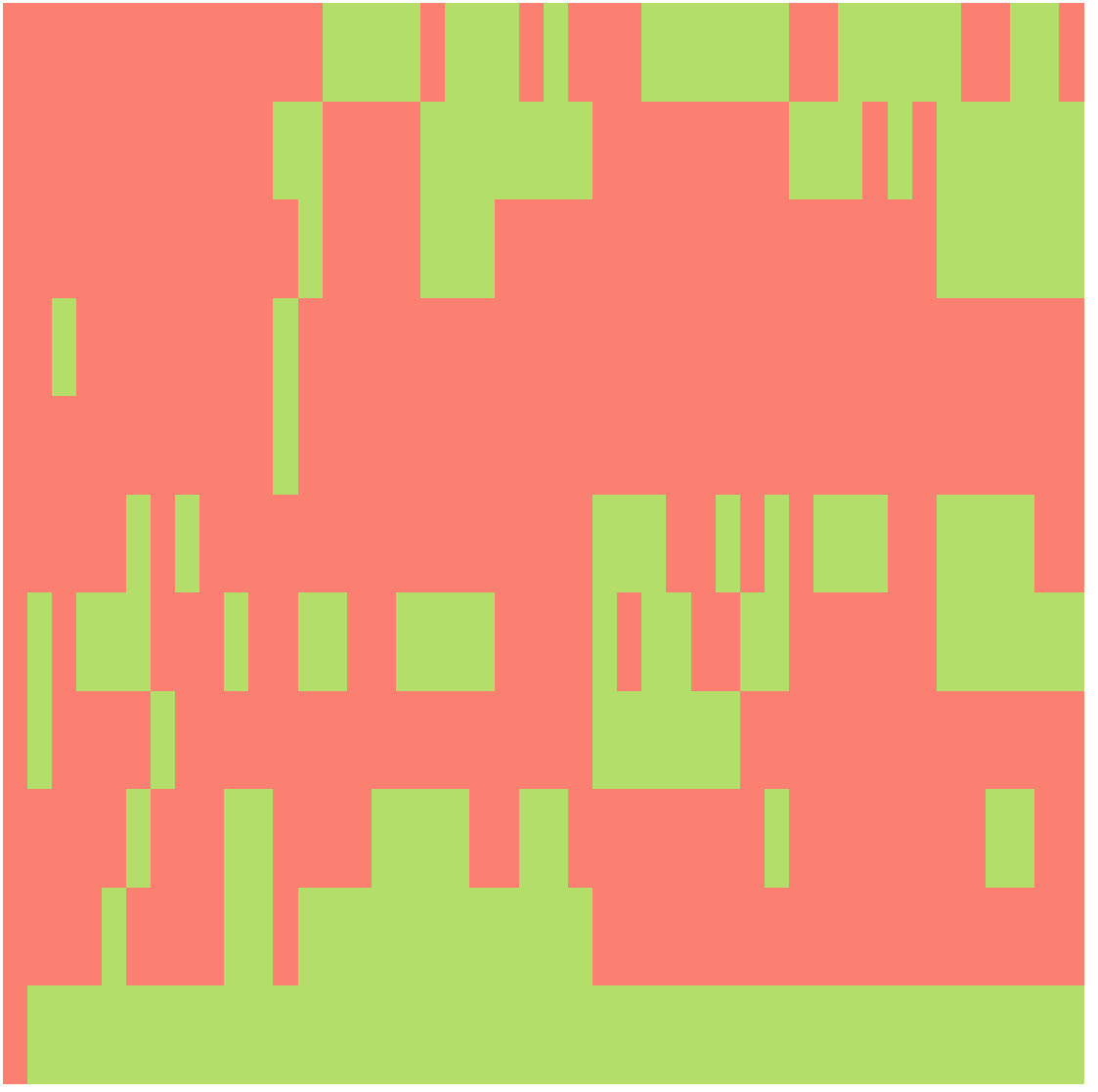
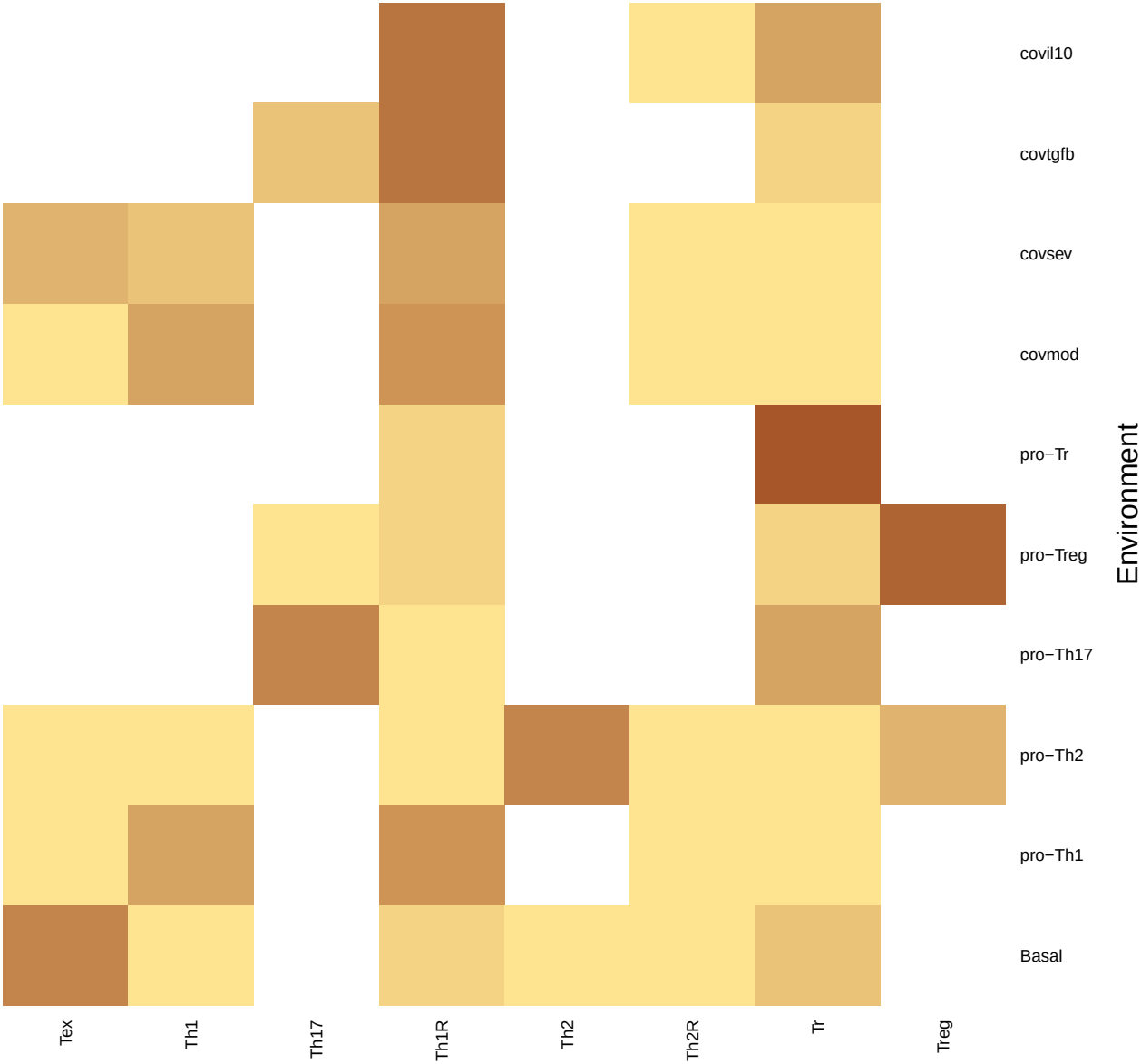
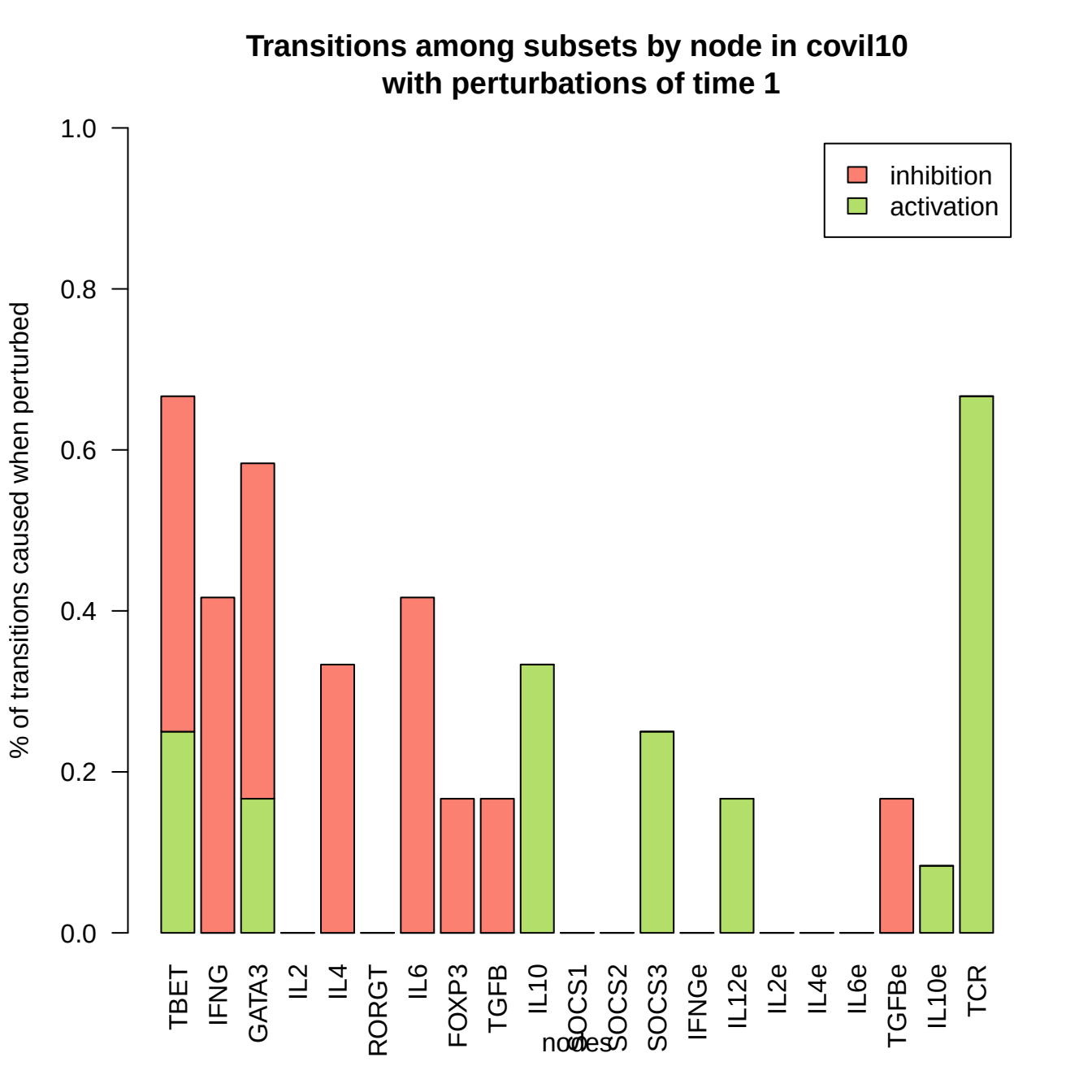
