Pre-defined list of random numbers. These are the **model input parameters**. The parameters cannot be observed directly, but we can use Bayesian inference to estimate them

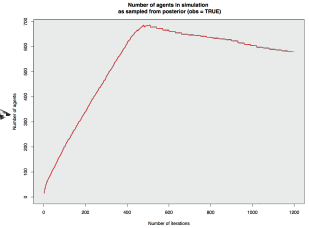
0.3565
0.1954
0.8235
0.8400
0.0187
0.9701
0.0356

Model Input

Pedestrian Model

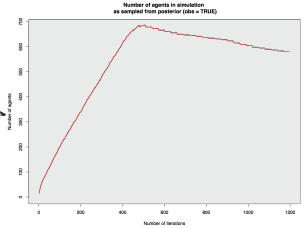
Model Output

'Truth Data'
(number of agents in the system per iteration)



Add some noise

Noisy truth data



We can **apply our observations** to the output from the probabilistic model

Priors

We want to estimate the value of each of these random numbers. They are our **(uninformed) priors.**

?
?
?
?
?
?
?

Probabilistic Model

Posterior

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-
-
-
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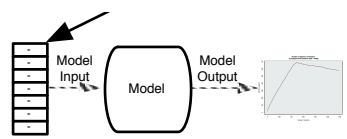
-
-

After **observing** some 'real world' data, we now have a posterior distribution of our model parameters.

Use **MCMC Sampling** to explore this multi-dimensional space.
If the samples are tightly constrained around the unknown 'real' data, then the probabilistic model is finding solutions that fit the observations

Sample 1



Sample *n*