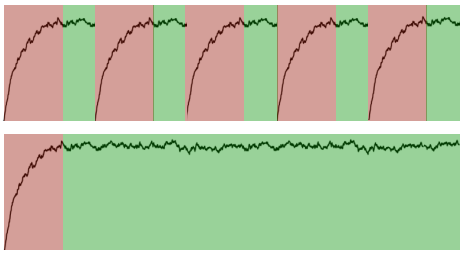
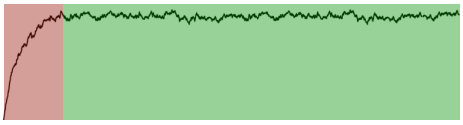
For your excercises

- You'll be asked to adapt your code from yesterday to run on the cluster for a much bigger ecological community size
- You'll need to collect species abundance data as before and average over a large number of parallel simulations.



For your excercises

- You'll be asked to adapt your code from yesterday to run on the cluster for a much bigger ecological community size
- You'll need to collect species abundance data as before and average over a large number of parallel simulations.
- Use a "burn in" period and check the species abundance distribution periodically. You should plot species richness against time and make a conservative judgment, but for neutral theory 8 * metacommunity size complete turnovers of the community is a good rule of thumb.



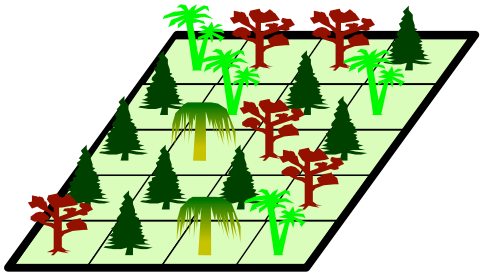
DO NOT …

Use the cluster without knowing memory and time requirements
Run jobs on the login node
Try to use cx2 or ax3 parts of the cluster
Output data to the hard disk regularly
Use the same random seed for your simulations
Copy and paste your shell script
Leave your results in $TMPDIR
Waste too much of your own time optimizing your code
Run code on the cluster that hasn't been tested locally first

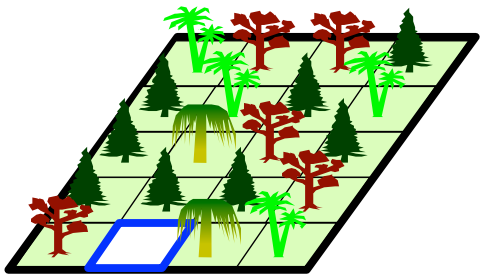
DO …

Use the cluster for jobs that take a long time locally.
Optimize your code if there's going to be a huge benefit.
Run repeat readings and different parameters as separate jobs.
Run jobs that take between 30 mins and 3 days to execute.
Write your shell script on the cluster itself.
Make your code output each result in a differently named file.
Check periodically that all is well on the cluster
Zip your output files to get them back to your PC.
Be ambitious – you can do loads of great stuff with a cluster.

The model rules in brief



The model rules in brief



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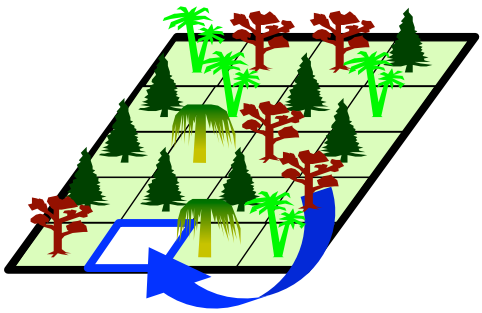
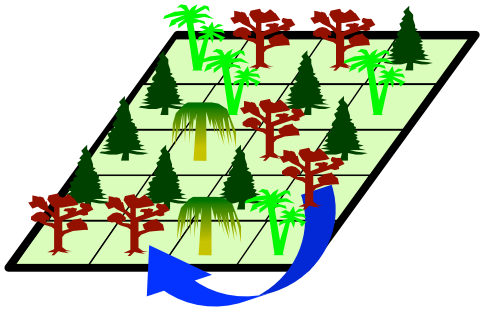


