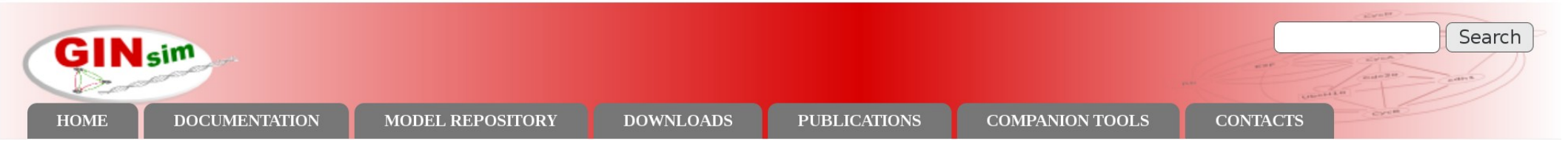
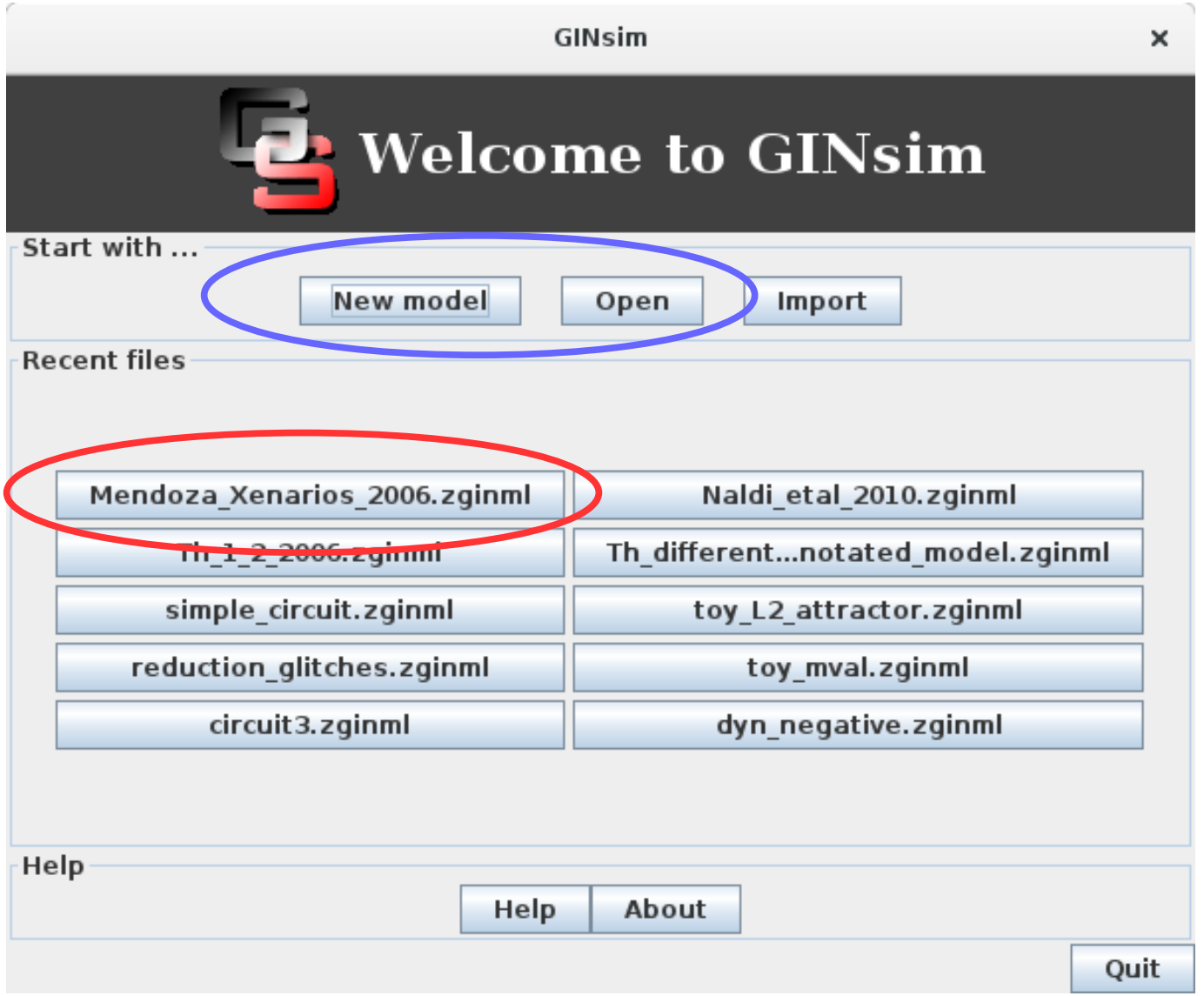
GINsim: overview and hands-on

