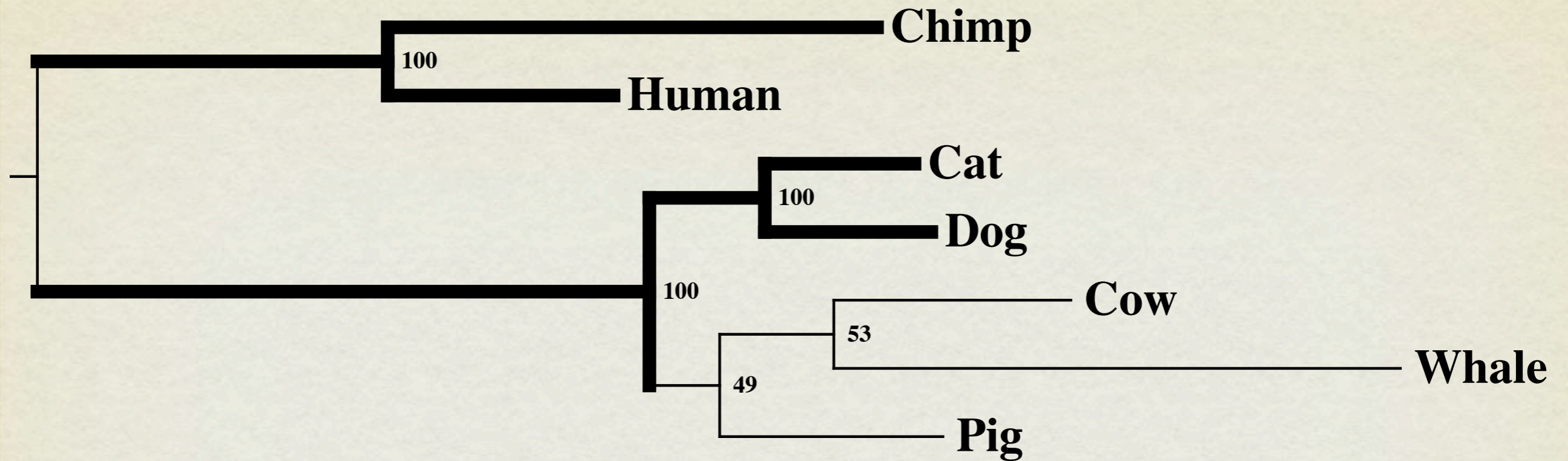


# NEWICK-RUBY

A Gem for manipulating and displaying Newick format  
trees

by Jonathan Badger

# WHAT IS NEWICK?



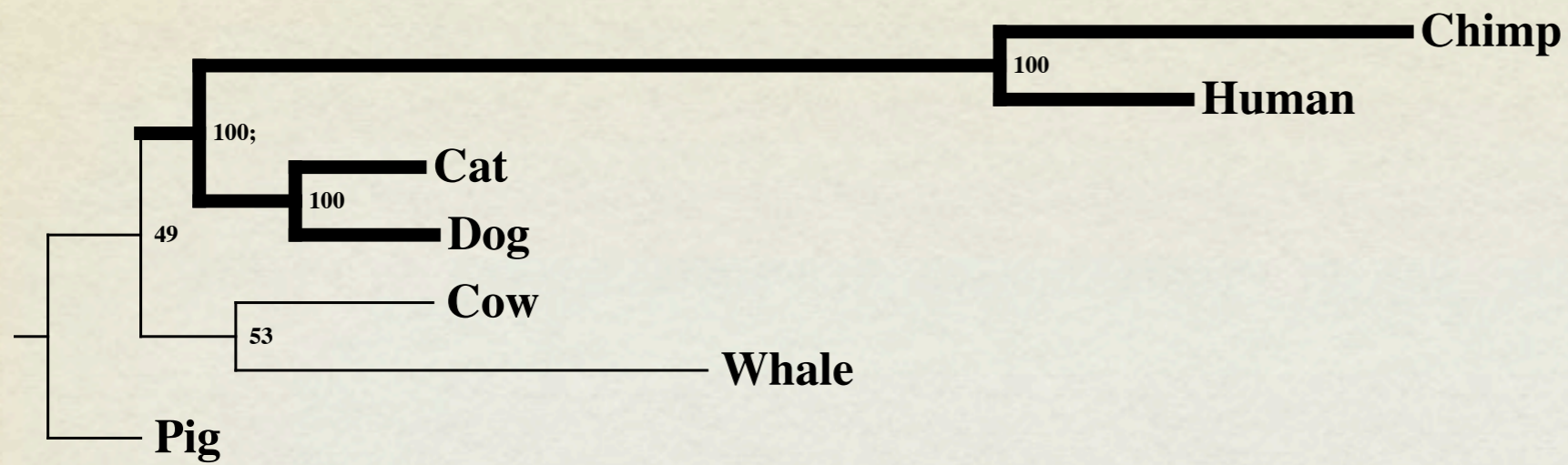
```
((Human,Chimp),(((Whale,Cow),Pig),(Dog,Cat))));
```

```
((Human:0.0141,Chimp:0.03056)100:0.021879999999999997,(((Whale:  
0.03538,Cow:0.0148)53:0.00713,Pig:0.01394)49:0.00439,(Dog:  
0.0104,Cat:0.00935)100:0.00721)100:0.038220000000000004)100;
```

