CHREST Tutorial

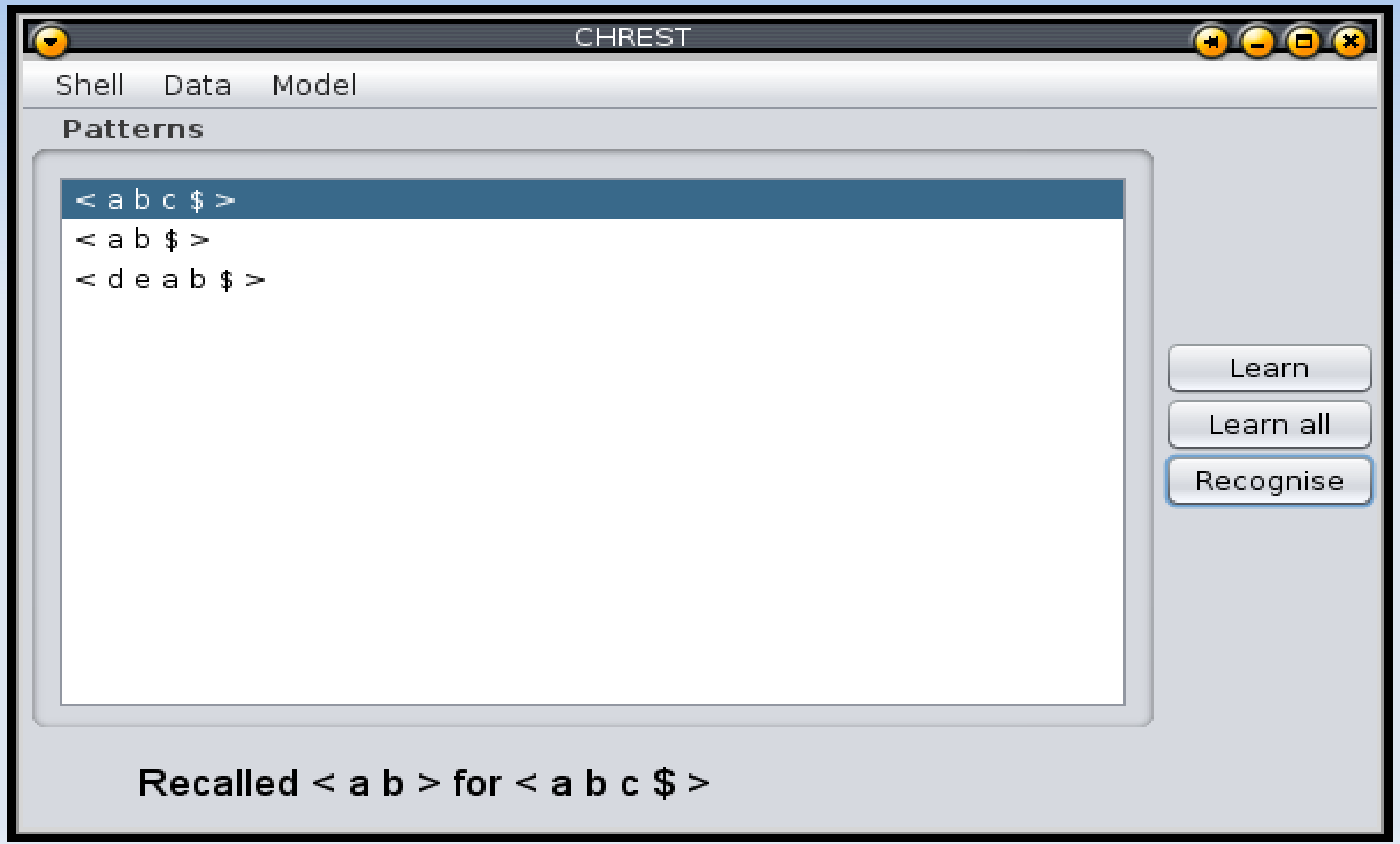
Working with your own data

- Data format to load into interface
- Developing your own models

Data Format

- Supported domains
  - recognition only
  - serial anticipation
  - paired associate
  - categorisation
  - visual attention and recall
- Simple text format for graphical interface
  - first line determines domain
  - second etc lines provide data
  - patterns given as list of atoms, space separated
  - end marker added for you