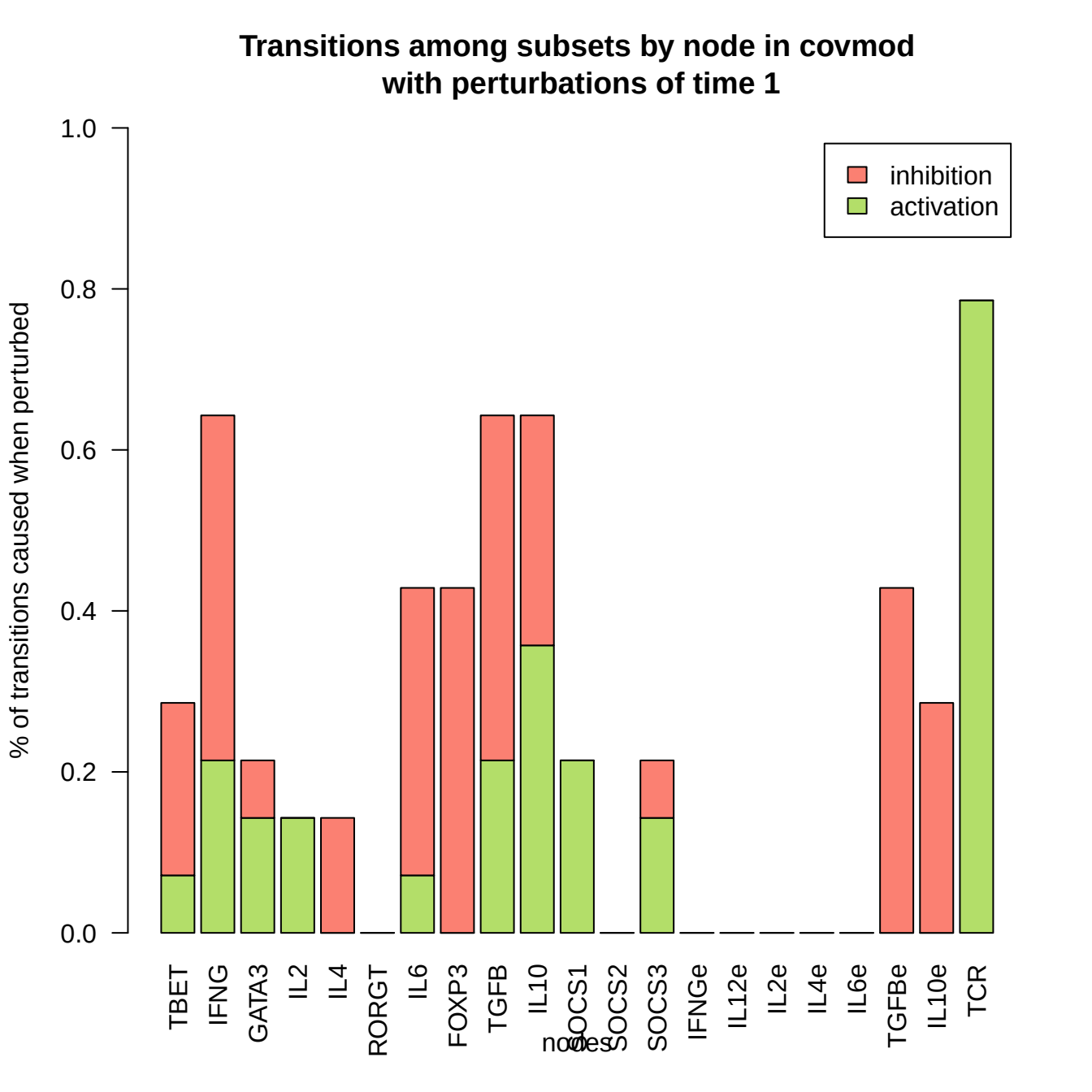
Attractors of the CD4+ T cell network (steady states)

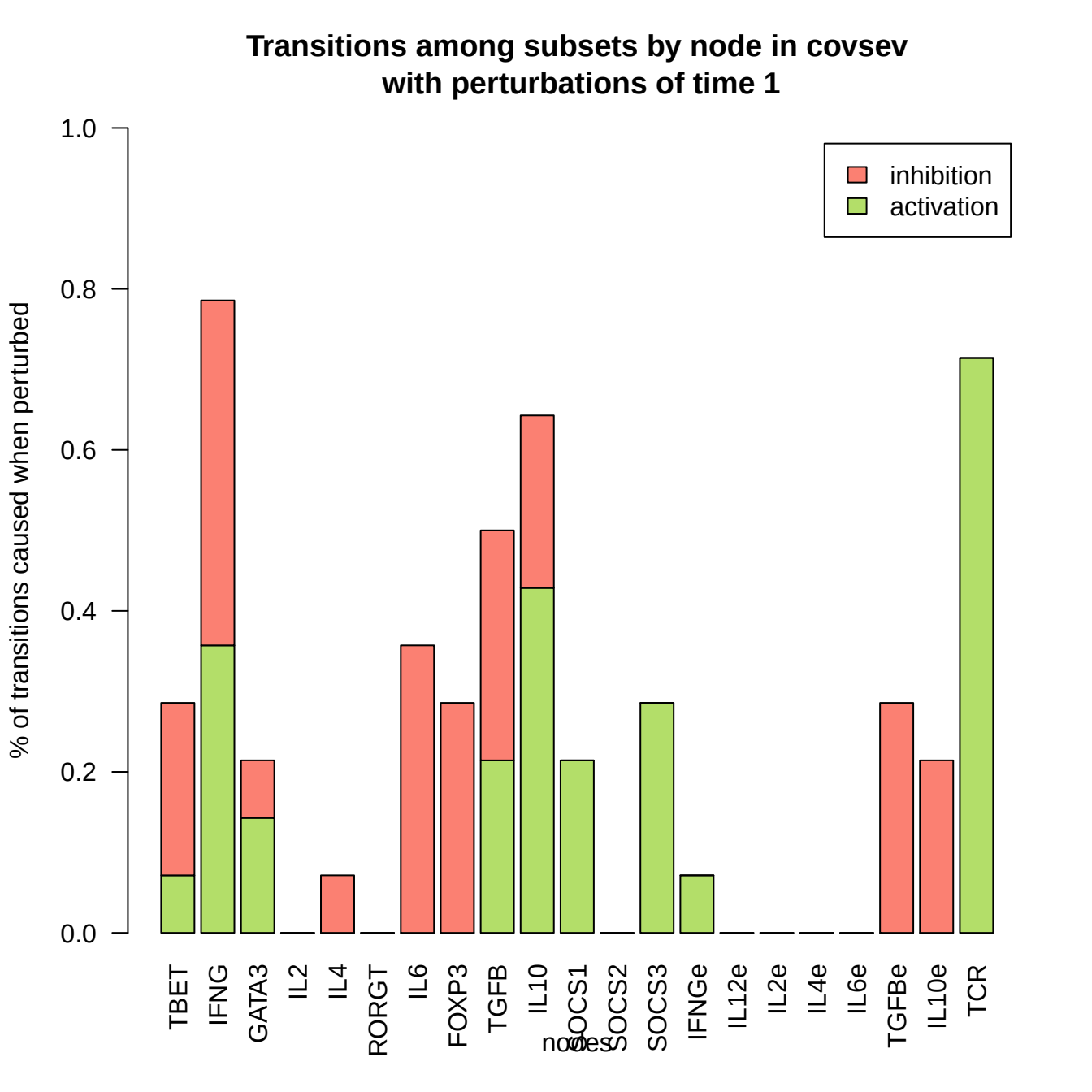