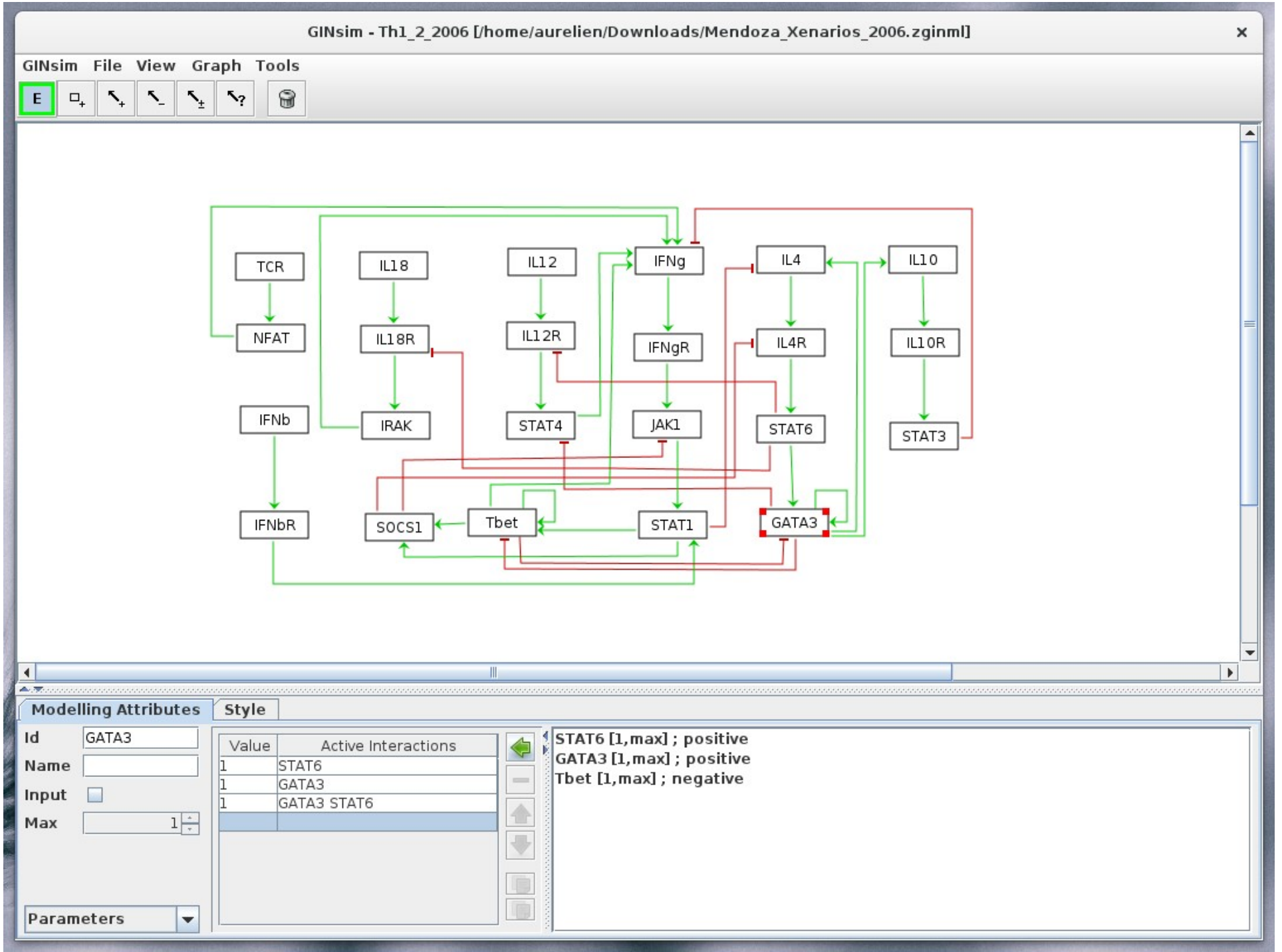
http://www.ginsim.org



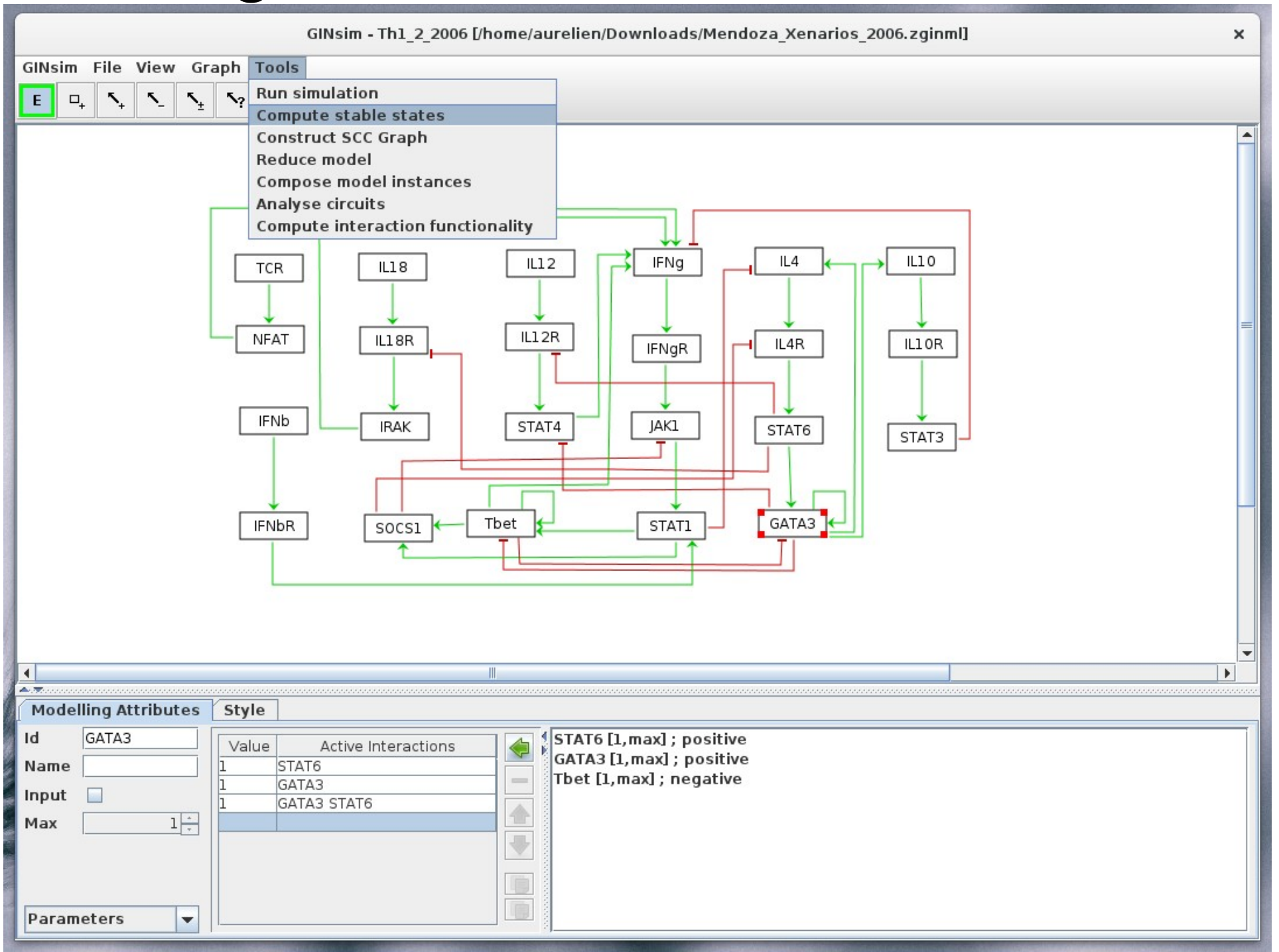
Open the model



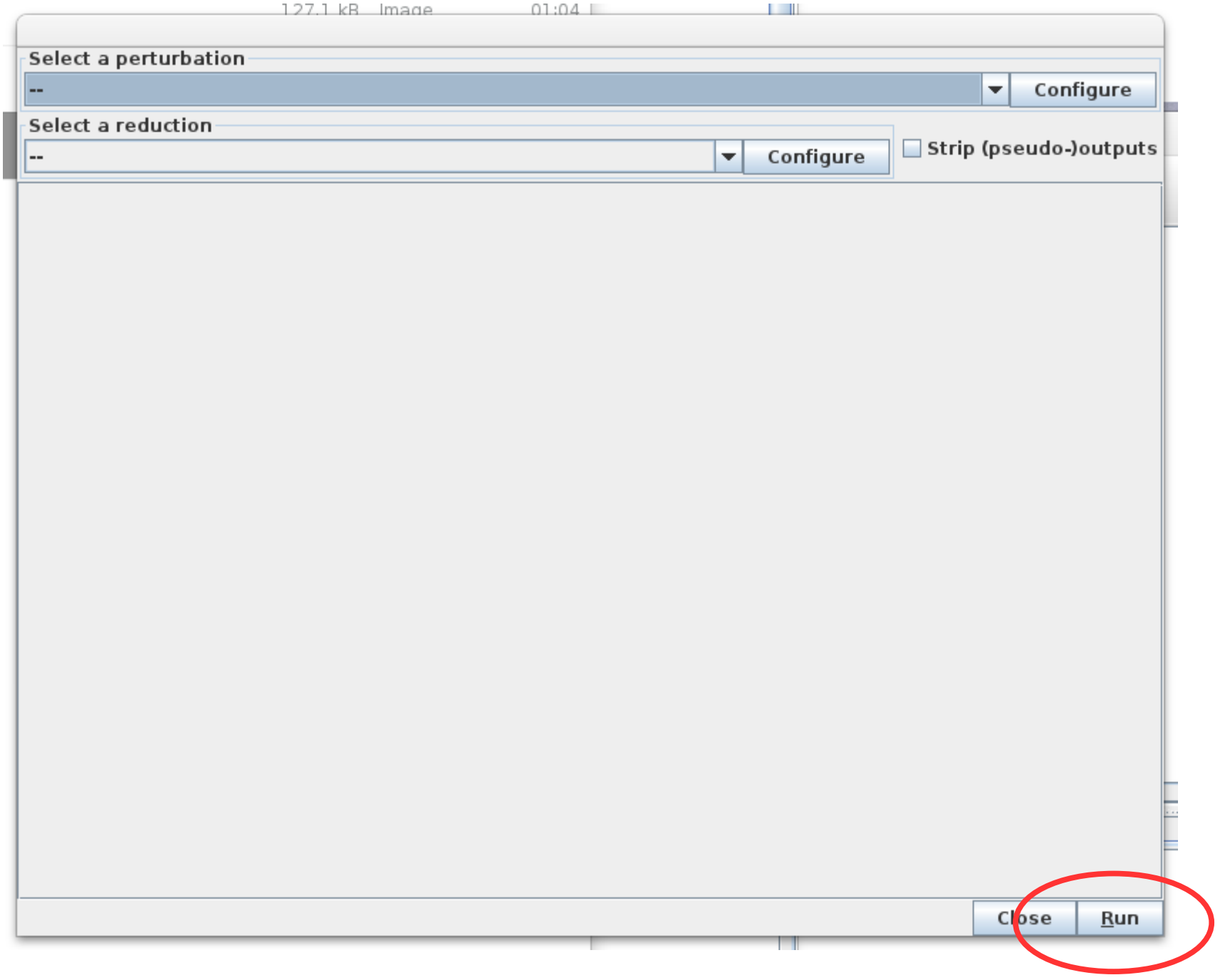
Th1-Th2 model



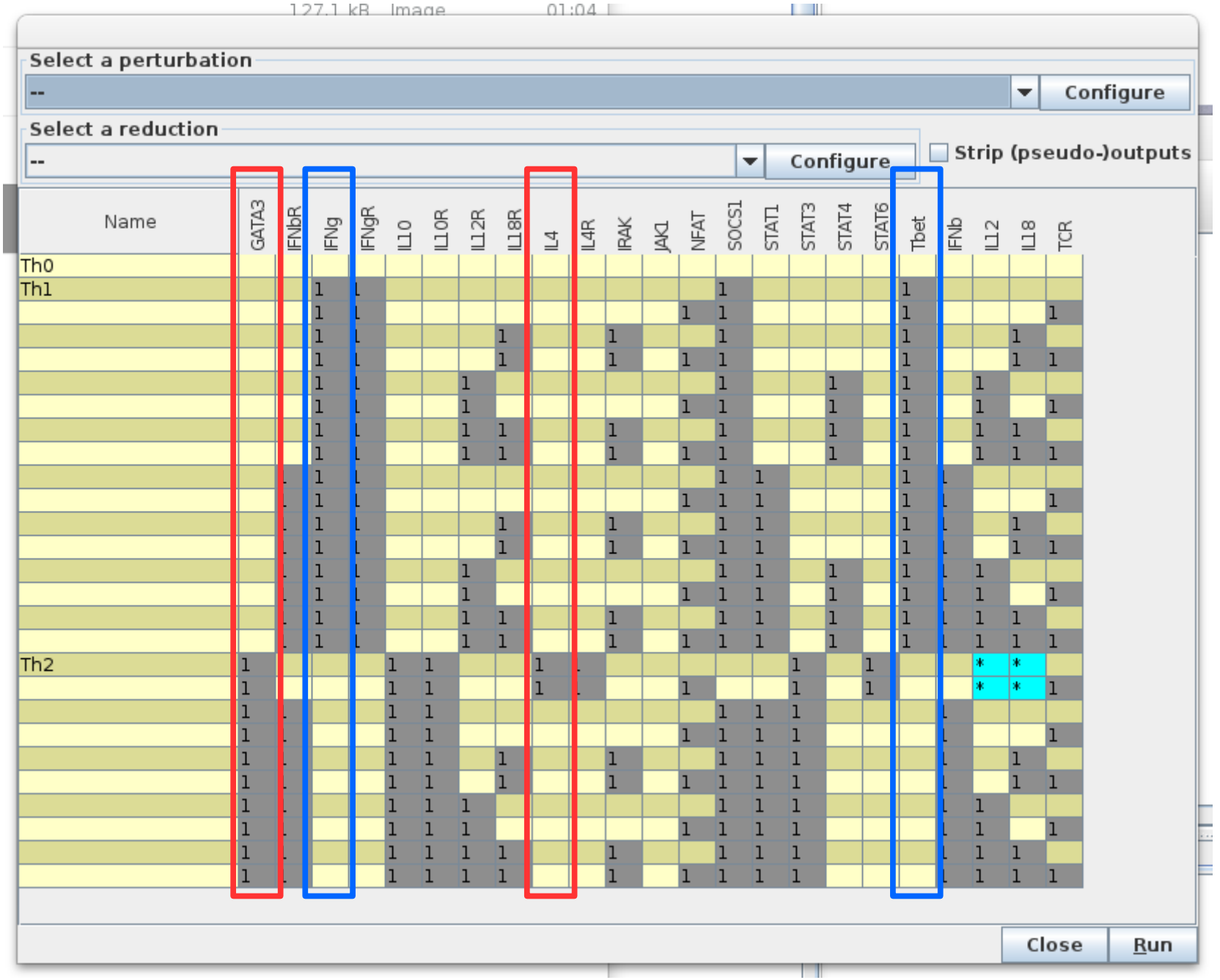
Selecting tools



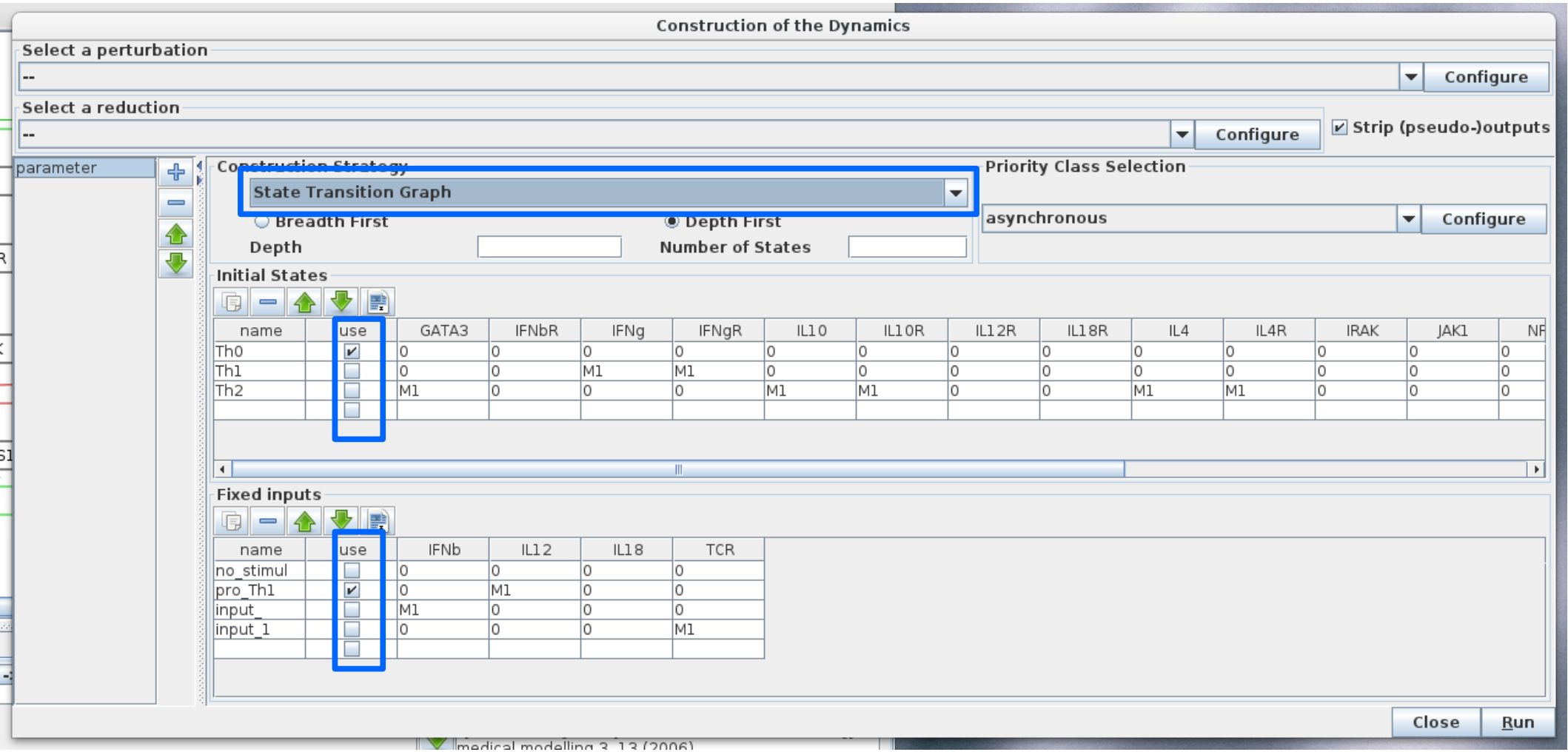
Stable states