Learn and Recognise



Learn and Recognise: File Format

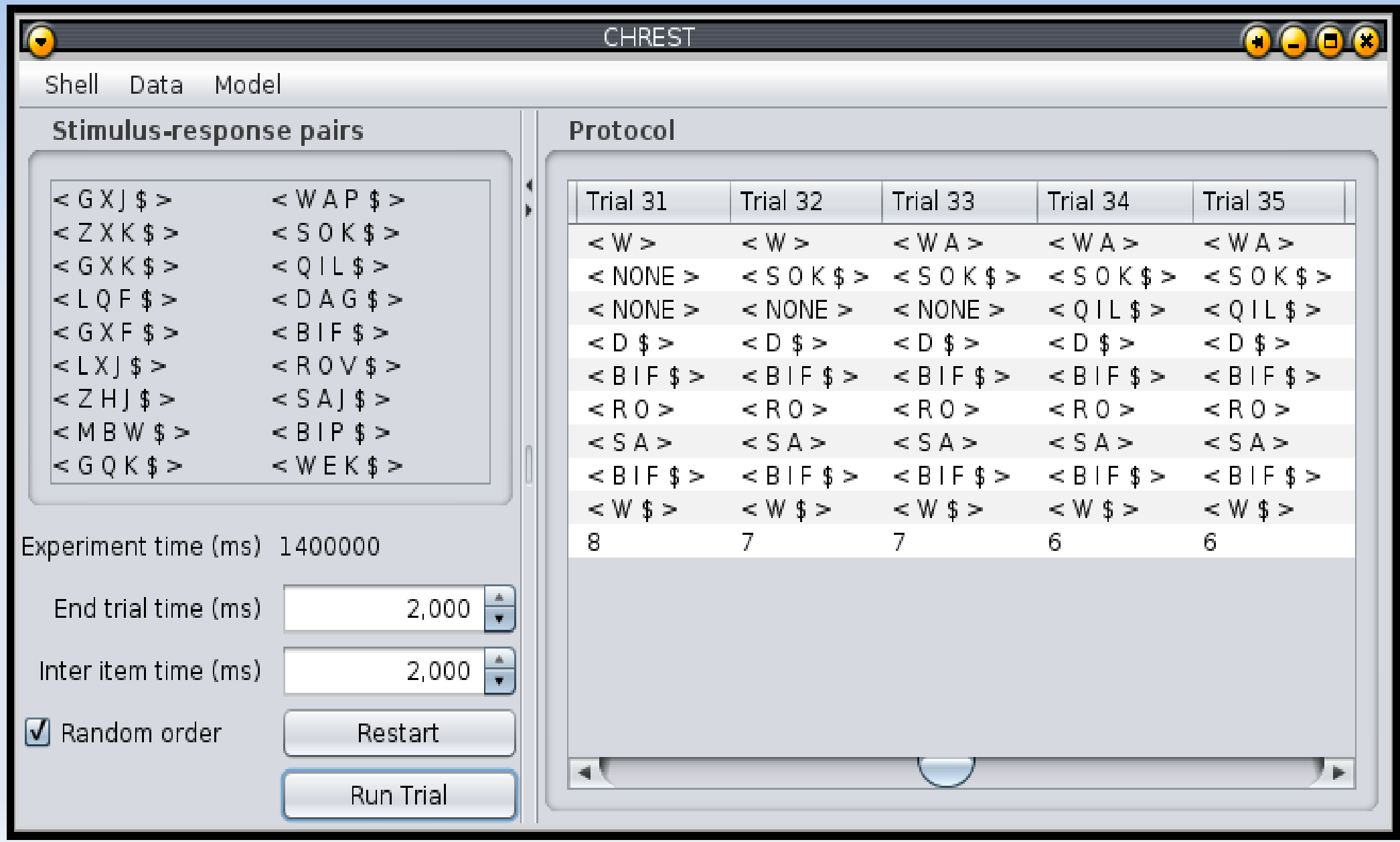
recognise-and-learn

a b c

a b

d e a b

Serial Anticipation or Paired Associate Learning



Serial Anticipation: File Format

serial-anticipation

D A G

B I F

G I H

