

ACT-R 6.0 Updates Summer 2013

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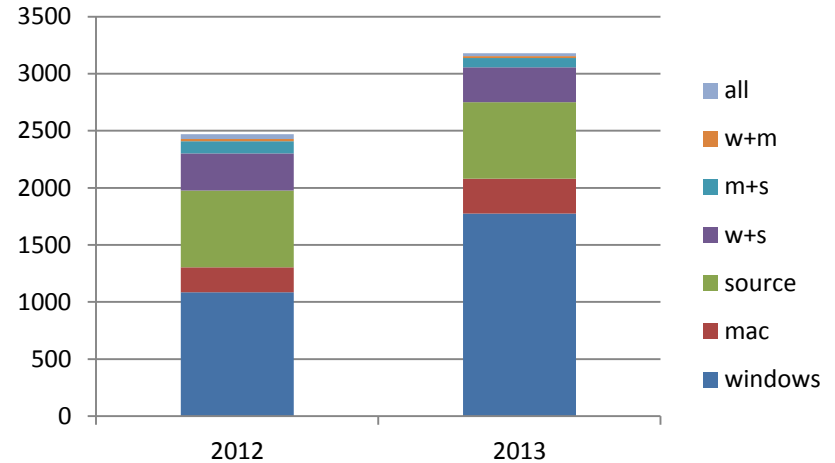
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ACT-R Usage Data

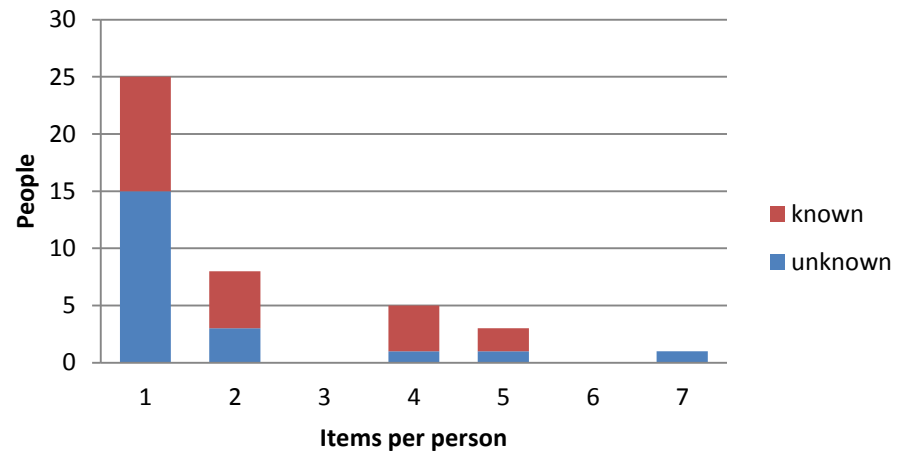
- ACT-R 6 software downloads

- 2012: 2470
- 2013: 3178 (116)

