task and interaction
  - the impact of distance
  - complexity of interdependence
- from studies of collaboration
  - formal and informal
  - the role of awareness
    - qualitative understandings of the actions of others
    - provides a context for your own actions

approach

- visual approaches
  - cognitive -> perceptual
  - focus on artifacts rather than processes
- theoretical background
  - the experience of computation
    - making computation "present"
  - embodied interaction
    - interaction as an embodied practice
    - directness and engagement
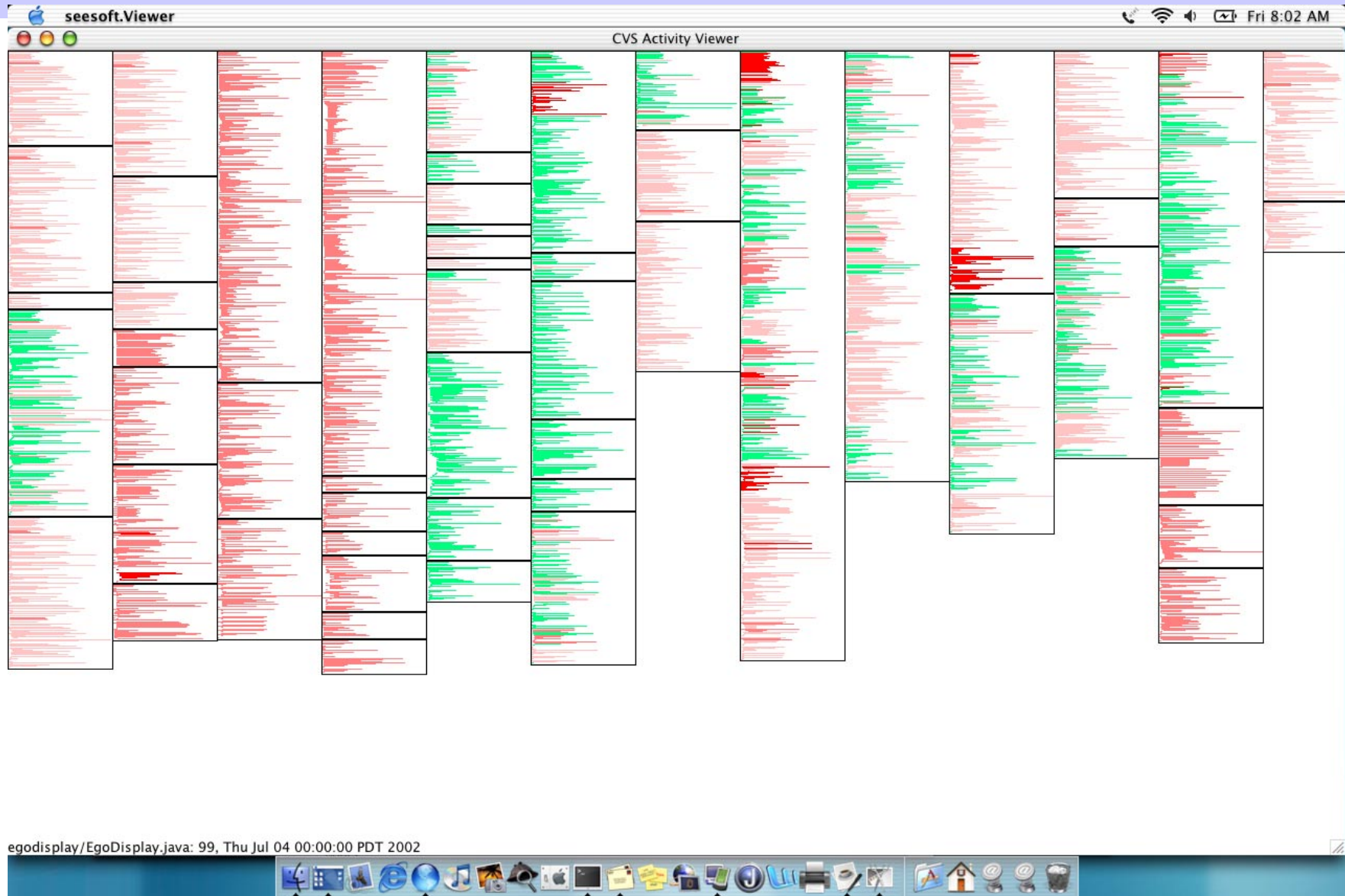- two projects: seesoft and vavoom