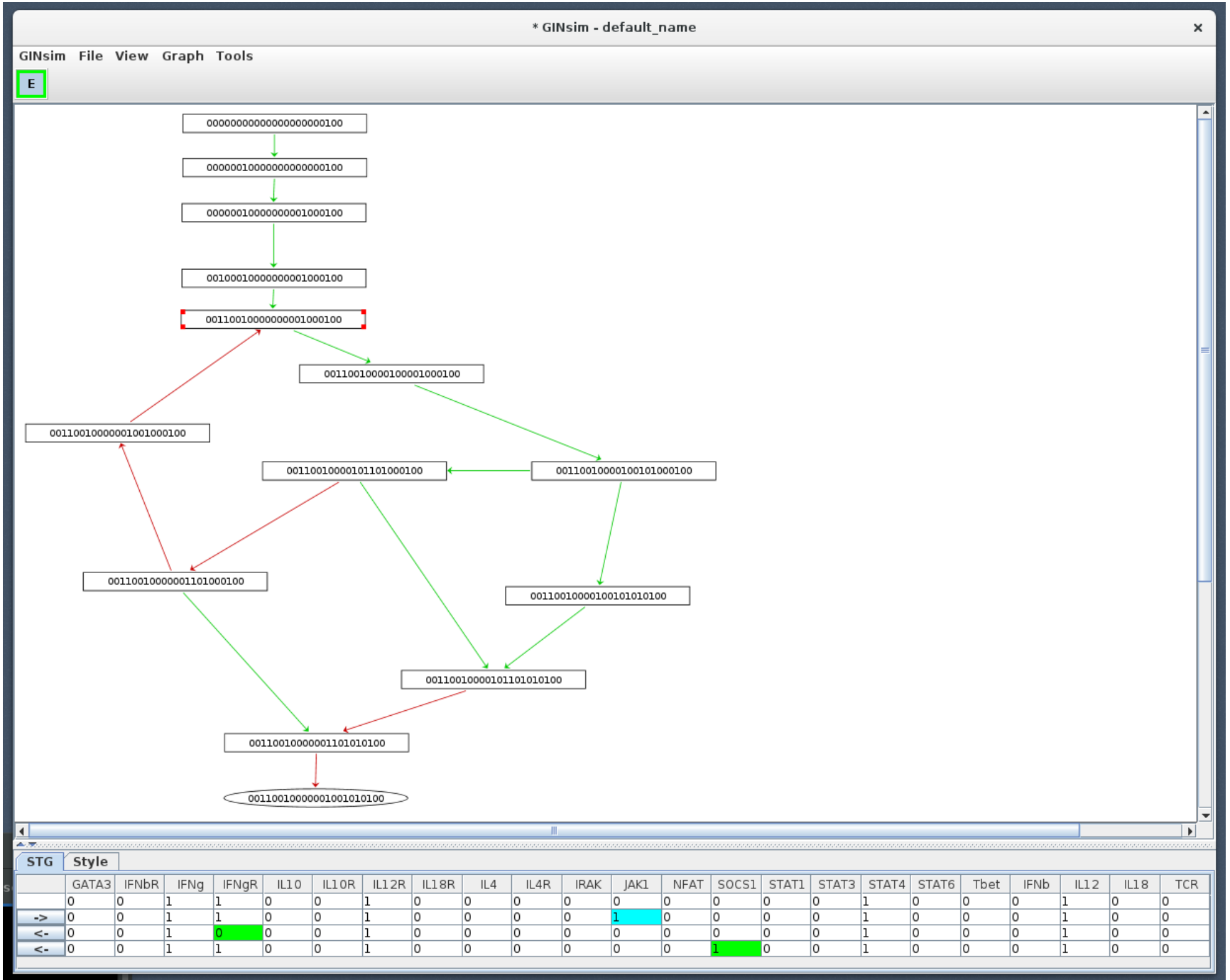
Stable states



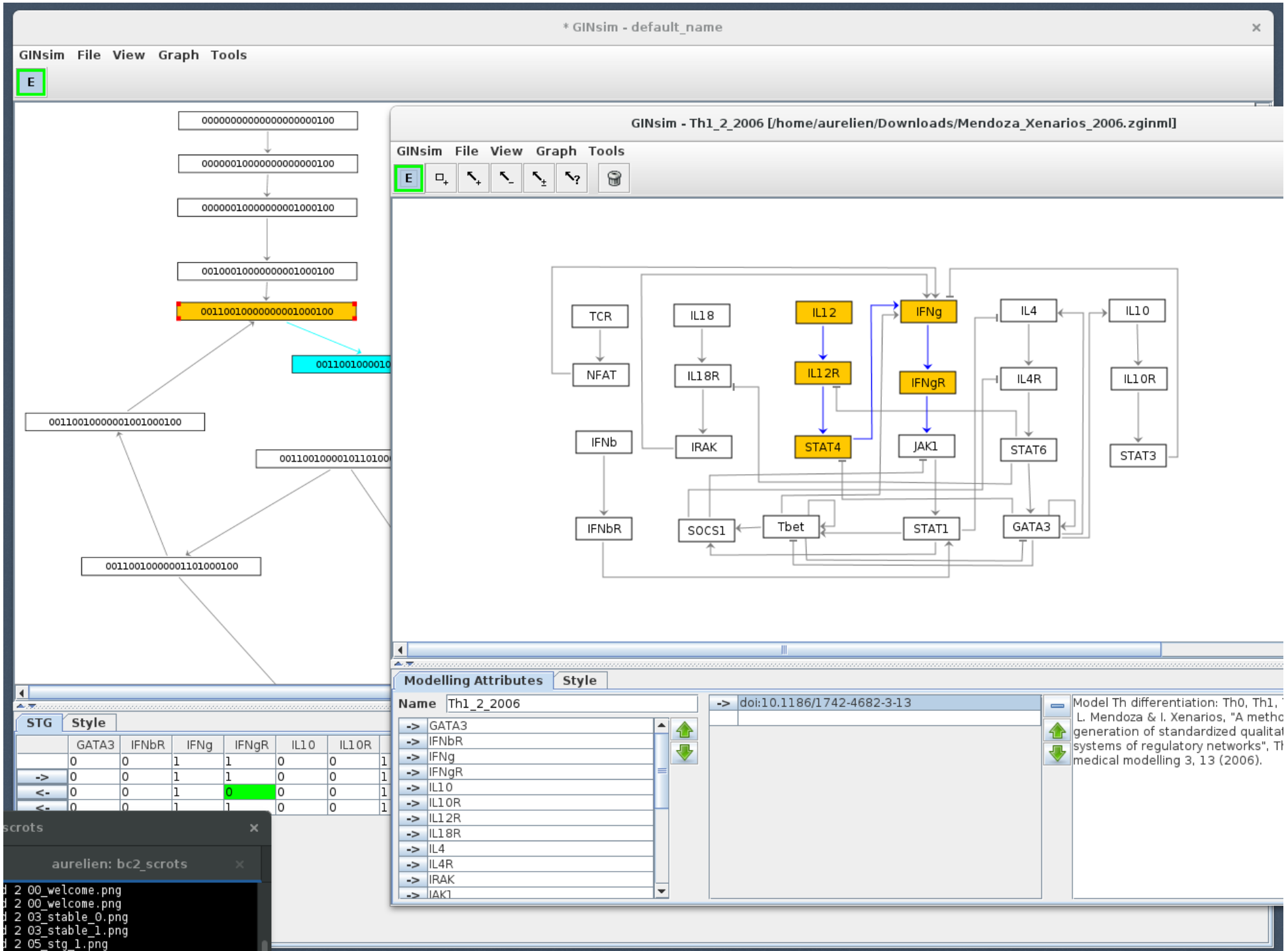
Simulation


Construction of the Dynamics
Select a perturbation
--
Configure
Select a reduction
--
Configure
Strip (pseudo-)outputs
parameter
Construction Strategy
State Transition Graph
Breadth First
Depth First
Depth
Number of States