The model rules in brief



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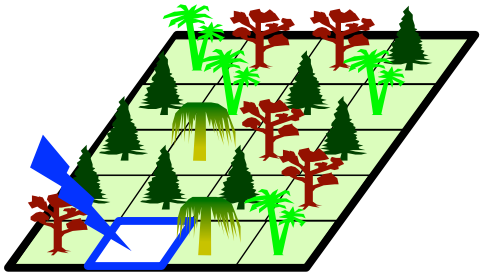

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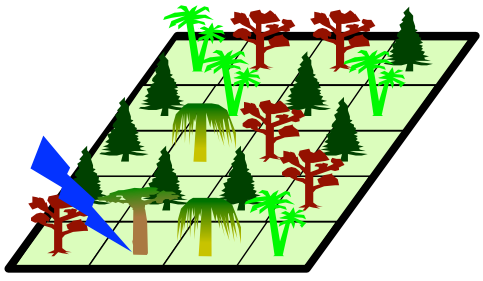
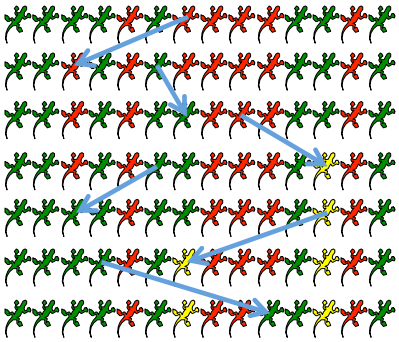
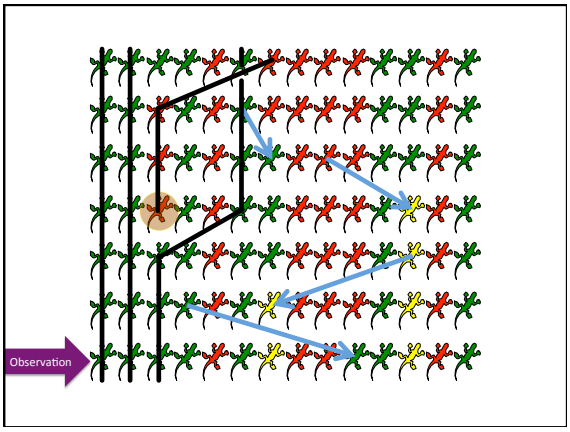
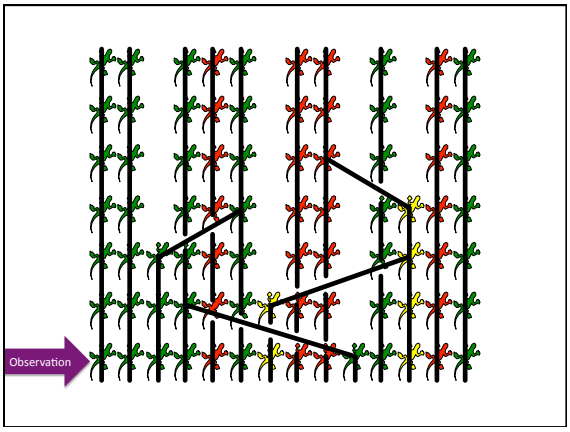