seesoft

- cscw research focus on awareness
  - passive understanding of the activity of others
- trying to understand "awareness in the large"
  - large-scale, distributed software development
  - in large projects, the codebase is the artifact
  - awareness of changes in the artifact
  - awareness of the actions of others
- seesoft
  - adopted from work of eick, wills, et al.
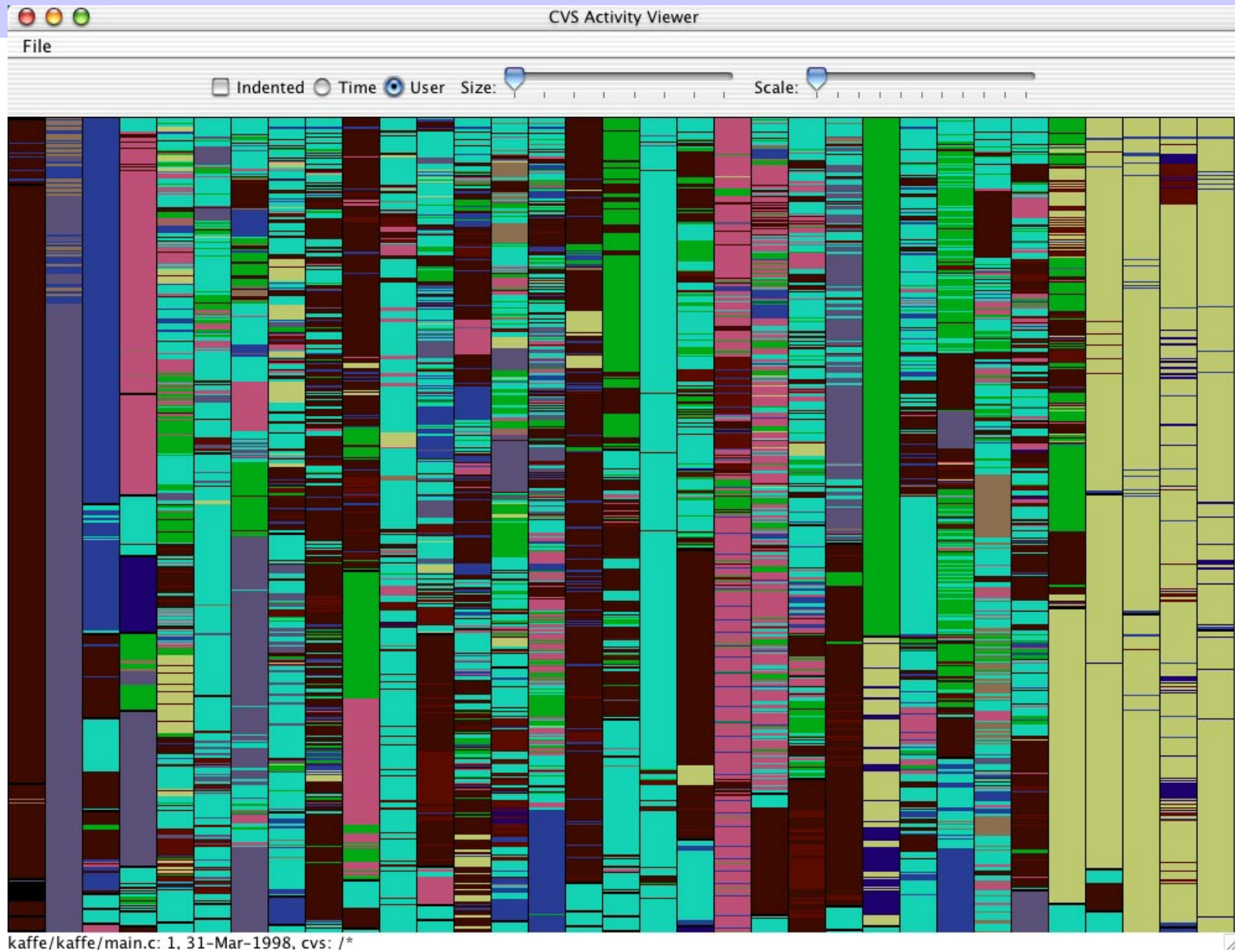 - view the activity in cvs repositories

seesoft

seesoft

seesoft

CVS Activity Viewer

File

Indented ○ Time ● User Size: Scale:

