



# Message-Passing Thought Exercise

Traffic Modelling

---

David Henty  
EPCC

[d.henty@epcc.ed.ac.uk](mailto:d.henty@epcc.ed.ac.uk)

+44 131 650 5960

- we want to predict traffic flow
  - to look for effects such as congestion
- build a computer model



- divide road into a series of cells
  - either occupied or unoccupied
- perform a number of steps
  - each step, cars move forward if space ahead is empty

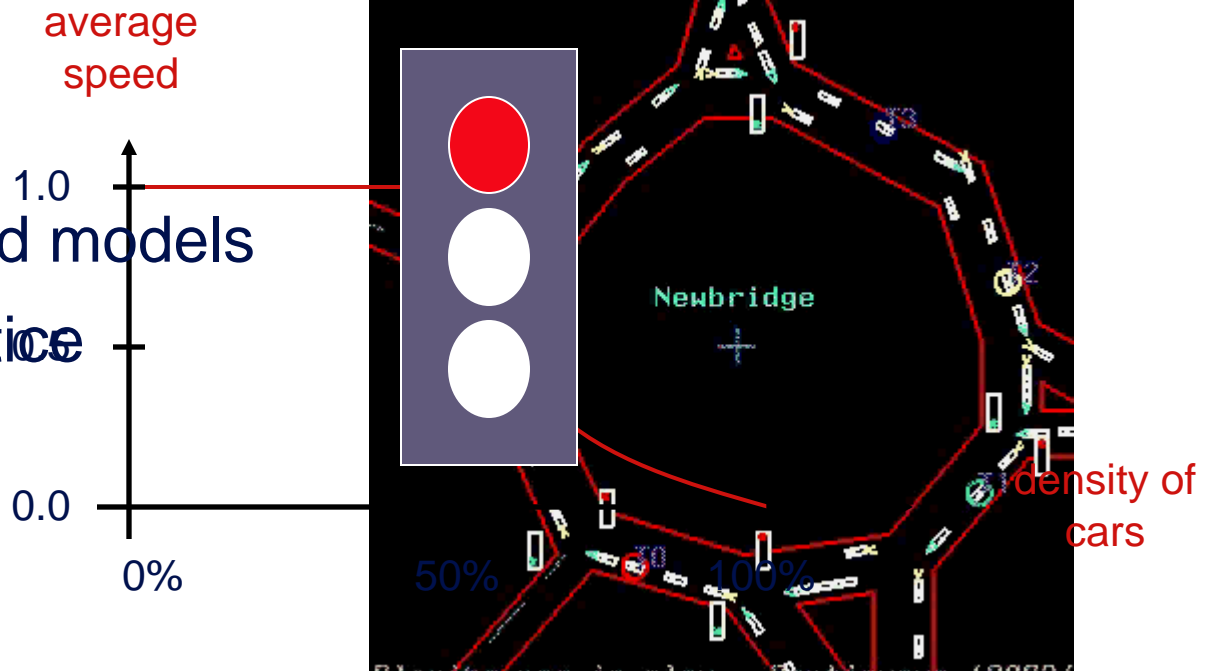


**could do this by moving  
pawns on a chess board**

- model predicts a number of interesting features
- traffic lights



- congestion
- more complicated models are used in practice

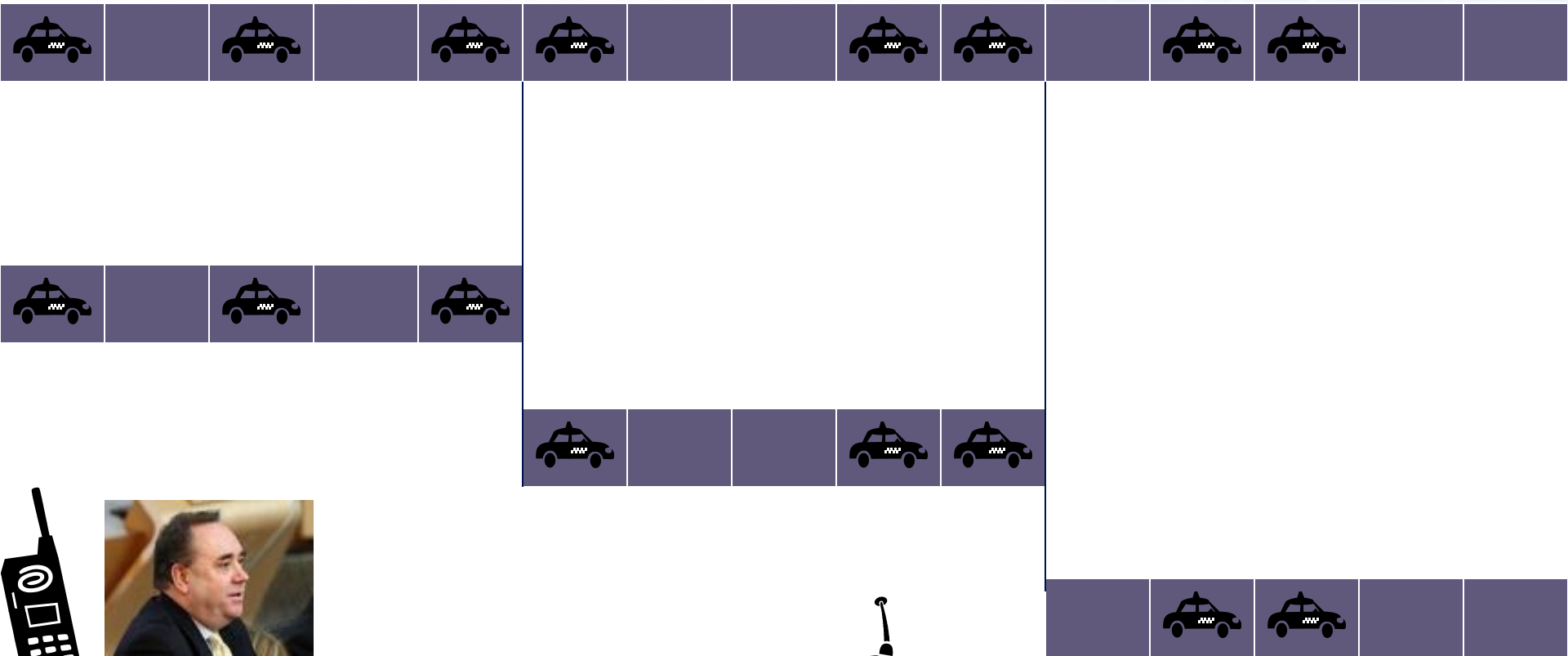


# how fast can we run the model?

- measure speed in Car Operations Per second
  - how many COPs?
- around 2 COPs
- but what about three people?
  - can they do six COPs?



# a parallel traffic model



A



B



C