Observation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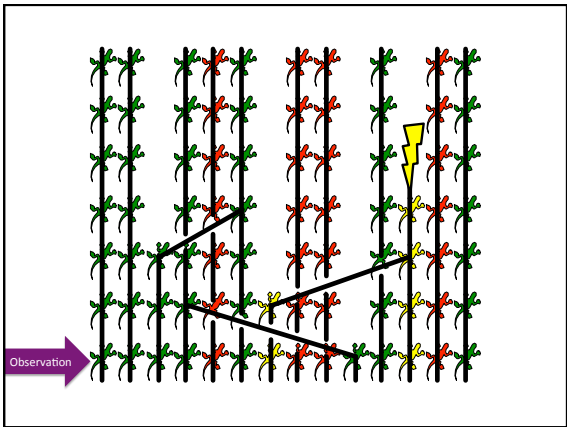
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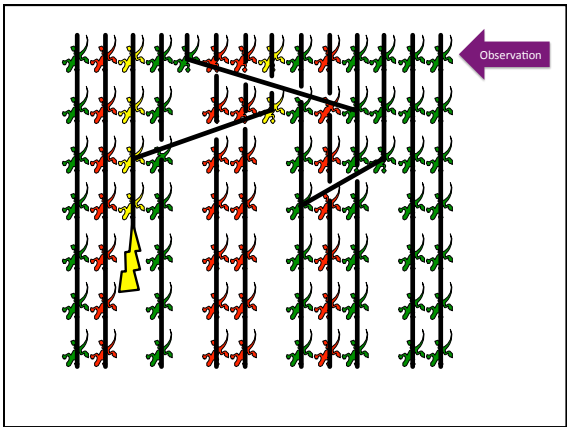
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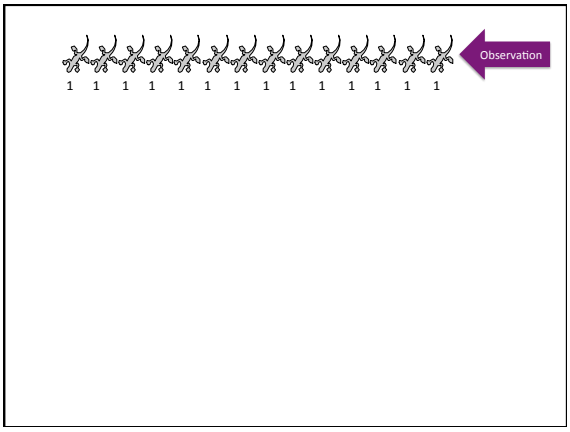
Observation
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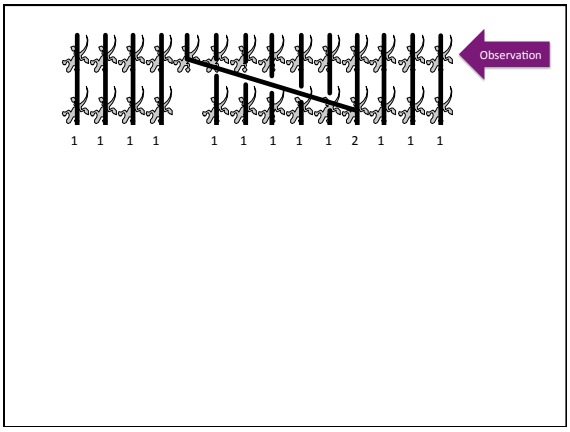