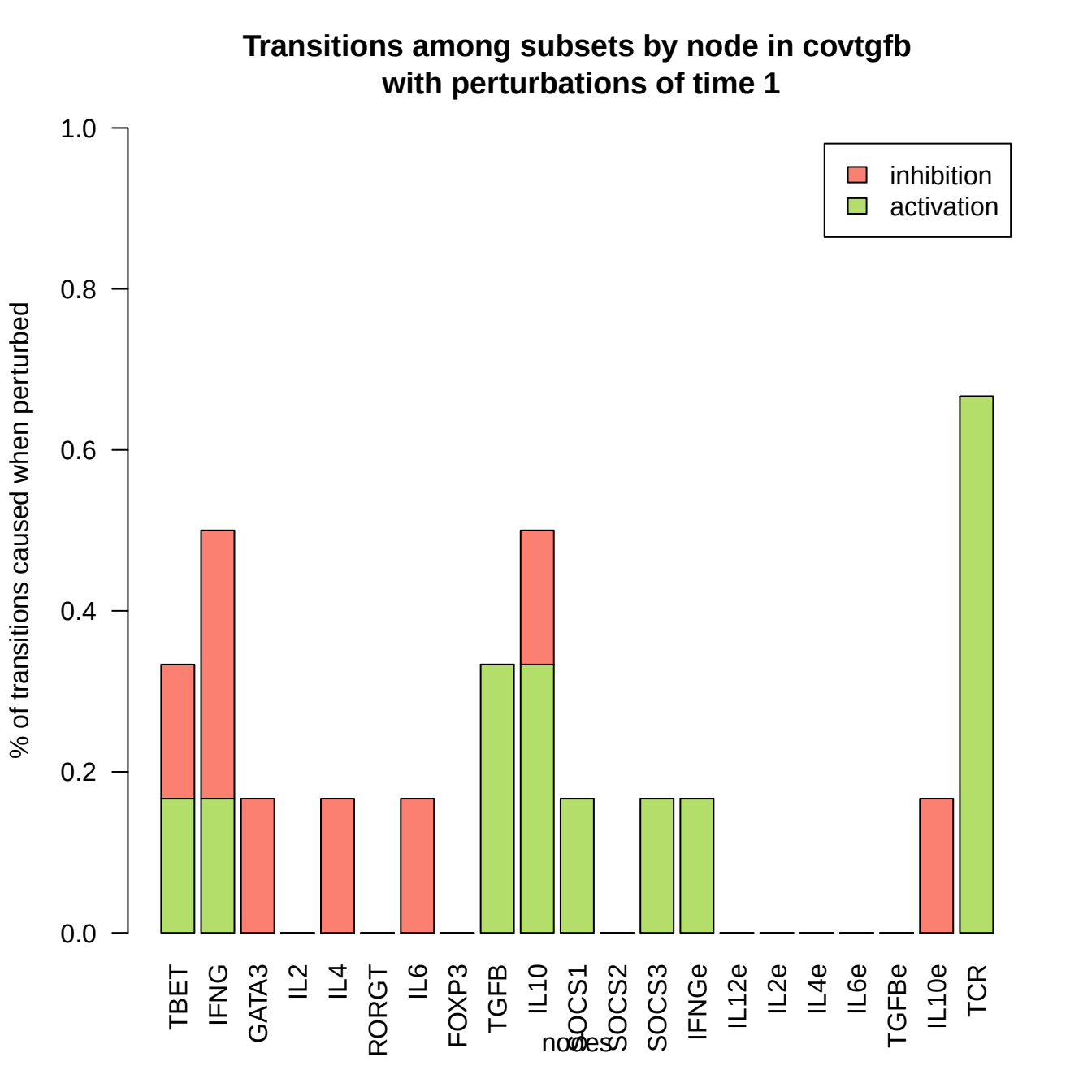
CD4+ T subsets by environment

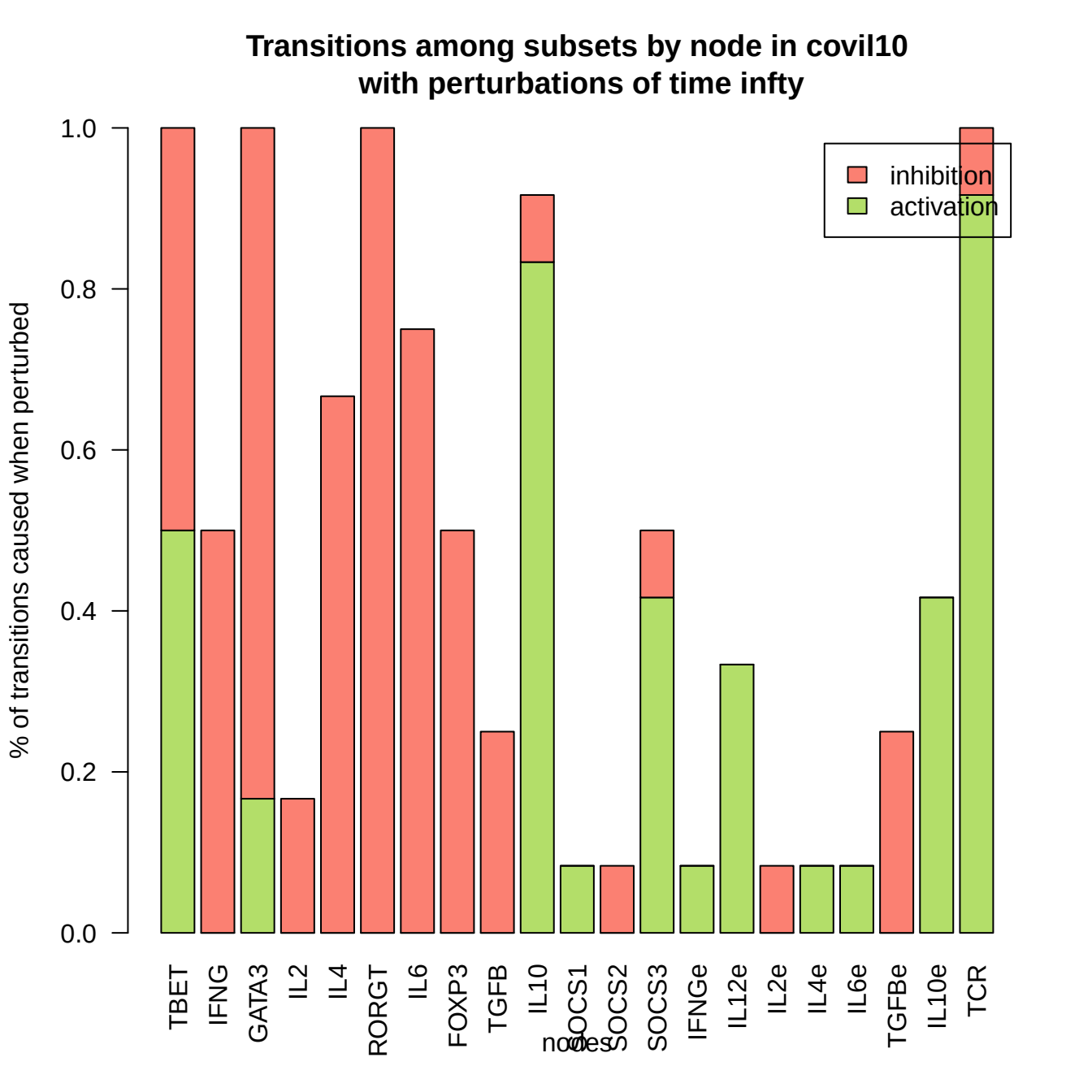