Priority Class Selection
asynchronous
Configure
Initial States
name
use
GATA3
IFNbR
IFNg
IFNgR
IL10
IL10R
IL12R
IL18R
IL4
IL4R
IRAK
JAK1
Th0
Th1
Th2
Fixed inputs
name
use
IFNb
IL12
IL18
TCR
no_stimul
pro_Th1
input_
input_1
Close
Run

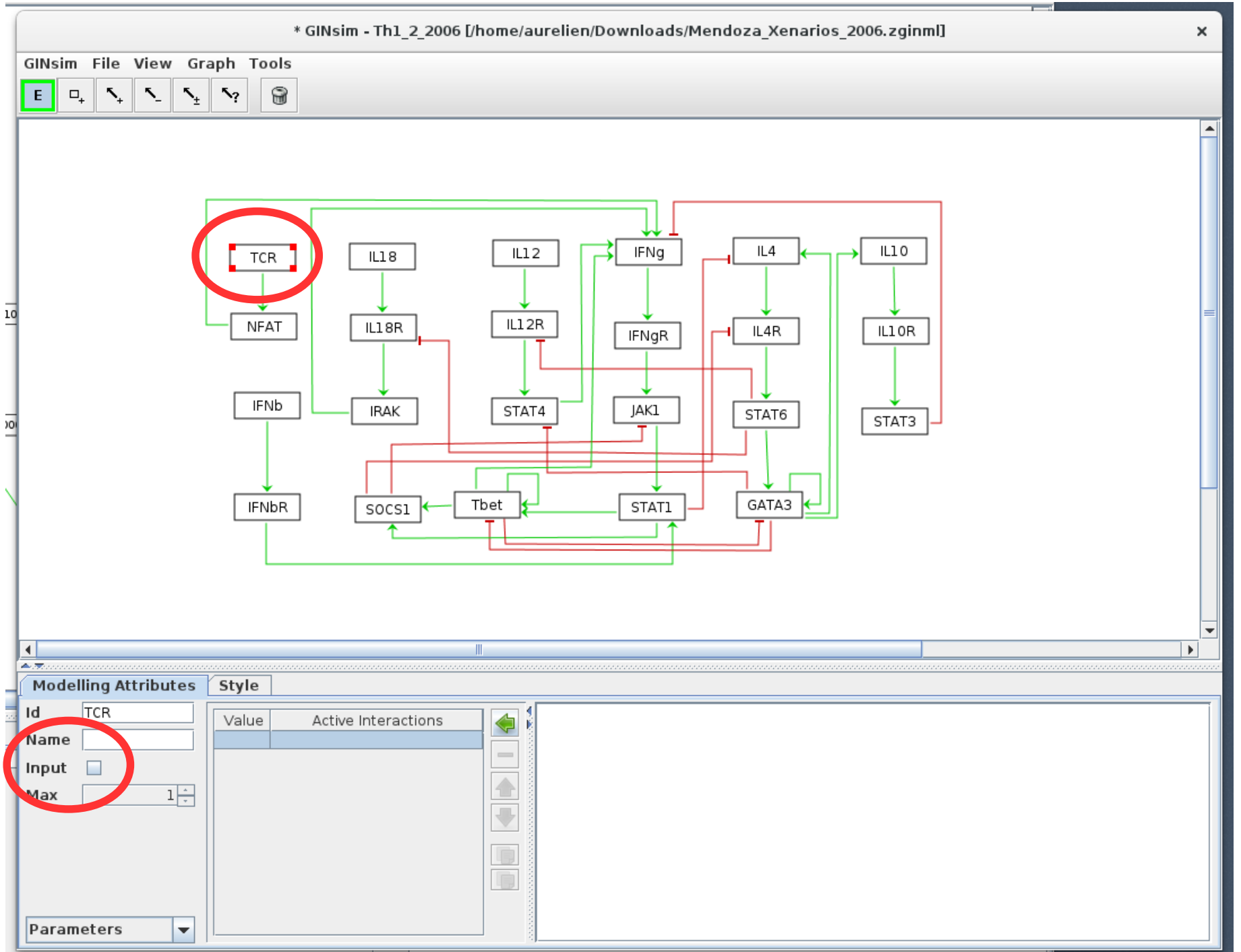
State Transition Graph (STG)