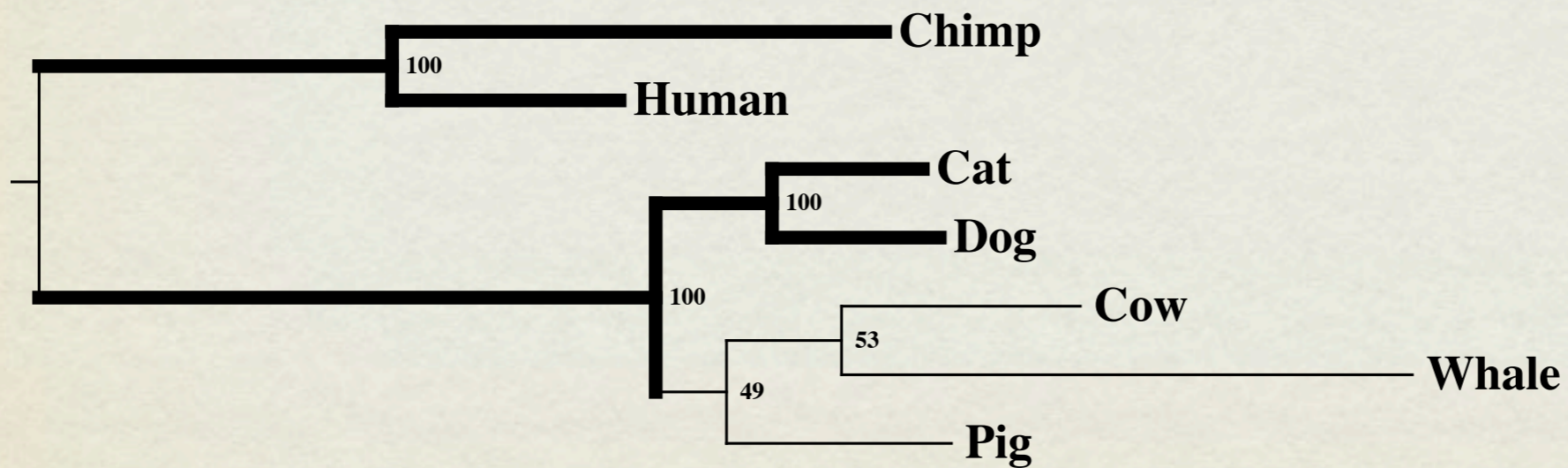
# NEWICK-RUBY

- Routines for:
  - Comparison -- is ((Human,Chimp),(((Whale,Cow),Pig),(Dog,Cat))) actually the same tree as: ((Chimp,Human),((Dog, Cat),((Cow,Whale),Pig)))?
  - Tree Drawing -- make PDFs of Newick trees, including distances and support values
  - subtree extraction
  - Rerooting -- see example
  - Converting to distance matrix -- see example
  - All Object Based -- A NewickTree class made up of connected NewickNodes

# REROOTING



Rooted On Pig



Rooted On Human/Chimp

# DISTANCE MATRIX

Human	0.000000	0.044660	0.121100	0.100520	0.092530	0.091810	0.090760
Chimp	0.044660	0.000000	0.137560	0.116980	0.108990	0.108270	0.107220
Whale	0.121100	0.137560	0.000000	0.050180	0.056450	0.064510	0.063460
Cow	0.100520	0.116980	0.050180	0.000000	0.035870	0.043930	0.042880
Pig	0.092530	0.108990	0.056450	0.035870	0.000000	0.035940	0.034890
Dog	0.091810	0.108270	0.064510	0.043930	0.035940	0.000000	0.019750
Cat	0.090760	0.107220	0.063460	0.042880	0.034890	0.019750	0.000000

# USES

- My own Automated Phylogenetic Inference System (APIS)
- my various wrappers around tree inference programs, such as PAUP and PHYLIP
- Packaged as gem by request, so perhaps more things by other people soon.