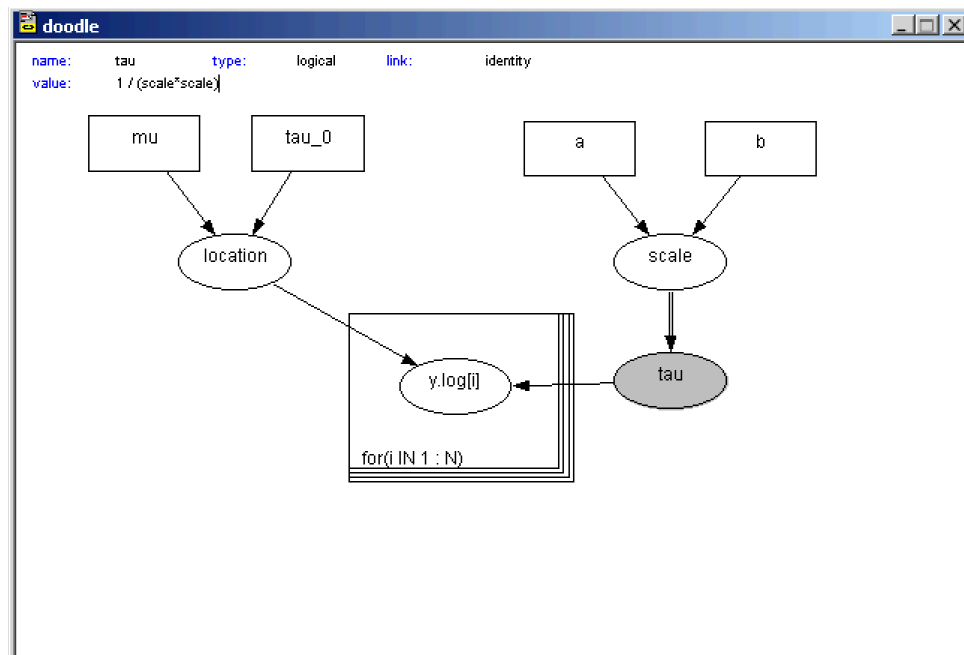


Stat4DS / Homework 03 – OpenBUGS

Giuseppe Calabrese, Michele Cernigliaro

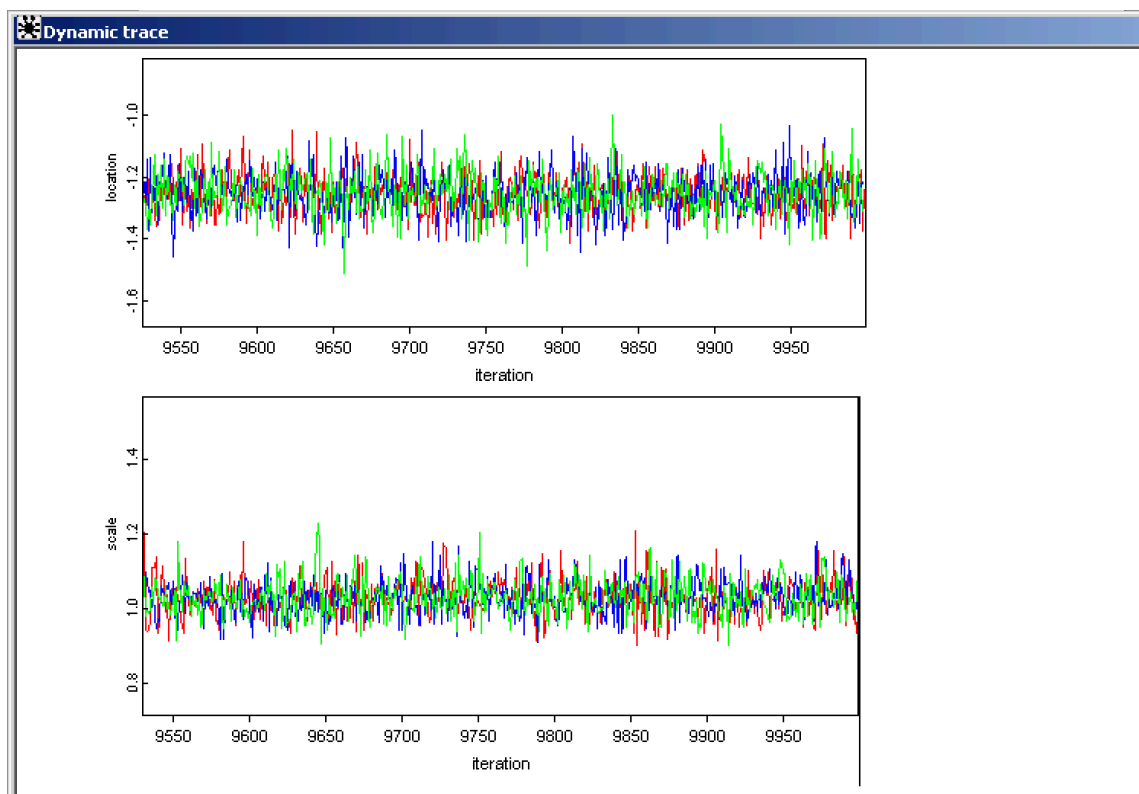
We defined our model in the following Doodle:



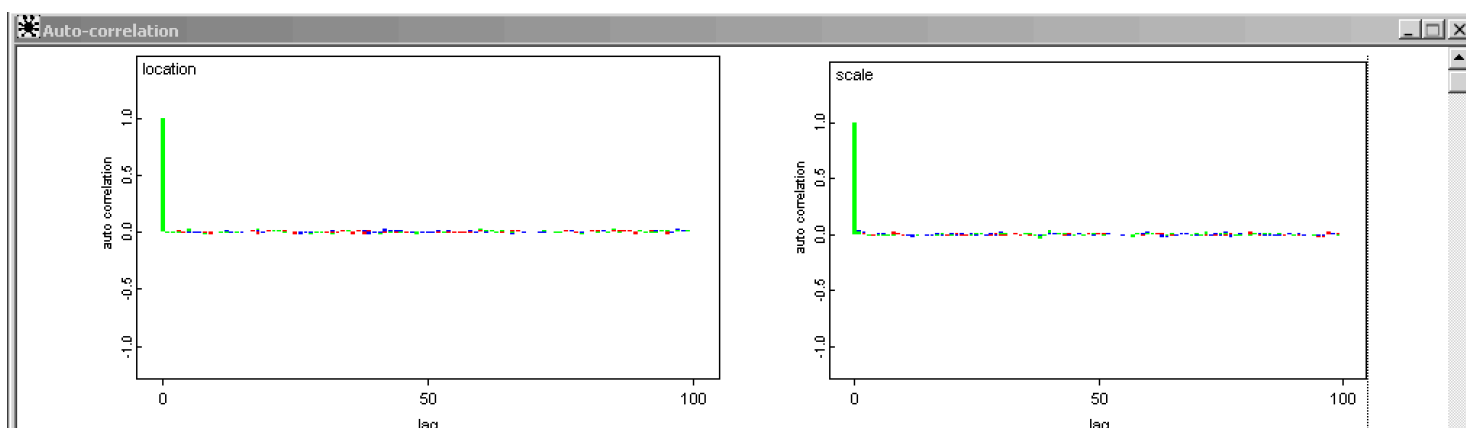
Since openBUGS works with the precision, we converted σ^2 in $\tau = \frac{1}{\sigma^2}$ using the logical node tau.

After we checked the model correctness, loaded the data and initialized the 3 chains, we made inference on location and scale nodes, with a burn-in period of 1000. Model, data and init values are in the .txt file we've uploaded on moodle.

We sampled 10000 draws, and at the end we got the following results:



The trace windows shows that the chains are overlapping each other, we cannot detect a situation of non convergence. Also we can observe from the graphs shown below that we have low autocorrelation values.



Estimates for location and scale are the following:

Node statistics								
	mean	sd	MC_error	val2.5pc	median	val97.5pc	start	sample
location	-1.255	0.07186	3.839E-4	-1.396	-1.254	-1.114	1001	27000
scale	1.032	0.05095	2.915E-4	0.9376	1.03	1.139	1001	27000