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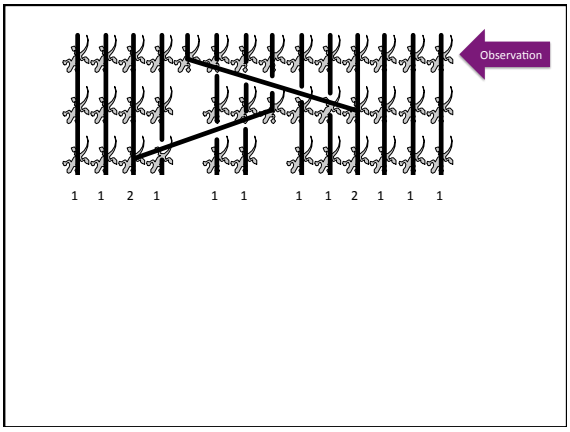
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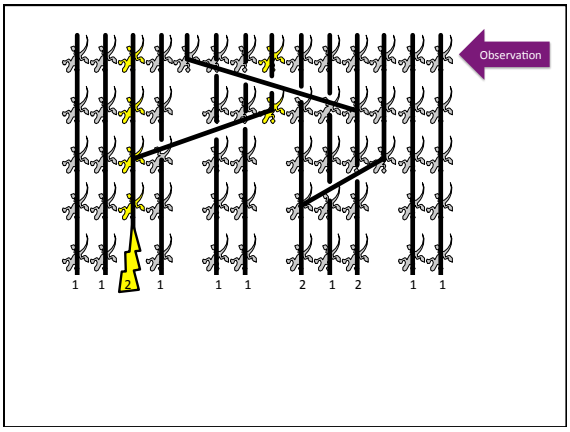
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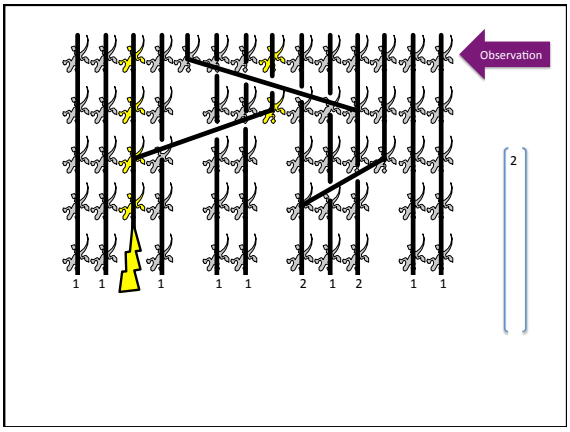
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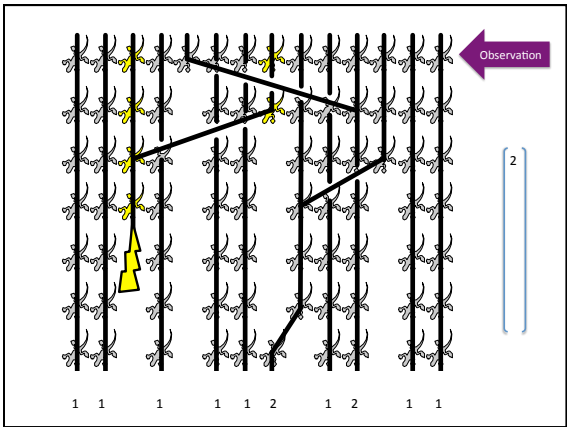
Observation
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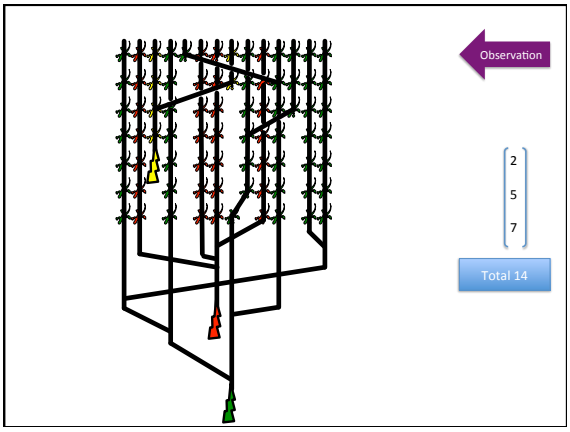
2