kaffe/kaffe/main.c: 1, 31-Mar-1998, cvs: /*

vavoom

- interface abstractions hide mechanism
  - "folders" are folders whether local or networked
- but mechanism is how we understand the world
  - understandings of cause and effect
  - temporal dynamic coupling
  - the temporal organization of social action
- manifesting computation
  - how to give people a picture of what's happening?
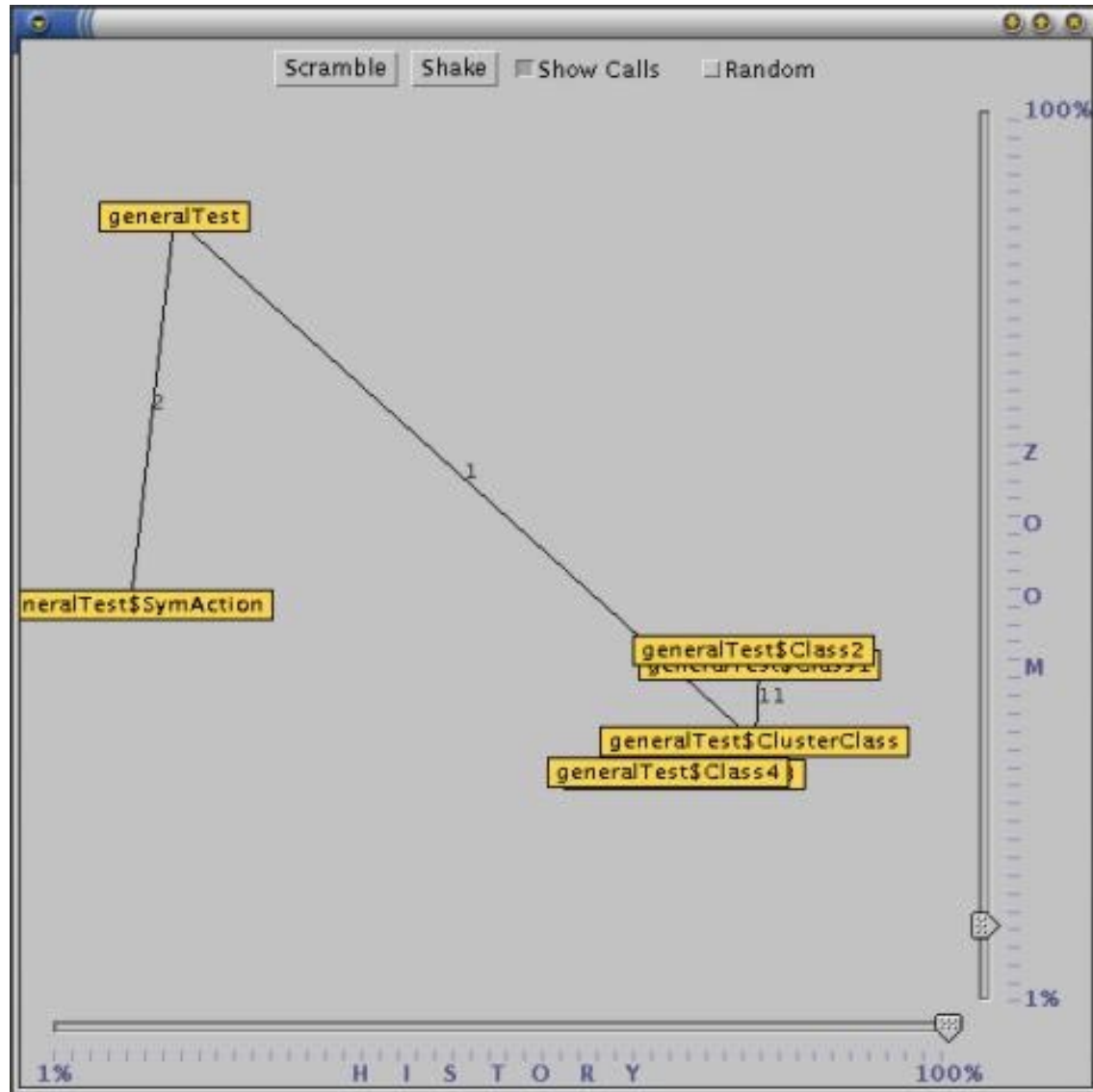
vavoom