J A L

M I Q

P E L

S U J

Paired Associate : File Format

paired-associate

G X J : W A P

Z X K : S O K

G X K : Q I L

L Q F : D A G

G X F : B I F

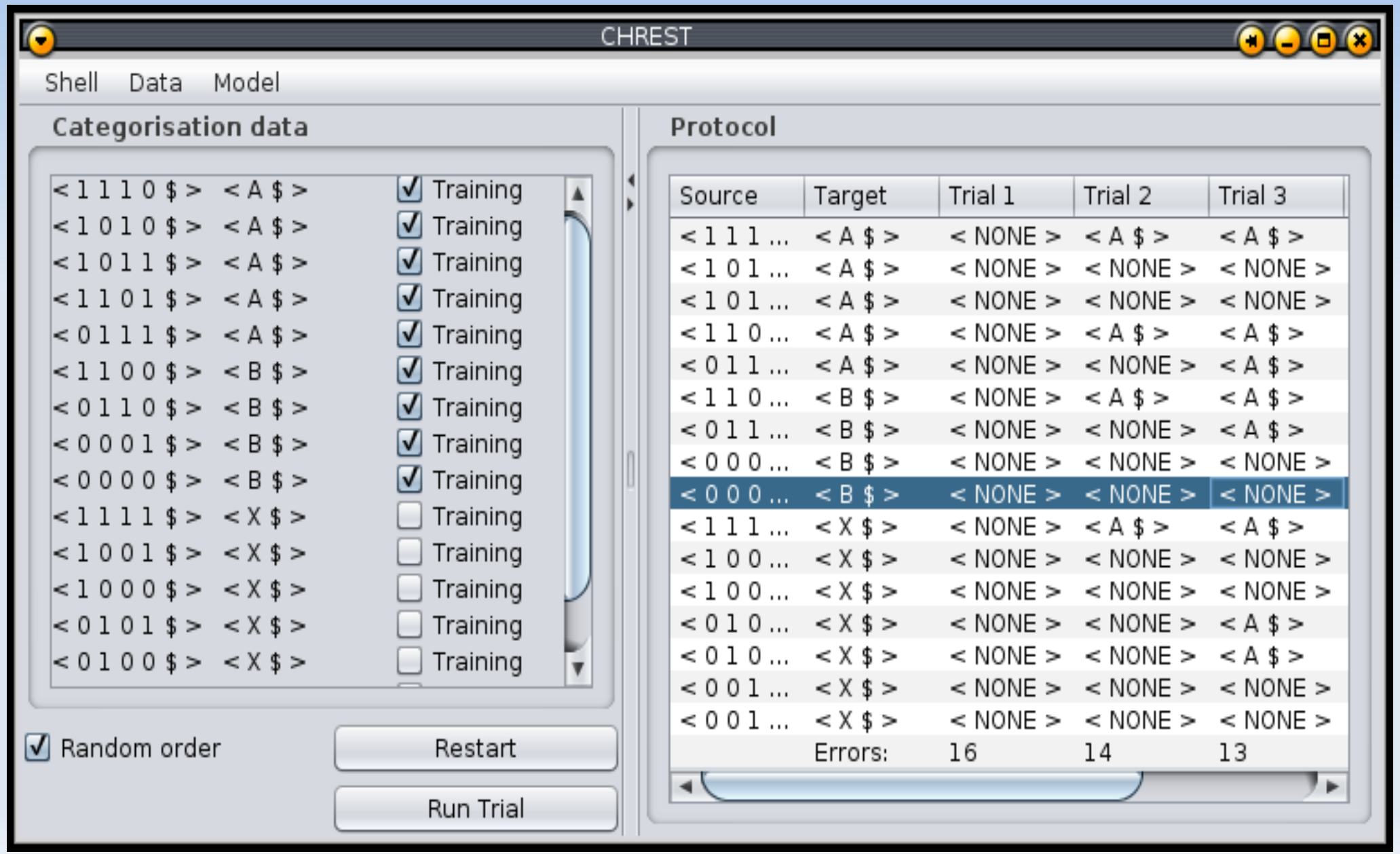
L X J : R O V

Z H J : S A J

M B W : B I P

G Q K : W E K

Categorisation