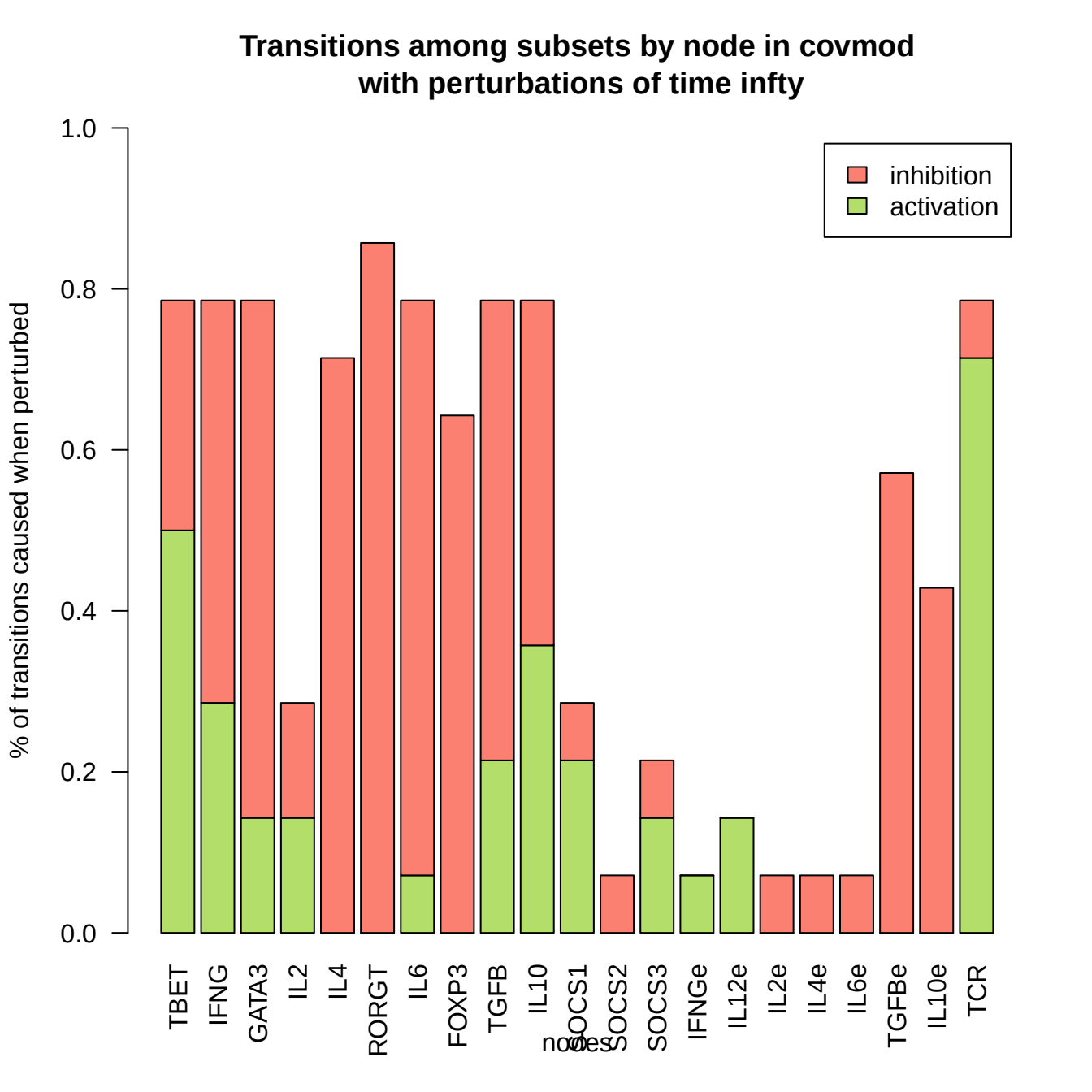

Transitions among subsets by node in covil10
with perturbations of time 1
inhibition
