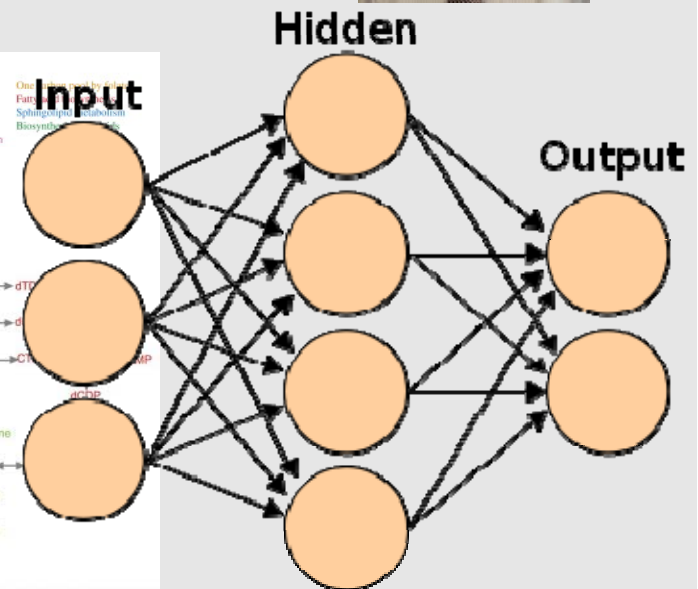
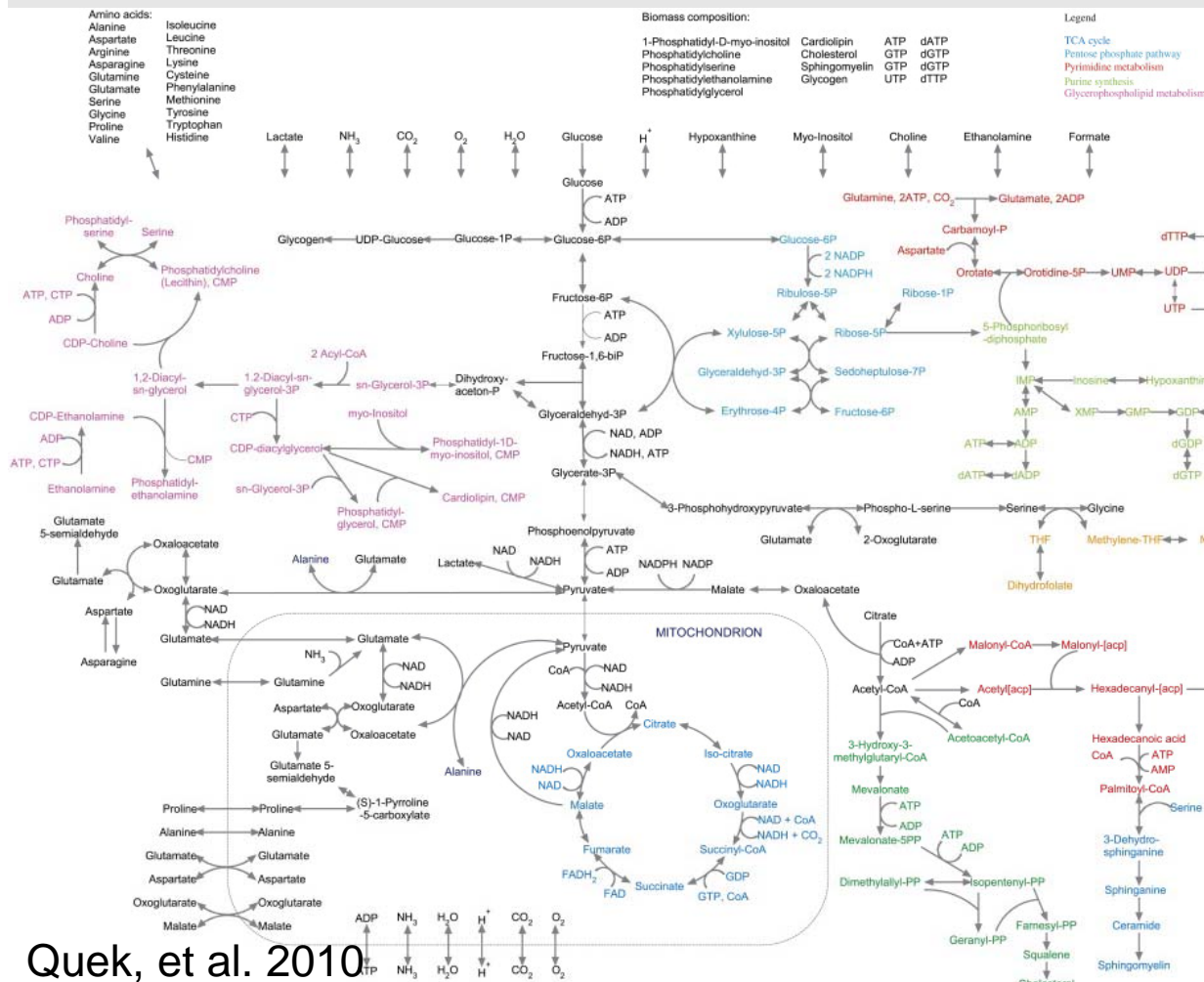
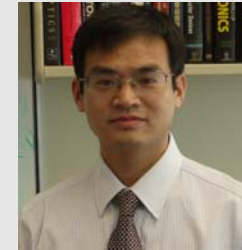