Categorisation: File Format

categorisation

1 1 1 0 : A

1 0 1 0 : A

1 0 1 1 : A

1 1 0 1 : A

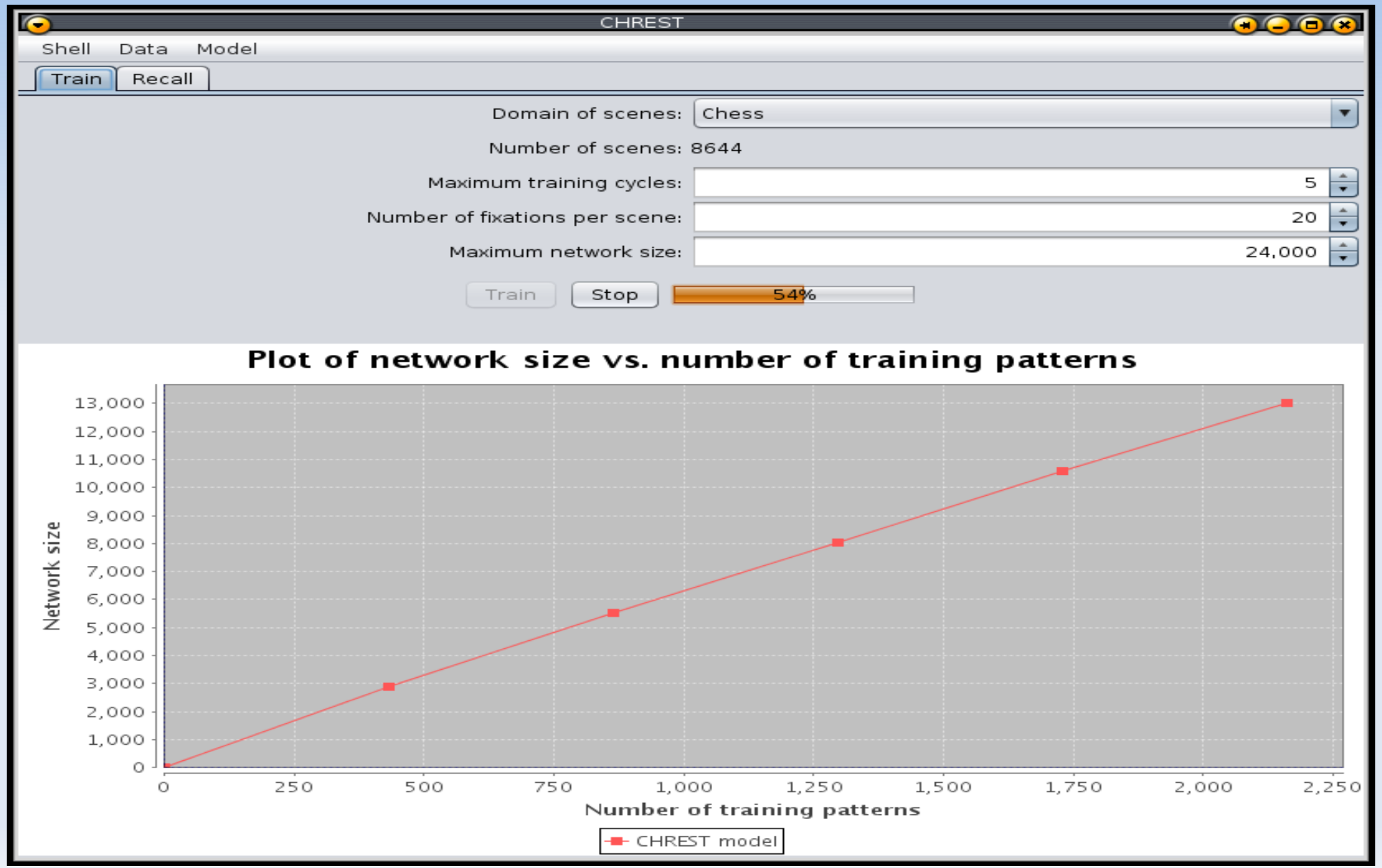
0 1 1 1 : A

1 1 0 0 : B

0 1 1 0 : B

0 0 0 1 : B

Visual Attention and Recall



Visual Attention: File Format

