Molecular Networks

WS 11/12

FDS modeling

Exercise 1

Consider the function $f: \{0, 1, 2\}^2 \to \{0, 1, 2\}^2$ given by the following table.

$x = (x_1, x_2)$	$f_1(x)$	$f_2(x)$
(0,0)	2	2
(0,1)	2	2
(0,2)	1	2
(1,0)	2	1
(1,1)	2	1
(1,2)	0	1
(2,0)	2	0
(2,1)	2	2
(2,2)	0	2

Construct the synchronous and asynchronous state transition graph and determine the attractors.

Exercise 2

Read the article *Boolean network model predicts cell cycle sequence of fission yeast* by M. Davidich and S. Bornholdt (link to be found on the lecture wiki).

- (a) Summarize the key points of the model building. What are the simplifying assumptions behind the model?
- (b) Summarize the key points of the analysis and the corresponding results.
- (c) Summarize the key points of the conclusions drawn from the model analysis. Do you agree with them?