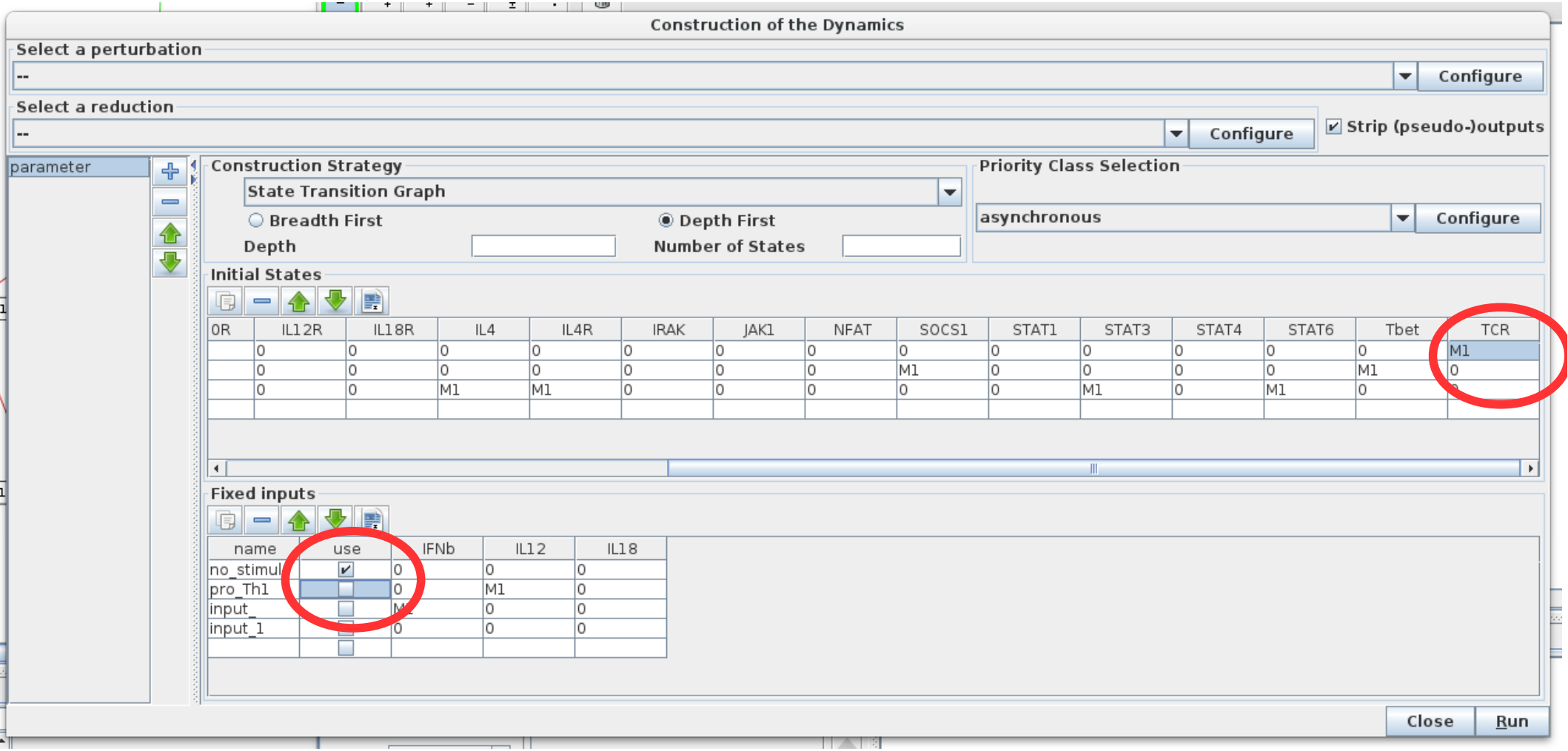
Colorize LRG based on states



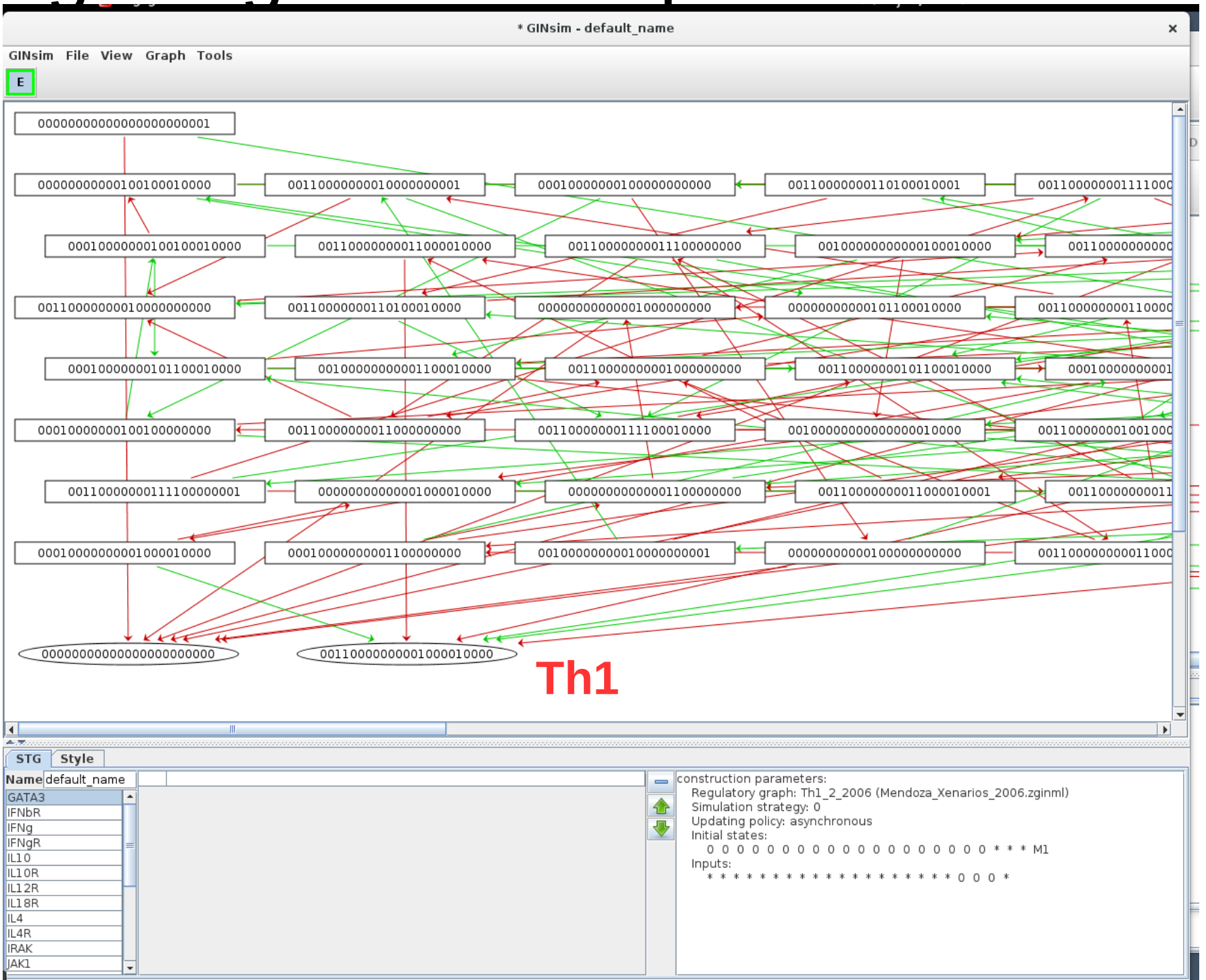
Unlock the TCR input



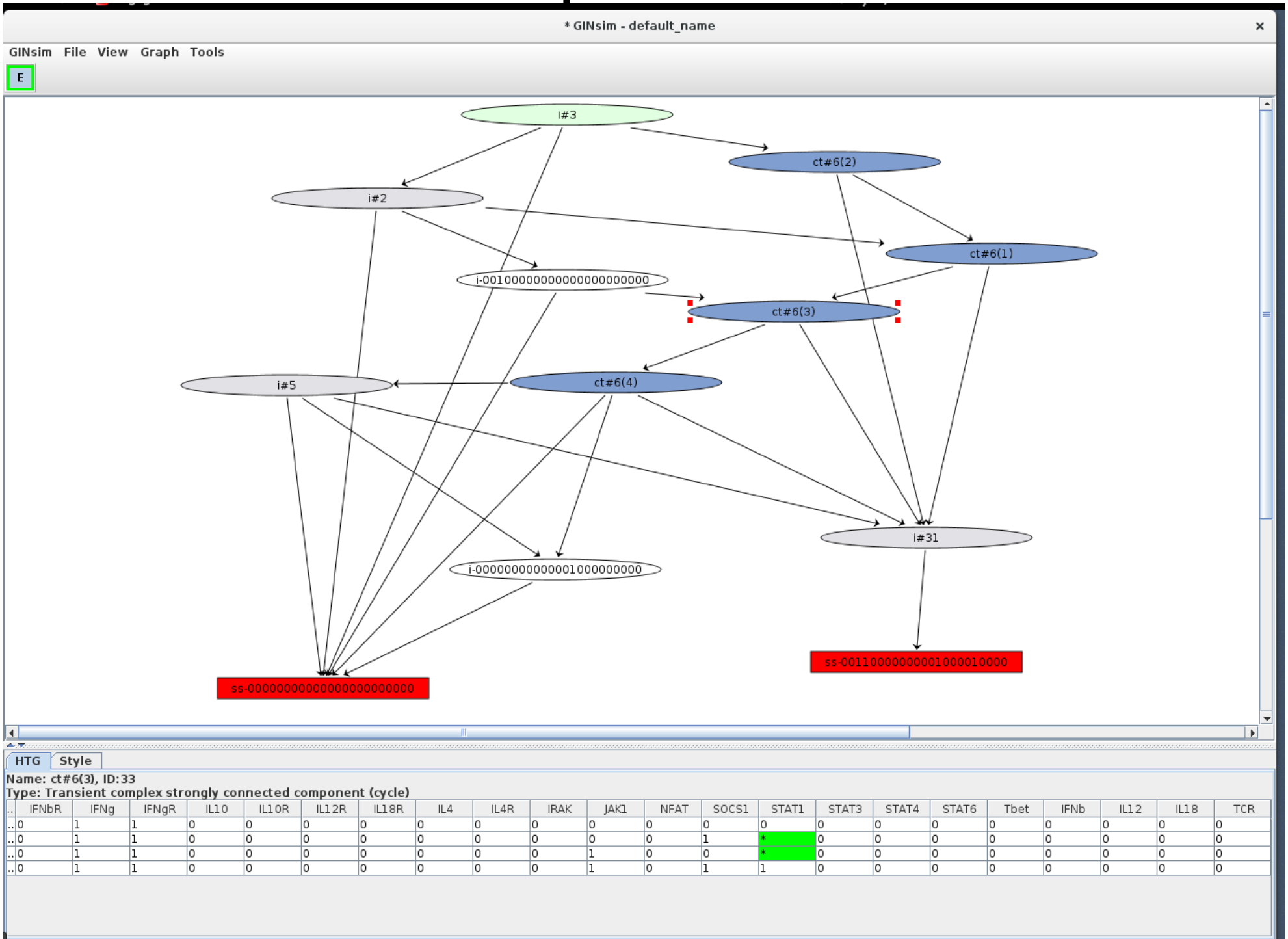
Adapt initial states



STG getting more complex...