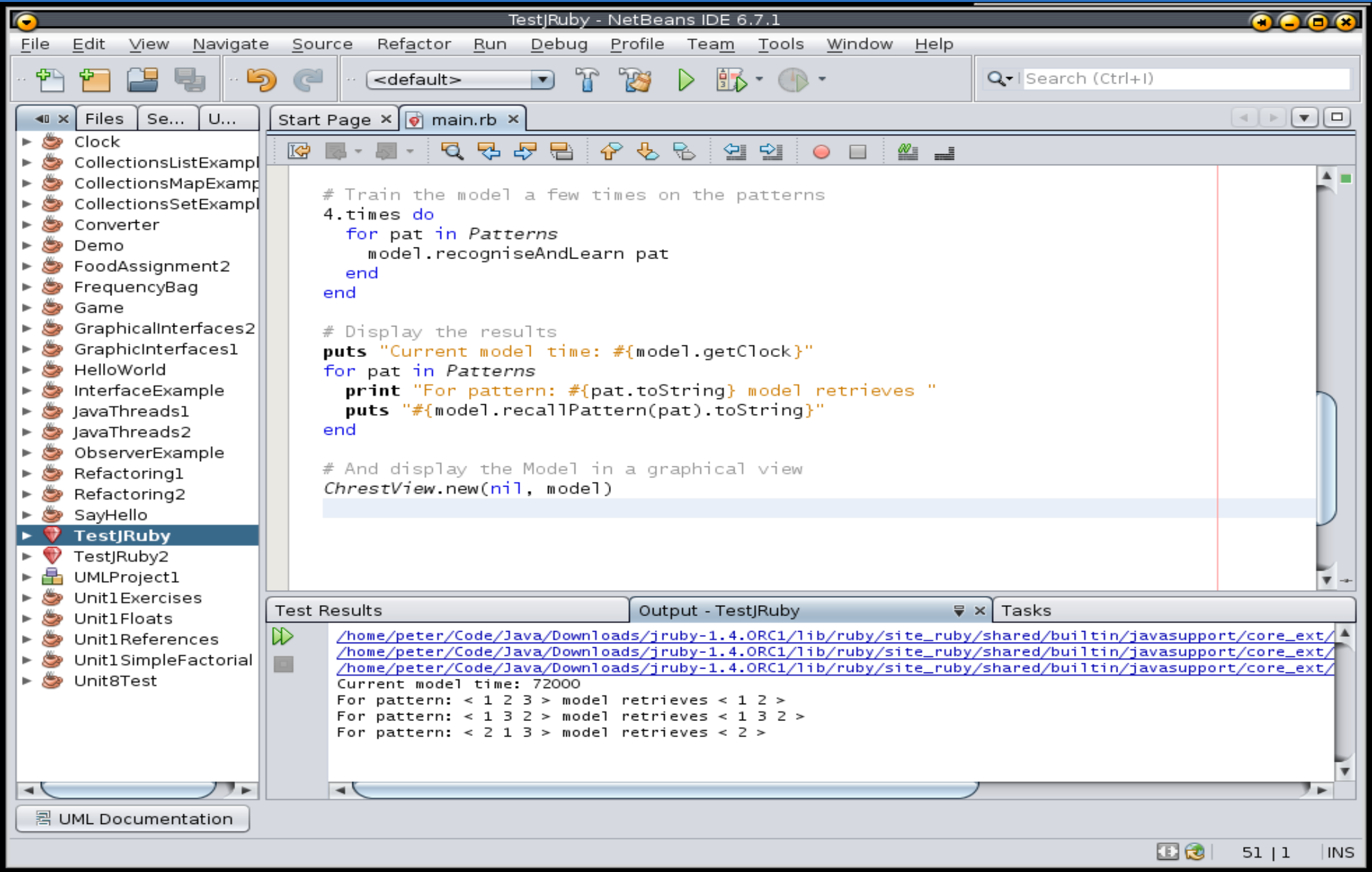
```
visual-search
8 8


..r.....
pb...pkp
.p.pq...
n..p..p.
...P....
Q..NP.P.
PP...PBP
.....RK.
```

File type
size: number of rows and columns
blank line
items on row, 'dot' for space
… (repeat all rows)
blank line
next scene
… (repeat scenes)

