ACT-R 7 and Recent Updates

Dan Bothell
Carnegie Mellon University
8/7/2016
Outline

• Version change
• Utility rewards
• Environment tools
• AGI additions
ACT-R 7

- ACT-R 6.1 is now ACT-R 7
  - Renamed the loader load-act-r.lisp
  - The logical host is now ACT-R
  - Removed the 6.0 backward compatibility switch
  - Removed the MCL device
  - Uniformity in production action syntax
    - All these actions: =, +, *, and @ have same syntax
ACT-R 7 Version Numbers

• Unlike 6 and 6.1, 7 has real version numbers
  \[7.0.11-<2054:2016-07-15>\]
  Architecture.Major.Minor -<Repository:Release Date>

• Backward compatible within a major version
  – A model written for 7.y.x will run in 7.y.z if z\(\geq\)x
  – Minor version number typically additions to the system

• Major version changes mean may not be compatible
  – Written for 7.y.x may not run in 7.z.x where y \(\neq\) z
  – Significant change or addition
Version Test Command

- **Written-for-act-r-version**
  - Checks a specified version against current and prints a warning if not compatible
  - Recommended as a top level call in models/modules that are being distributed

(written-for-act-r-version "7.0.12" "Special new Module")

#|Warning: Current ACT-R minor version 11 is older than minor version 12 specified in 7.0.12 for Special new Module. Some features may not be implemented.|#
Other Version Tests

• Keywords for version on *features*
  – :ACT-R-7.0.11 :ACT-R-7.0 :ACT-R-7

• System parameters
  > (ssp :act-r-version
     :act-r-architecture-version
     :act-r-major-version
     :act-r-minor-version)
   ("7.0.11-<internal>" 7 0 11)
  > (ssp :check-act-r-version "7.0.10")
   (T)
  > (ssp :check-act-r-version "7.0.12")
   (NIL)
New Utility Credit Assignment Option

- Currently (sgp :ul t) all selected productions

- New (sgp :ul complete) only productions for which all actions have “completed”
  - Production must have fired
  - All requests signaled as complete by the receiving modules
  - Productions that are not complete remain in the history list for later reward
Avoid “bad” Reward Killing the Messenger

• A production that provides a reward gets its own reward (maybe not with complete)

• New production parameter to avoid that

  \[(spp \ <\text{production-name}> : \text{fixed-utility} \ t)\]

• Removes that production from utility learning calculations
Environment History Tools

• Redesigned interface
  – Select data button
    • Enable dialog for all options
  – View data button
    • Buttons for opening individual tools all together

• Added new tools
  – Visicon & audicon history
  – Text trace recording
Environment History Tools cont.

• Save and Load
  – After running a model all recorded info can be saved to a file
  – Those files can be loaded to view the information later
    • Multiple different data sets may be loaded for comparison
Environment Experiment Windows

• Use simulated buttons
  – Still work for humans and models
  – Show appropriate color on all systems
  – Fixation ring and simulated mouse show in front of button

• :show-focus parameter
  – Can be set to a color name instead of just t
  – Useful for multiple model situations
  – Only supported in Environment right now
New AGI Commands

• Allow creation and modification of text, buttons, and lines
  – create-{text | button | line}-for-exp-window
  – modify-{text | button | line}-for-exp-window

• Examples with a simple 2 player game
  – examples/model-task-interfacing
Using Extras

- New command: require-extra
  - Specify the directory name

  (require-extra "blending")
  (require-extra "emma")

- Put it at the top-level of a model file
  - After clear-all best so that modules can be created
- Loads all of the necessary files if not already