*j*ACT-R : Java ACT-R

Why I've given up my free time to rein vent the wheel

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*j*ACT-R : Why not use the Lisp?

- Partially driven by Christian's quest for the *"killer app"**
  - Niche languages are the antitheses of the *"killer app"*
- Many of the development tools that I want to see are extremely difficult to implement in Lisp (probably won't be true when 6.0 comes out)
- Extend the potential range of phenomena and applications that ACT-R can be applied to

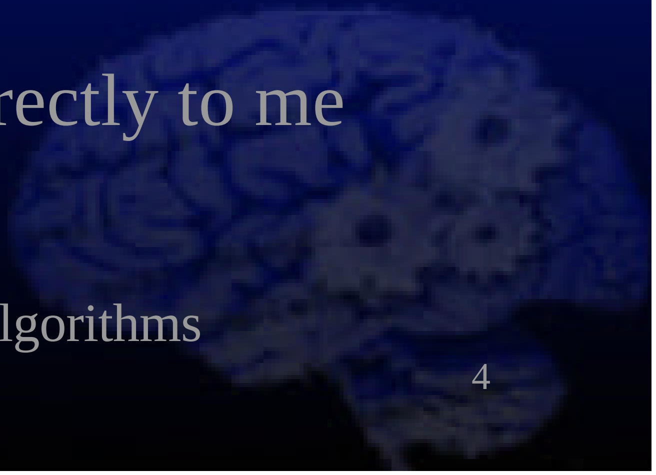
*Just wait until the spatial extension is complete. Then we'll have ACT-R playing Quake.

What does Java bring to the table?

- "Write once, run anywhere" is no longer a cliché.
  (with the minor exception of OS 9.0)
- All Java applications are immediately viewable to *j*ACT-R.
- "Model farming", collaborative models, distributed modeling
- Wealth of standardized APIs
  - No more models of interaction with simulated devices - they can actually use the real devices.
  - Creation of new modeling tools relatively easy

*j*ACT-R : Modeler’s Perspective

- Passed all compatibility tests* to date
- Interfaces Java applications transparently (and in real-time)
- Simple collaborative modeling
- Just as scriptable (although with Javascript not Lisp)
- Automatic bug reports bounced directly to me



* Tests based on Excel simulations of algorithms

jACT-R : Modeler's Perspective

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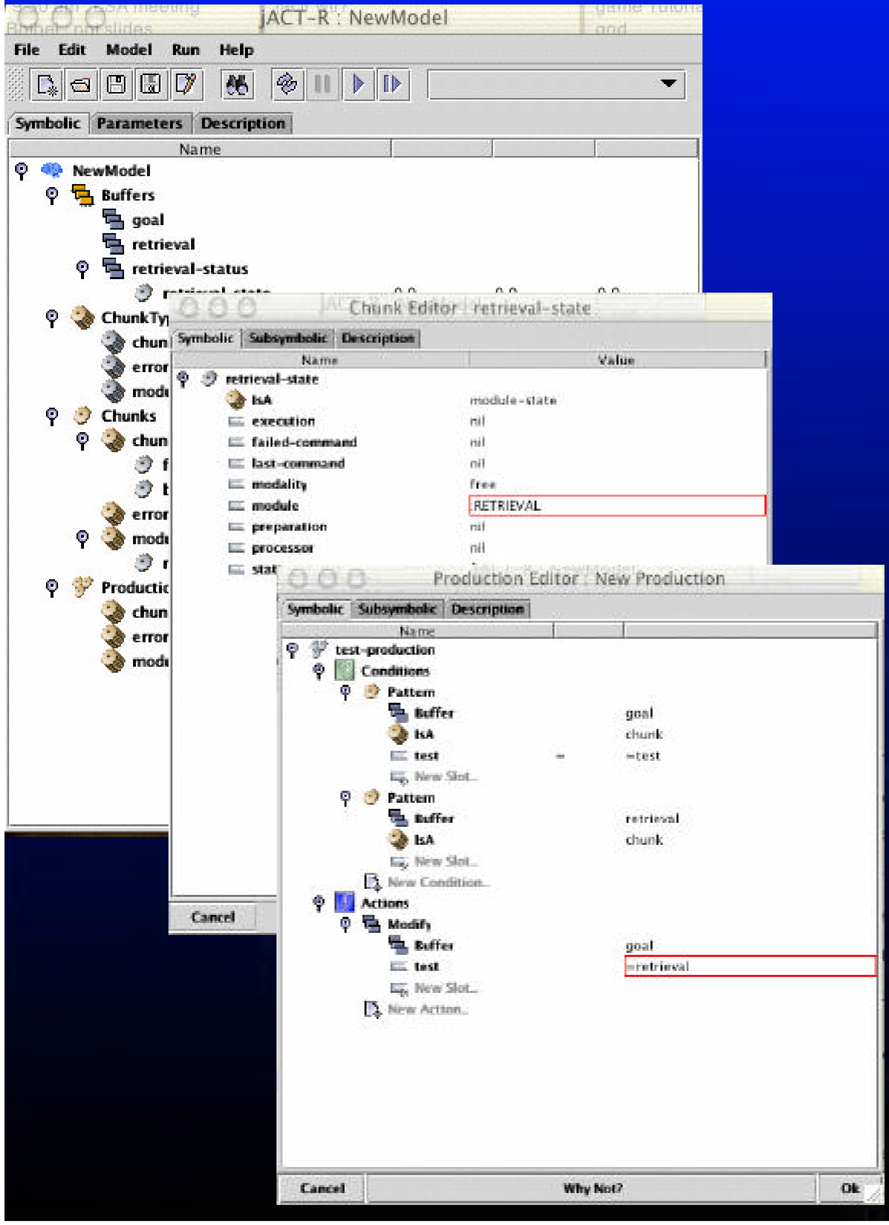