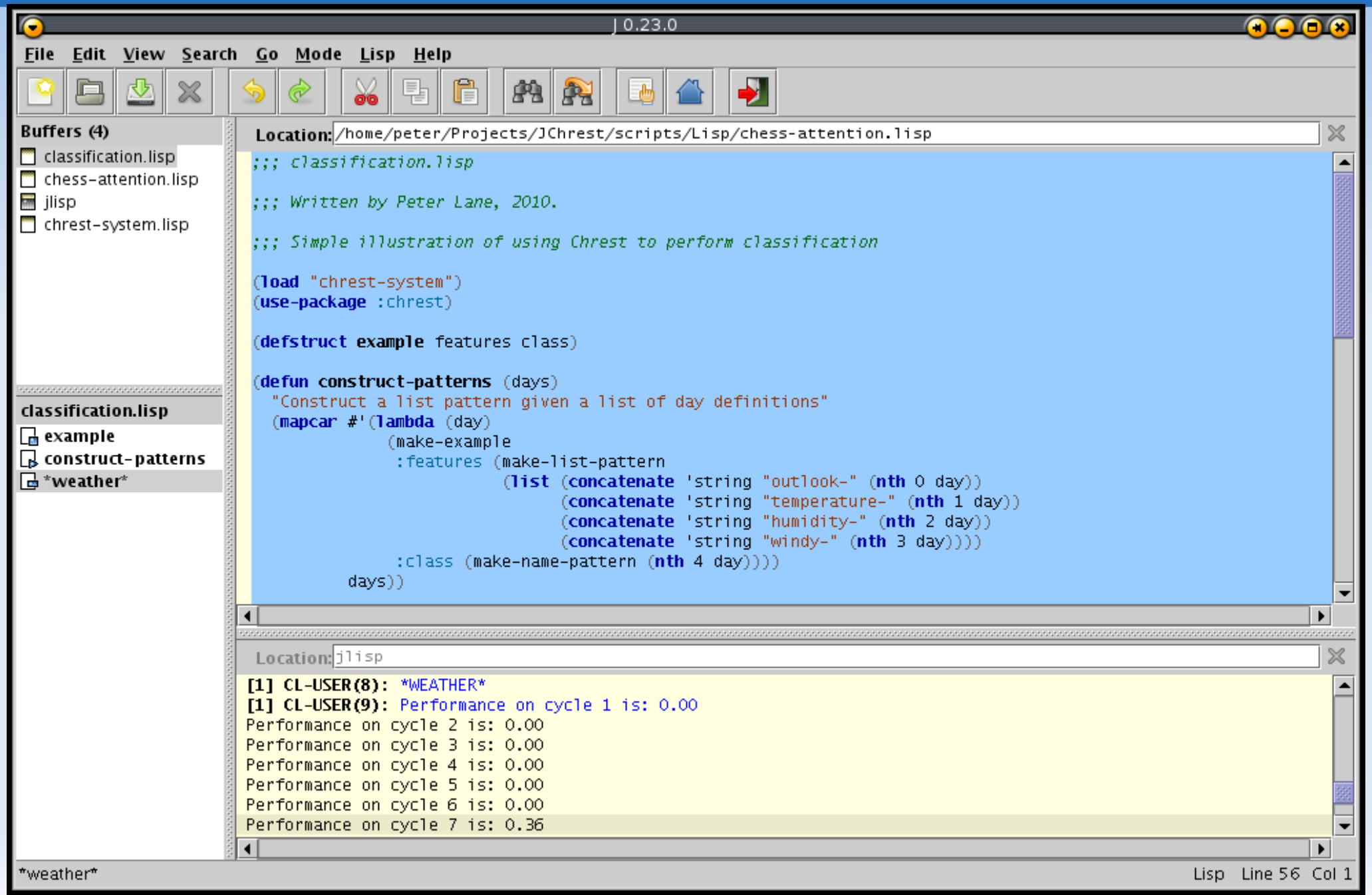
Writing New Models

- Why write models?
  - CHREST is a flexible learning algorithm, capable of coping with a variety of data.
  - Many experiments have complex manipulations, and require multiple runs, which are tedious to do by hand.
  - Complex models of attention require coding of domain-specific heuristics.
- How to write models?
  - As CHREST is implemented in Java, you can use CHREST as a library to your favourite language
  - Depending on the language you choose, you might be able to take advantage of a development environment

Ruby and Netbeans



Lisp Environment



Examples on CDROM

- See the manual for more suggestions
- See the 'scripts' folder:
  - Detailed examples are given in Ruby and Lisp
  - Some examples for Groovy, Clojure and Scheme.
- The software folder includes a 'doc' folder which is the javadoc documentation for CHREST.
- Do ask if needed – peter.lane 'at' bcs.org.uk