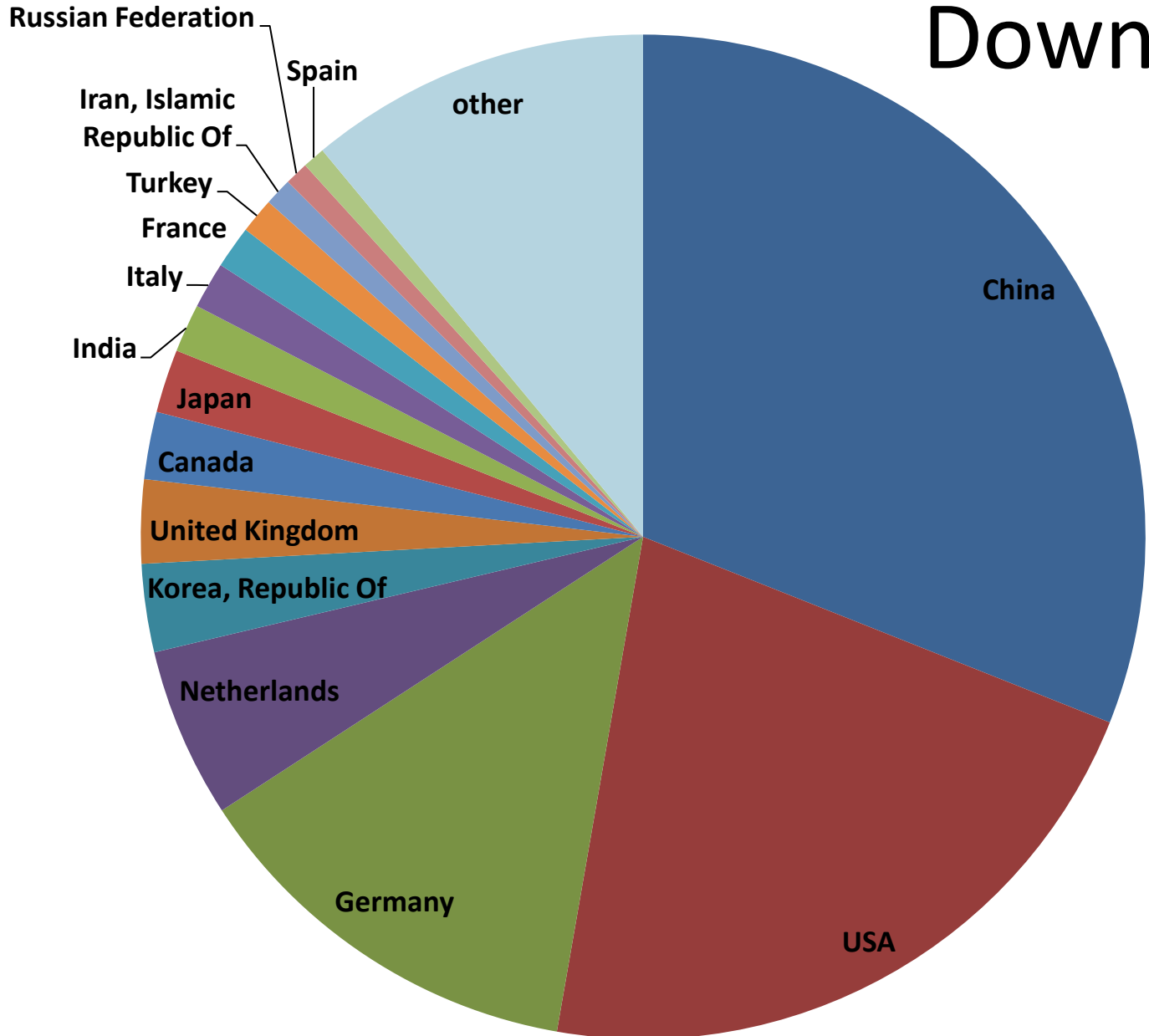


- User queries

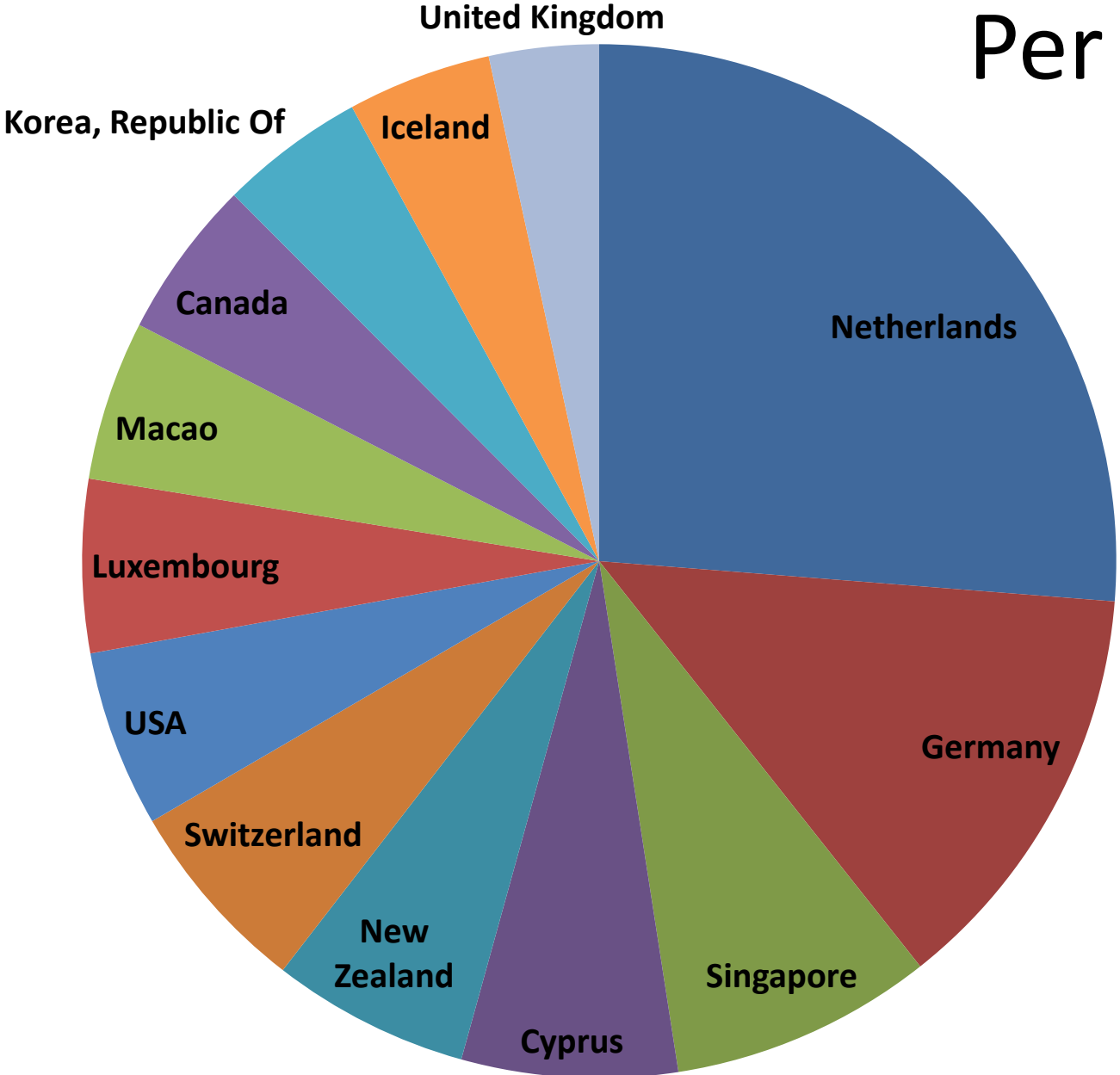
- 83 from 42 people



Downloads



Per capita



Software Updates

- Since last workshop
 - r1253-r1395
 - `svn://actr-server.hpc1.cs.cmu.edu/actr6`
- Lots of small changes
- Discuss the few significant ones