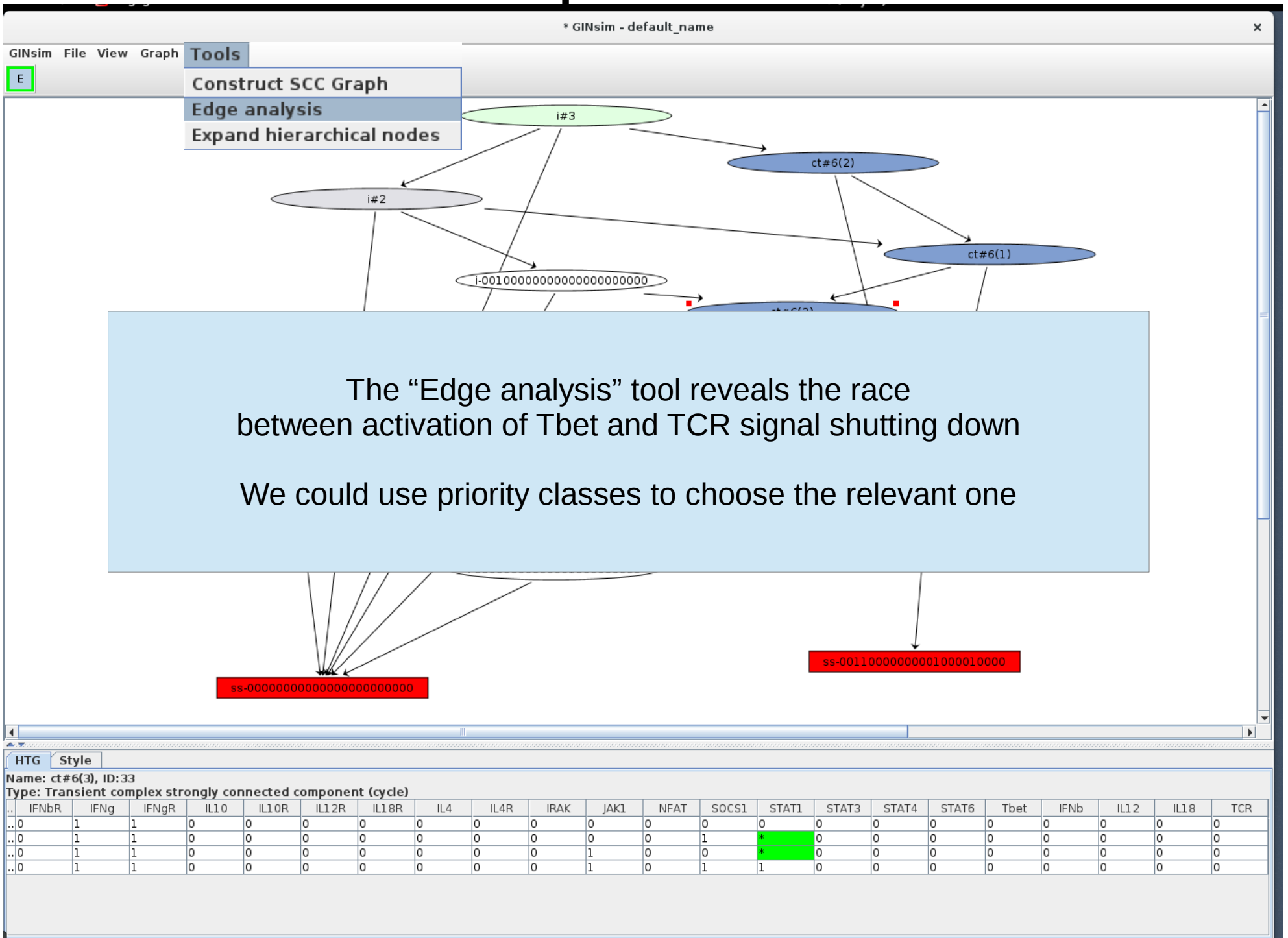


Hierarchical compression: HTG



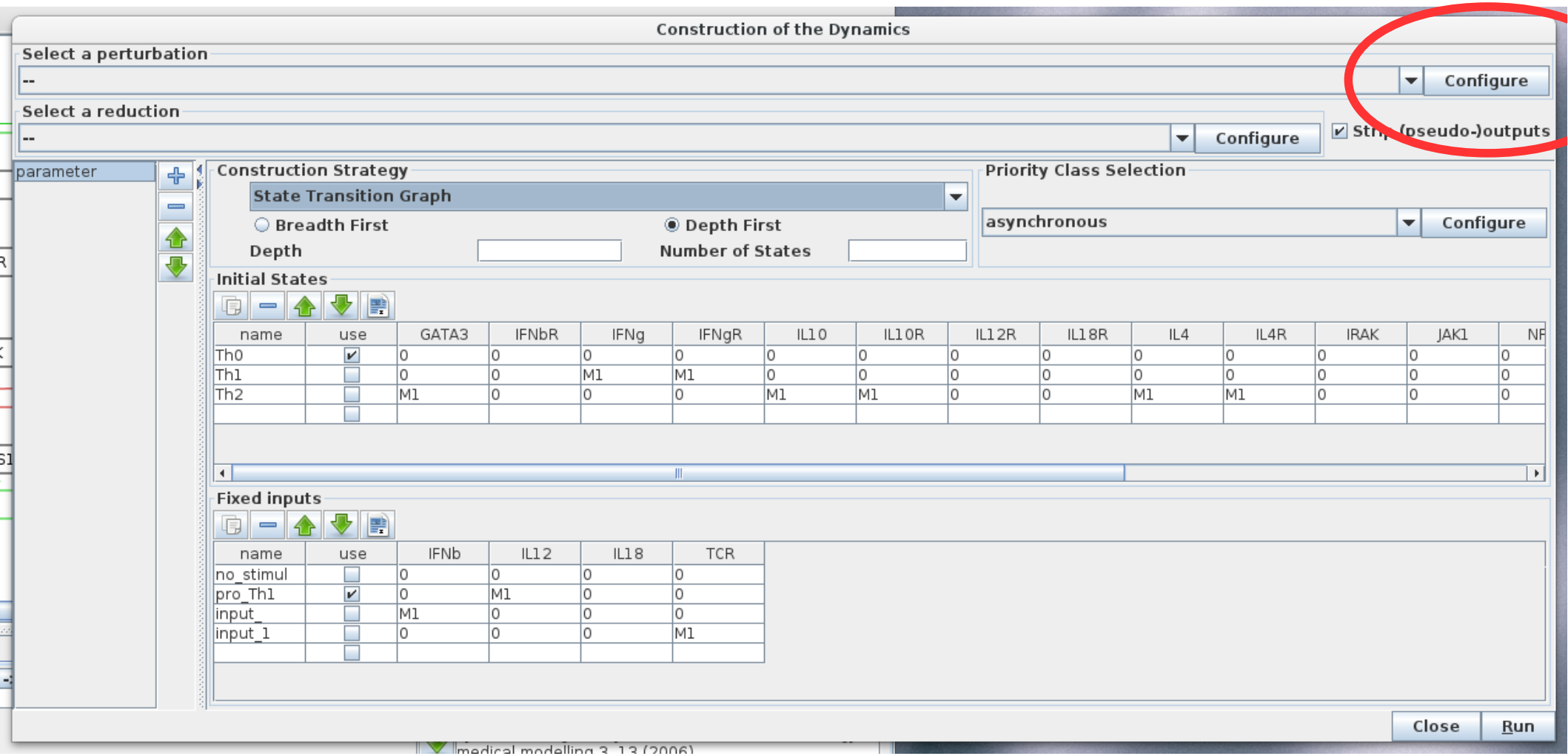
..	IFNbR	IFNg	IFNgR	IL10	IL10R	IL12R	IL18R	IL4	IL4R	IRAK	JAK1	NFAT	SOCS1	STAT1	STAT3	STAT4	STAT6	Tbet	IFNb	IL12	IL18	TCR
..	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
..	0	1	1	0	0	0	0	0	0	0	0	0	1	*	0	0	0	0	0	0	0	0
..	0	1	1	0	0	0	0	0	0	0	1	0	0	*	0	0	0	0	0	0	0	0
..	0	1	1	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0