jACT-R : NewModel
File Edit Model Run Help
Symbolic Parameters Description
Chunk Editor : retrieval-state
Production Editor : New Production
Cancel
Why Not?
Ok

```
Name
NewModel
  Buffers
    goal
    retrieval
    retrieval-status
  ChunkTy
  Chunks
  Productic
```

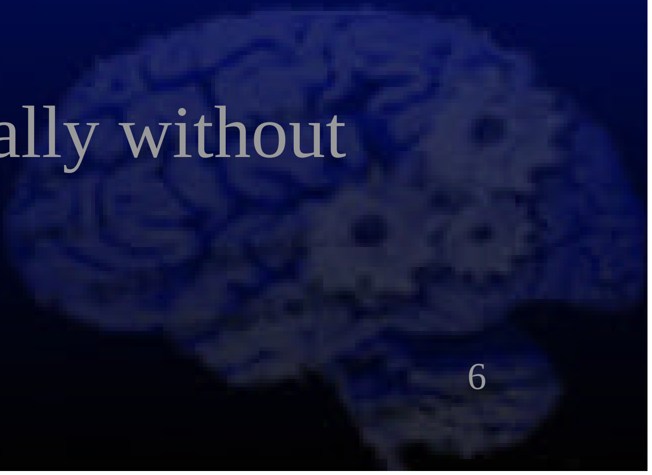
```
Name                 Value
retrieval-state
  IsA                module-state
  execution          nil
  failed-command     nil
  last-command       nil
  modality           free
  module             RETRIEVAL
  preparation        nil
  processor          nil
```

```
Name
test-production
  Conditions
    Pattern
      Buffer            goal
      IsA               chunk
      test        =     =test
      New Slot...
    Pattern
      Buffer            retrieval
      IsA               chunk
      New Slot...
    New Condition...
  Actions
    Modify
      Buffer            goal
      test              =retrieval
      New Slot...
    New Action...
```

- GUI that requires no funky commands or parameters (no *sgp* or *era*)
- Organized tree display of model makes large model management simpler
- "Intelligent guessing" of chunks, types, and slots reduces typing
- GUI permits saving of models at intermediate stages

*j*ACT-R : Theory-Tweaker's Perspective

- Completely modular in design (like 6.0 will be?)
  - Modules are separable
  - Separation of symbolic and subsymbolic logic and code
  - Separation of all equations
- Extensions (ala /PM) can be fully supported via extension APIs.
- All tweaks can be loaded dynamically without touching any of *j*ACT-R's code.



*j*ACT-R : Developer's Perspective

- Where the Lisp uses function hooks for customization, *j*ACT-R uses events
  - Both synchronous and asynchronous
  - Examples: parameter changes, chunk creation, production firing, buffer content changes, logging events, etc.
- Want a CPM-GOMS style trace? Attach a ModelRunListener and process the events.
- Want a trace tool that permits rolling back the model to an arbitrary point in time?
  - Log all the events (each event has old & new values)
  - Apply or revert based on the time stamps

*j*ACT-R : Modeler’s Perspective
(The Dark Side)

- Production compilation does not exist (yet)
- PM extension is not complete
- No Lisp Import/Export
  - Models, while isomorphic, are syntactically very different
- Nowhere near as fast as it can be (and will be)

What’s Holding 1.0 Up?

- *j*ACT-R core is unfunded. After work, before sleep is the only time it gets worked on (although the spatial extension is funded)
- There is only one developer
  - Good with designing
  - Bad with optimizing
- Development has been spread out
  - Core
  - Extensions
  - and Tools

More Info..

- *j*ACT-R Home
  - *http://sourceforge.net/projects/jactr/*
  - All the latest releases, source, documentation, discussion groups, bug lists, mailing lists, CVS
- Web-based download/install/run
  - *http://simon.lrdc.pitt.edu/~harrison/jactr/jactr.jnlp*
  - MacOSX, Windows, Solaris only right now. *nix coming soon.
- eMail
  - *jactr-announce@lists.sourceforge.net*
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