CCL Device

- Clayton Stanley & Mike Byrne
- Support for the native Cocoa windows in CCL
- Library that provides the MCL GUI interface

Spreading Activation

- Default activation spread will not go negative
 - S-log(fan) stopped at 0.0
 - Set :nsji parameter to t to restore

Whynot-dm

> (whynot-dm p1 p2 p4)

Retrieval request made at time 0.585:
ISA COMPREHEND-SENTENCE
ARG2 PARK

P1
ISA COMPREHEND-SENTENCE
RELATION IN
ARG1 HIPPIE
ARG2 PARK

Declarative parameters for chunk P1:
:Activation 0.000
:Permanent-Noise 0.000
:Base-Level 0.000
:Source-Spread 0.000
:Sjis ((P1 . 1.6) (IN . 0.0) (HIPPIE . 0.0) (PARK . 0.0))
:Last-Retrieval-Activation 0.214
:Last-Retrieval-Time 0.585

P1 matched the request
P1 was the chunk chosen to be retrieved

P2
ISA COMPREHEND-SENTENCE
RELATION IN
ARG1 HIPPIE
ARG2 CHURCH

Declarative parameters for chunk P2:
:Activation 0.000
:Permanent-Noise 0.000
:Base-Level 0.000
:Source-Spread 0.000
:Sjis ((P2 . 1.6) (IN . 0.0) (HIPPIE . 0.0) (CHURCH . 0.90685284))

P2 did not match the request

P4
ISA COMPREHEND-SENTENCE
RELATION IN
ARG1 CAPTAIN
ARG2 PARK

Declarative parameters for chunk P4:
:Activation 0.000
:Permanent-Noise 0.000
:Base-Level 0.000
:Source-Spread 0.000
:Sjis ((P4 . 1.6) (IN . 0.0) (CAPTAIN . 0.5013877) (PARK . 0.0))
:Last-Retrieval-Activation 0.107
:Last-Retrieval-Time 0.585

P4 matched the request
P4 did not have the highest activation

(P7 P4 P1)

Extending with modification requests

```
(p* extend
  ...
  ==>
  +goal>
    =slot =value
  +imaginal>
    =slot =value)
```

0.050 PROCEDURAL PRODUCTION-FIRED EXTEND
#|Warning: schedule-mod-buffer-chunk called with an invalid modification (NEW T) |#
#|Warning: schedule-mod-buffer-chunk called with an invalid modification (NEW T) |#

0.050 PROCEDURAL PRODUCTION-FIRED EXTEND
0.050 GOAL EXTENDING-CHUNK-TYPE GOAL
0.050 GOAL MOD-BUFFER-CHUNK GOAL
0.250 IMAGINAL EXTENDING-CHUNK-TYPE CHUNK
0.250 IMAGINAL MOD-BUFFER-CHUNK IMAGINAL

Request parameters in direct requests

```
(p ex1
```

```
==>
```

```
+retrieval> (chunk :recently-retrieved nil)  
)
```

```
(p ex2
```

```
=retrieval> isa visual-location
```

```
==>
```

```
+visual-location> (=retrieval :attended t)  
)
```

More flexible 'clean' !eval!

- Imaginal-action requests allow a list of slot names

```
+imaginal-action>  
isa simple-action  
action <action>  
slots <slots list>
```

```
+imaginal-action>  
isa simple-action  
action compare<  
slots (arg1 arg2)
```

```
(apply <action> <slots list>)
```

Chunk-type hierarchy flexibility

```
(chunk-type parent)
(chunk-type (child (:include parent)) slot)
```

```
(p using-child-slots
```

```
  =goal>
```

```
  isa parent
```

```
  slot =x
```

```
==>
```

```
=goal>
```

```
  slot nil
```

```
+retrieval>
```

```
  isa parent
```

```
  slot nil)
```

New Chunk(-type) extension

- Just extend the chunk not the type
 - Declare the type static
(chunk-type (<type> (:static t)) ...)
- Creates implicit types based on the slots
 - A graph of subtypes

A slot value of nil in a static chunk

- Consider a value of nil as not having the slot instead of there being a slot with a value nil
- Allow removal of extended slots
- Pattern matching for “<slot> nil” is true if the chunk doesn’t have the slot

Questions and the Future

- What are chunk-types?
 - Should chunk-types just go away?
- What does nil really mean?
- How much would really change if all chunks became static?
- Is that a hint of an ACT-R 7.0?