Observation
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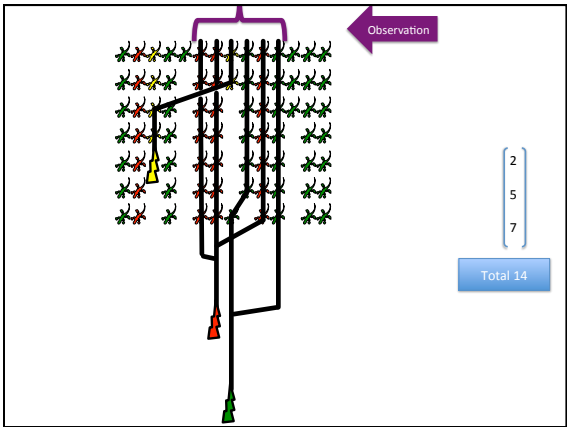
5
7
Total 14


Observation
2
5
7
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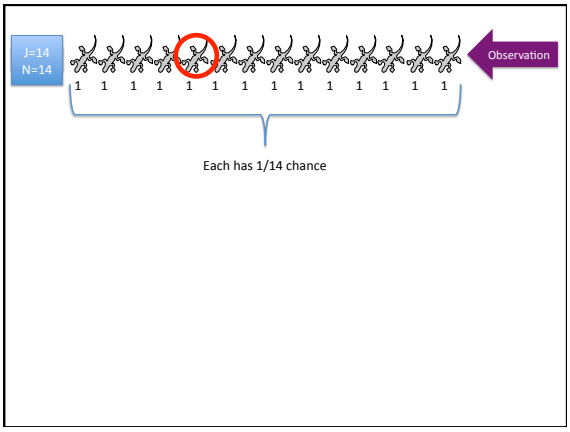

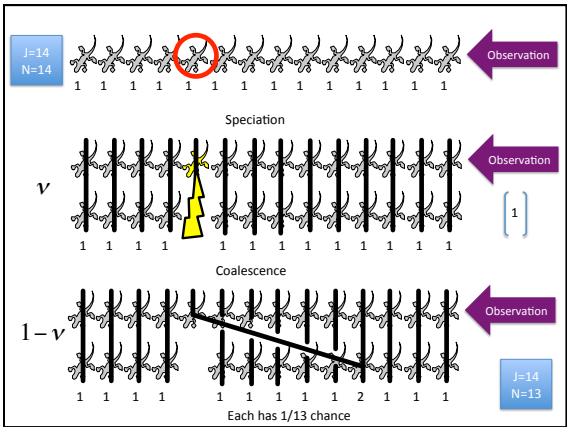

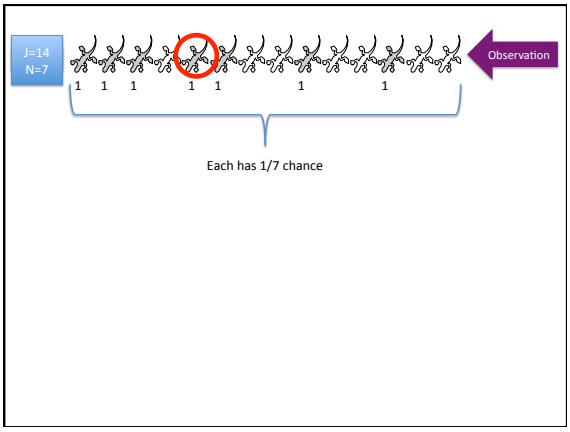

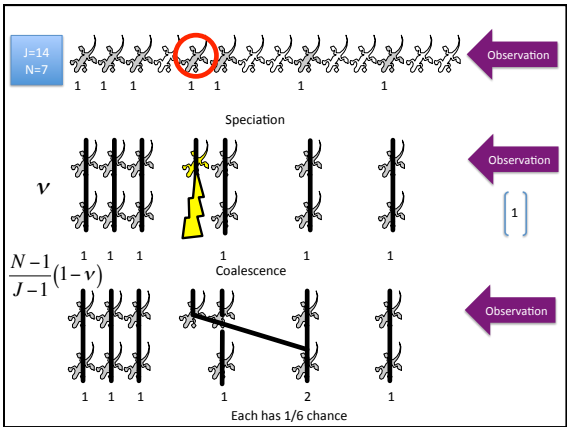

Advantages of coalescence

- Always at equilibrium
- Much faster
- Sampling based

Disadvantages of coalescence

- Not ideal for time series
- Complex to program
- Fewer ways in which model can be changed

```
[1,] "0.005623"   "Benjamin"
[2,] "0.006828"   "Bethany"
[3,] "0.003617"   "Calum"
[4,] "0.006243"   "Dephiny"
[5,] "0.005963"   "Elise"
[6,] "0.003753"   "Elizabeth"
[7,] "0.005436"   "Emma"
[8,] "0.006266"   "Flavio"
[9,] "0.004389"   "Javier"
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[15,] "0.004103"  "Laura"
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