Boolean Network Dynamics – “I”

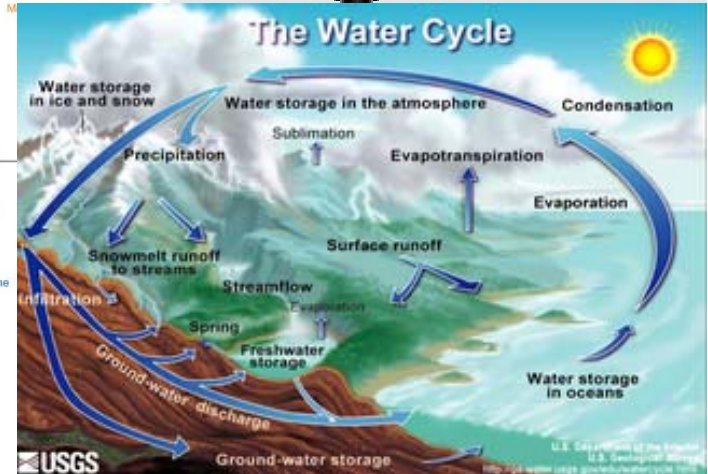
Daniel P. Lathrop – Univ. of Maryland

David Meichle – Univ. of Maryland

Haiwei Du – Shanghai Jiao Tong Univ.

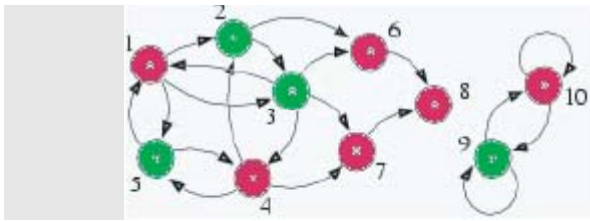


Quek, et al. 2010

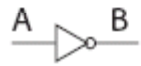


Scaling in ordered and critical random Boolean networks
 J.E.S. Socolar and S.A. Kauffman, Phys. Rev. Lett 90, 068702 (2003).

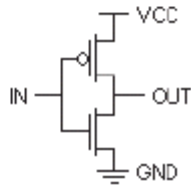
You will build:



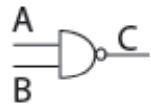
not



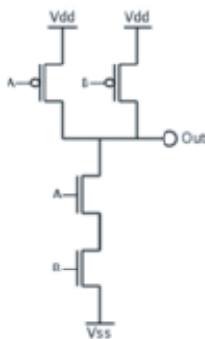
A	B
0	1
1	0



nand



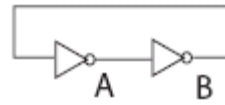
A	B	C
0	0	1
0	1	1
1	0	1
1	1	0



1-not loop



2-not loop

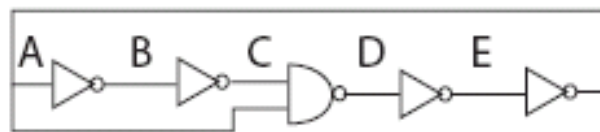


3-not loop

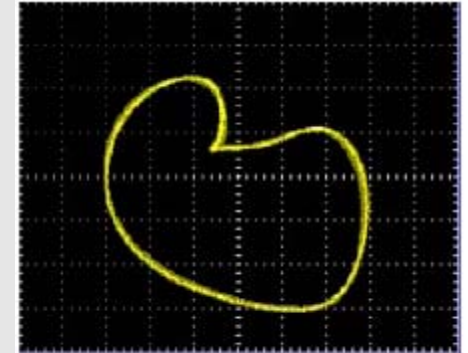


not a ring

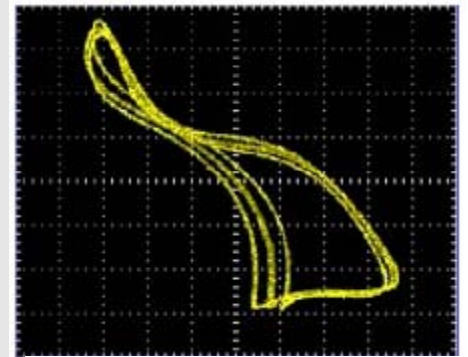
2-not, nand, 2-not



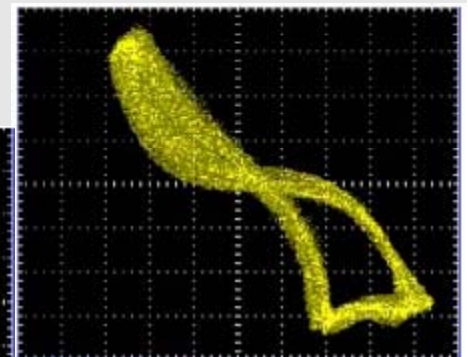
- Ideas explored:
- Feedback
- Bifurcation
- Spectra
- Lyapunov exponent
- Synchronization



Periodic



Multiply Periodic



Chaotic



2-tori

Boolean Network Dynamics – “I”