Hierarchical compression: HTG

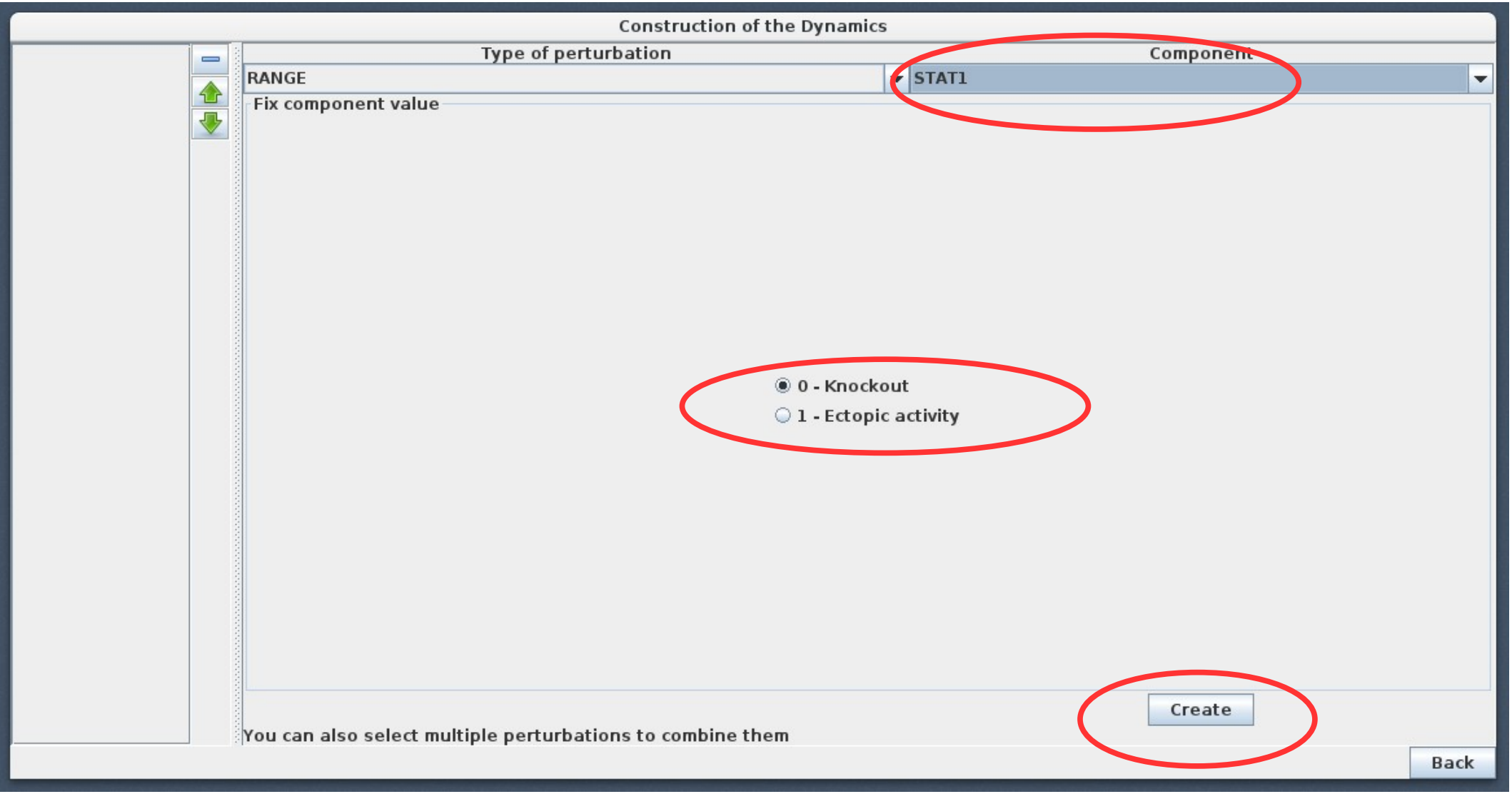


..	IFNbR	IFNg	IFNgR	IL10	IL10R	IL12R	IL18R	IL4	IL4R	IRAK	JAK1	NFAT	SOCS1	STAT1	STAT3	STAT4	STAT6	Tbet	IFNb	IL12	IL18	TCR
..	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
..	0	1	1	0	0	0	0	0	0	0	0	0	1	*	0	0	0	0	0	0	0	0
..	0	1	1	0	0	0	0	0	0	0	1	0	0	*	0	0	0	0	0	0	0	0
..	0	1	1	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0