- initial exploration: vavoom
  - focus on novice programmers
    - we understand the models in terms of which to explain
    - vested interest in finding out what's going on
    - there's plenty of them lying around
  - vavoom is the visual virtual machine
    - visualize java program execution
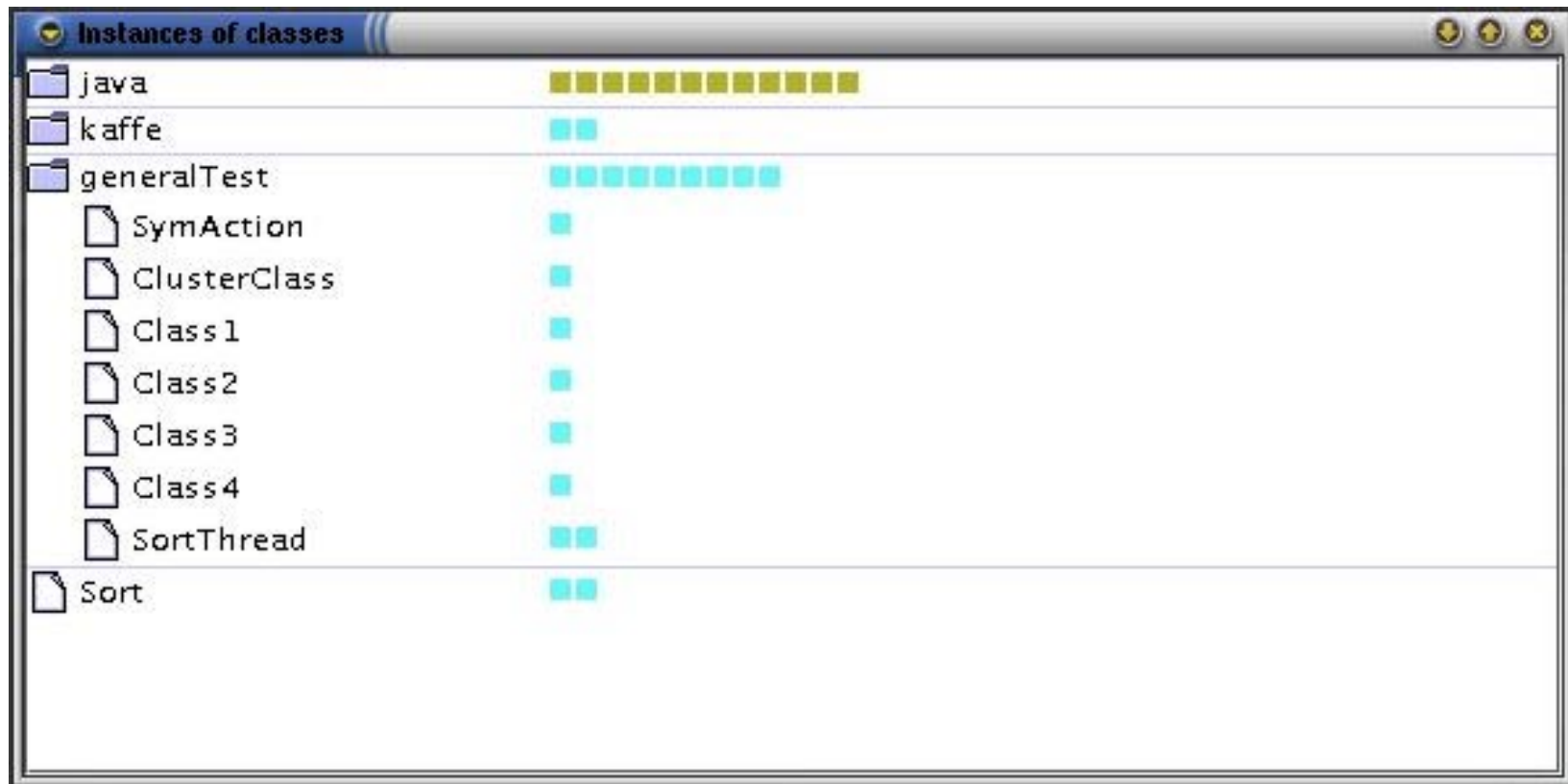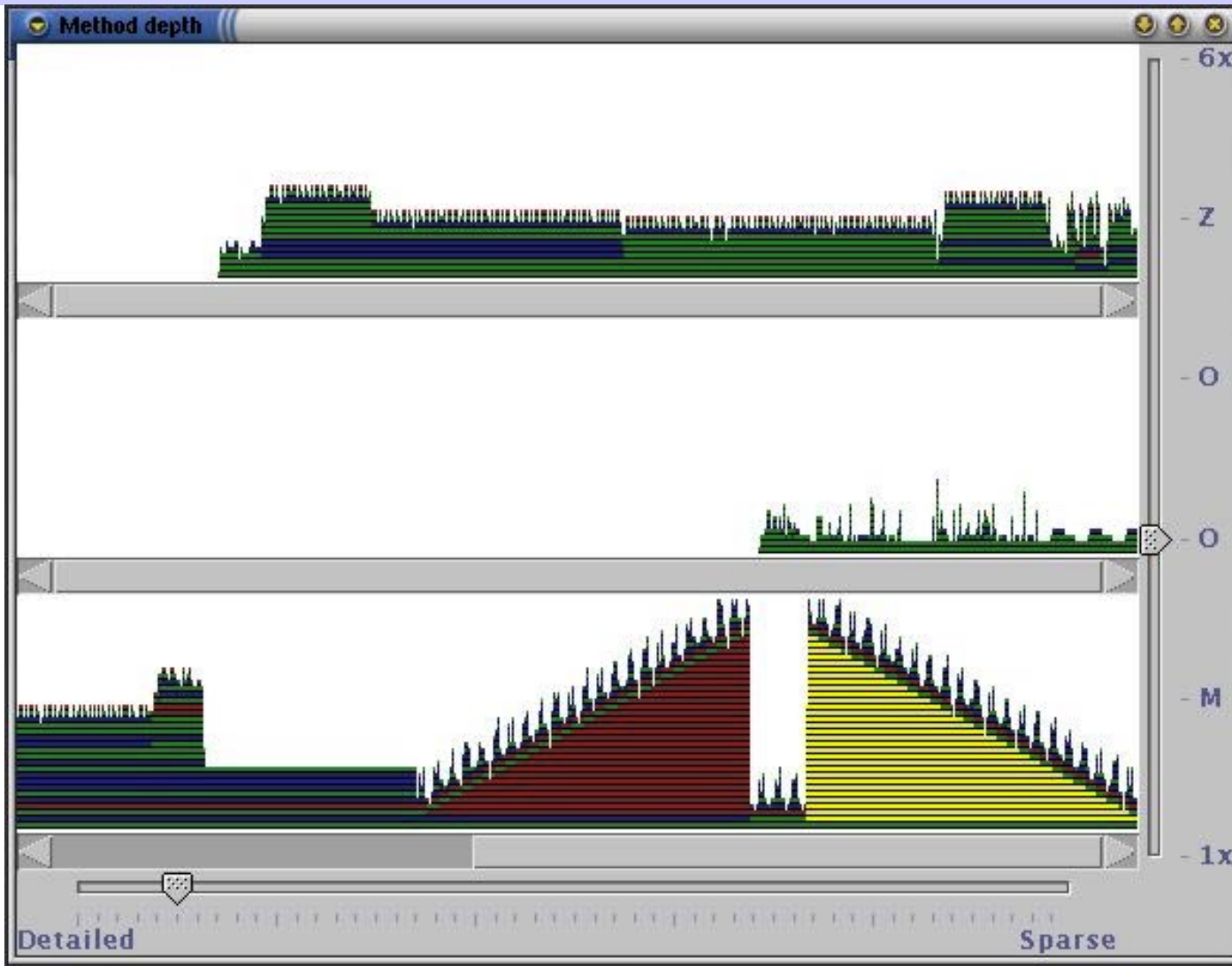   - dynamic, real-time visualizations
    - unmodified class files