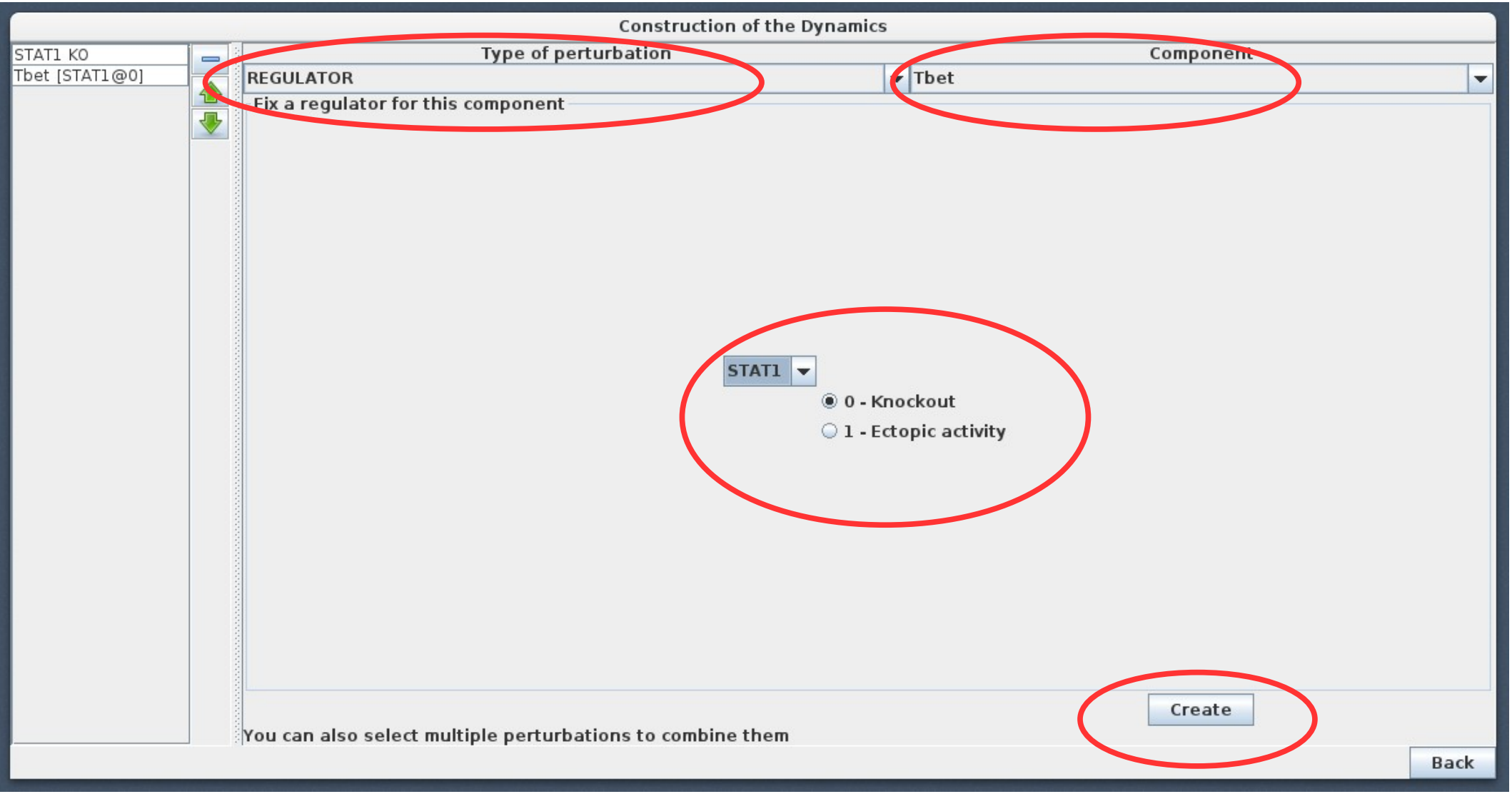
Perturbations



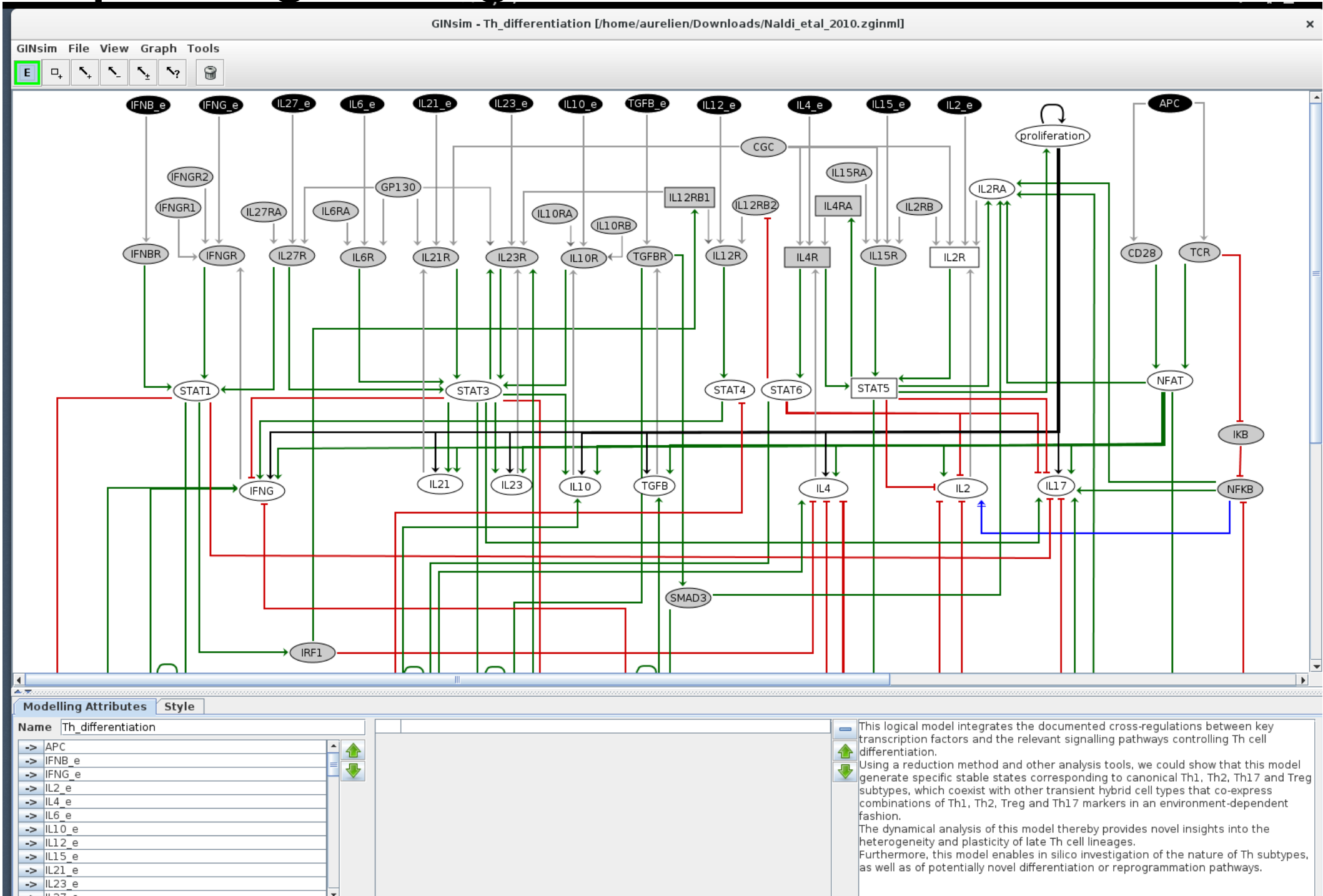
Perturbations: fixing a component



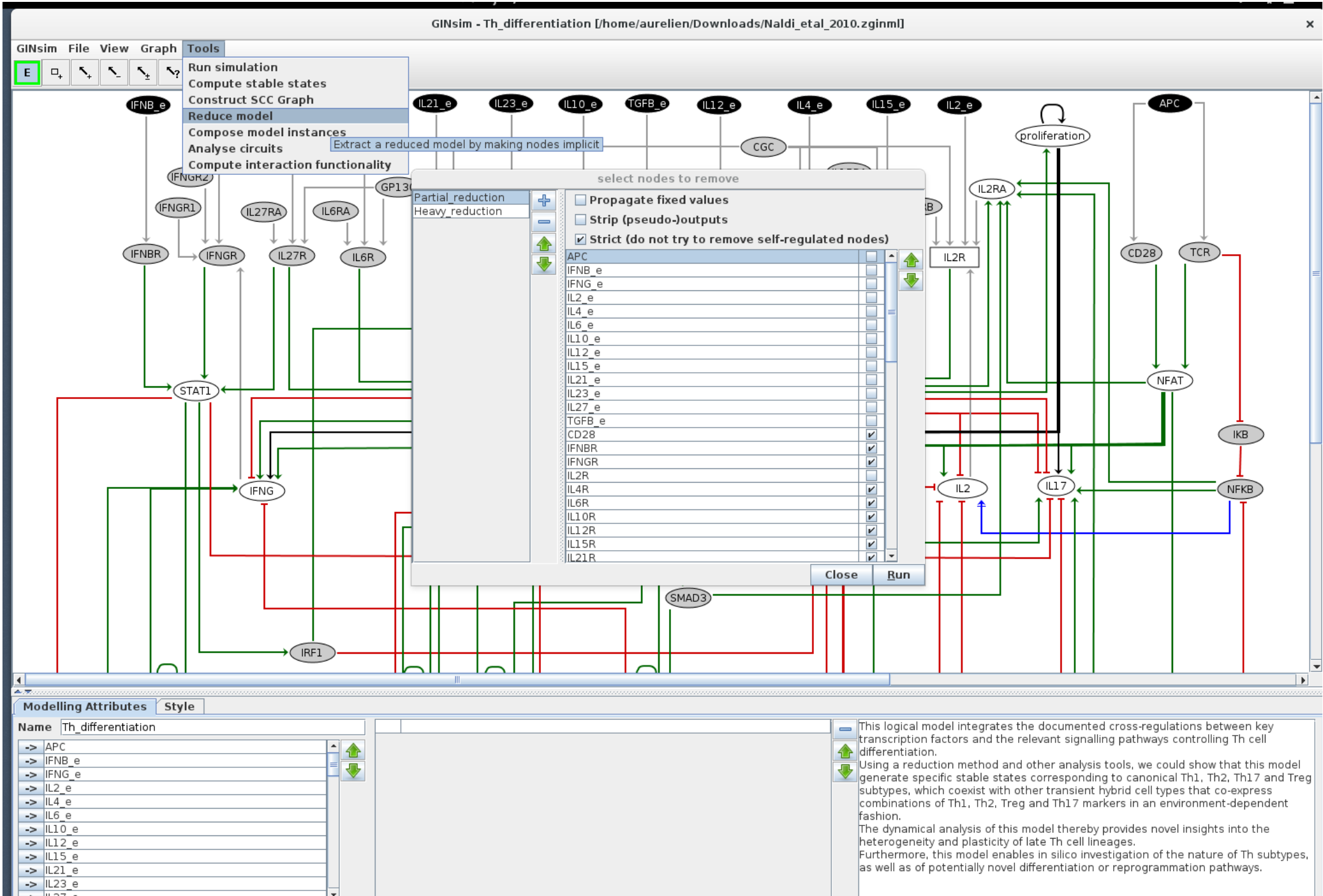
Perturbations: changing an interaction



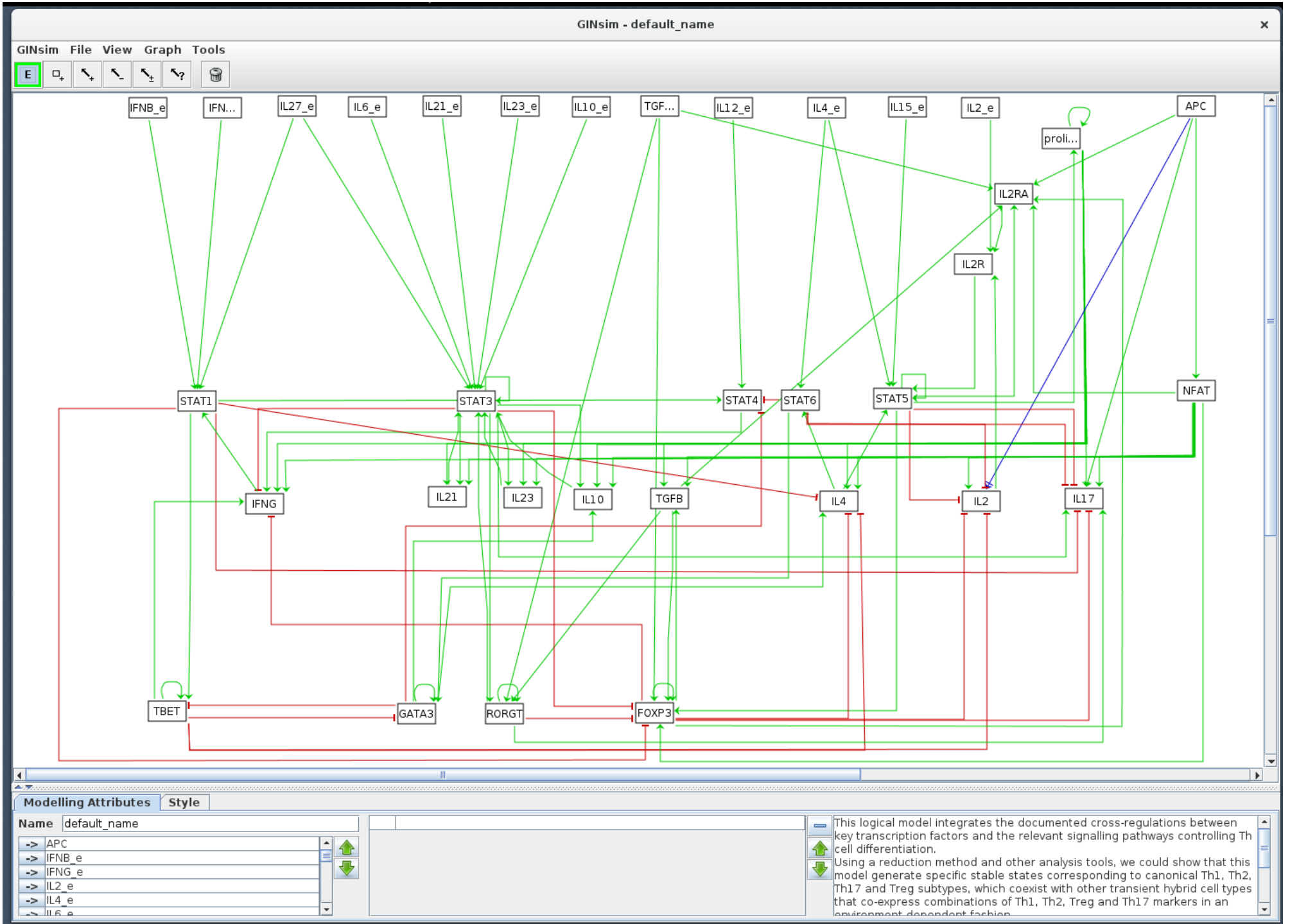
Opening a larger model



Model reduction



Reduced model



Exporting models