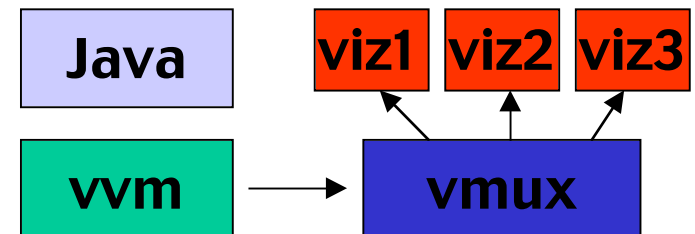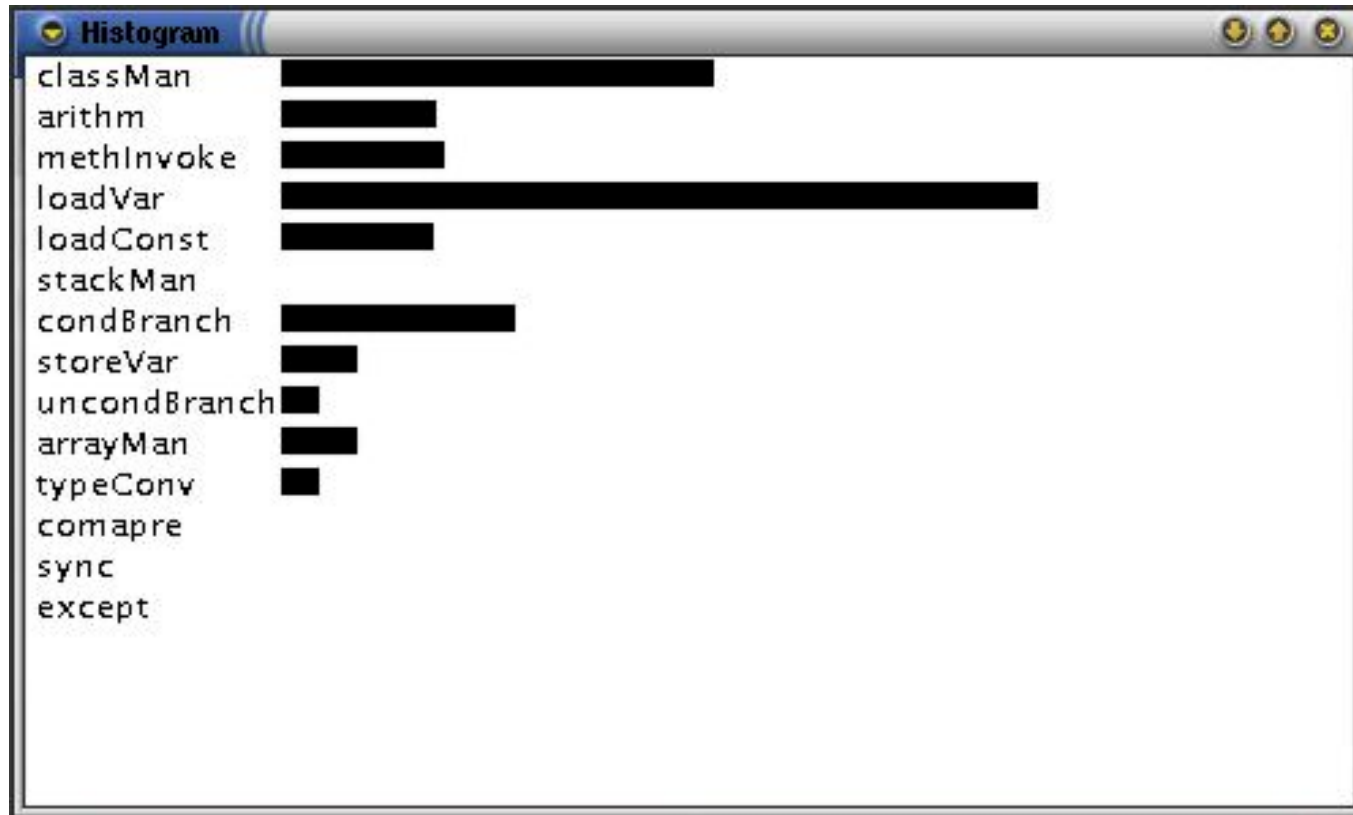
Java | viz1 | viz2 | viz3

vvm → vmux

vavoom

vavoom

vavoom

vavoom

vavoom

- vavoom is an early technical exploration
  - the focus on programmers is a hack
    - but convenient… as long as they have the right programs
  - a more interesting strategy is to:
    - focus on end users
    - focus on more abstract visualisations
    - focus on more specialised tasks
      - currently exploring network security

conclusions

- system support for informal interaction
  - non process-centric collaboration
  - qualitative understandings of
    - software behavior
    - collaborative activity
- exploiting software as artifact
  - software as primary coordinative resource
  - directness and malleability
- open questions
  - integration with practice
  - balance between translucence and distraction
  - demonstration of theoretical approach