activation
% of transitions caused when perturbed
1.0
0.8
0.6
0.4
0.2
0.0
TBET
IFNG
GATA3
IL2
IL4
RORGT
IL6
FOXP3
TGFB
IL10
SOCS1
SOCS2
SOCS3
IFNGe
IL12e
IL2e
IL4e
IL6e
TGFBe
IL10e
TCR
nodes

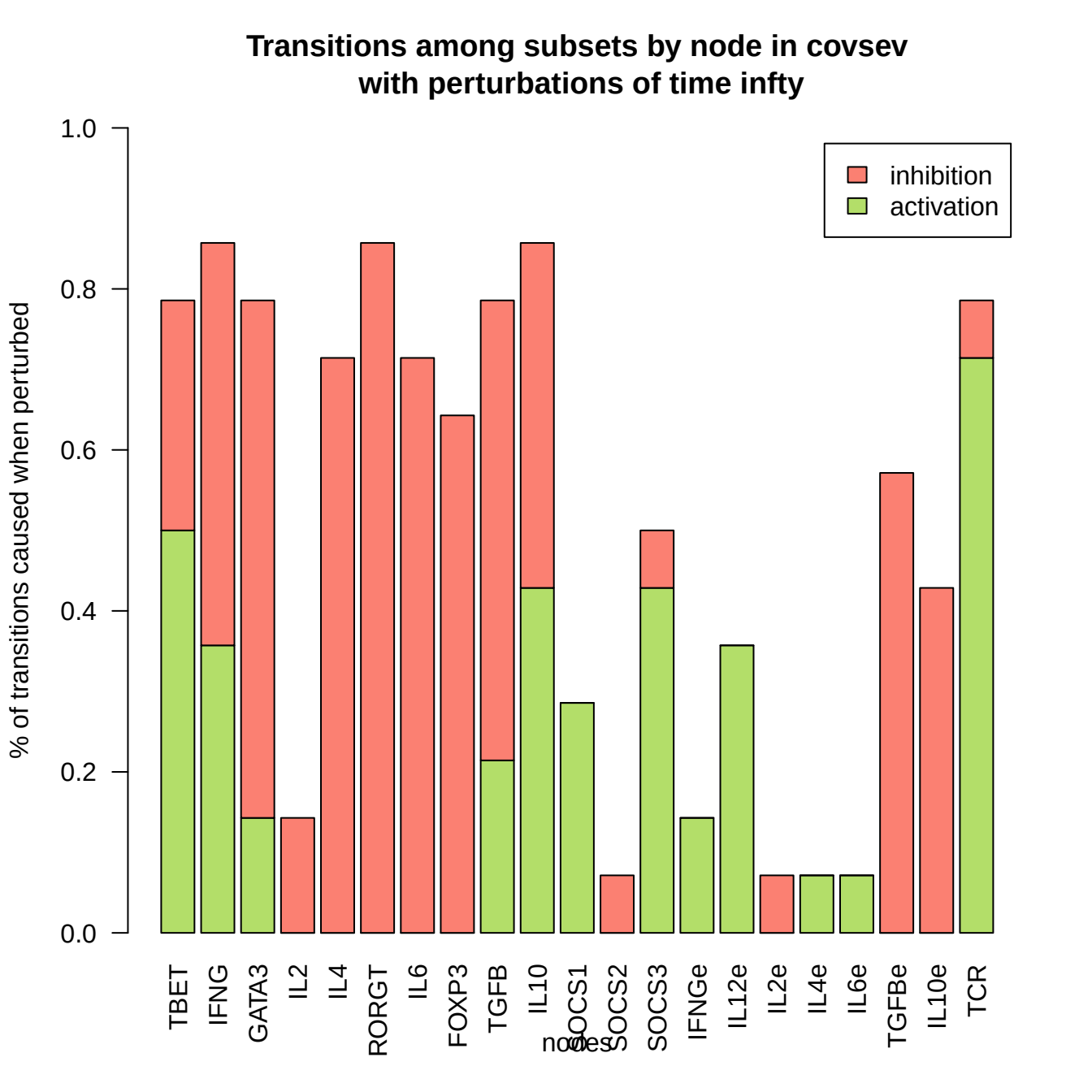

Transitions among subsets by node in covmod
with perturbations of time 1
inhibition
activation
% of transitions caused when perturbed
1.0
0.8
0.6
0.4
0.2
0.0
TBET
IFNG
GATA3
IL2
IL4
RORGT
IL6
FOXP3
TGFB
IL10
SOCS1
SOCS2
SOCS3
IFNGe
IL12e
IL2e
IL4e
IL6e
TGFBe
IL10e
TCR
nodes

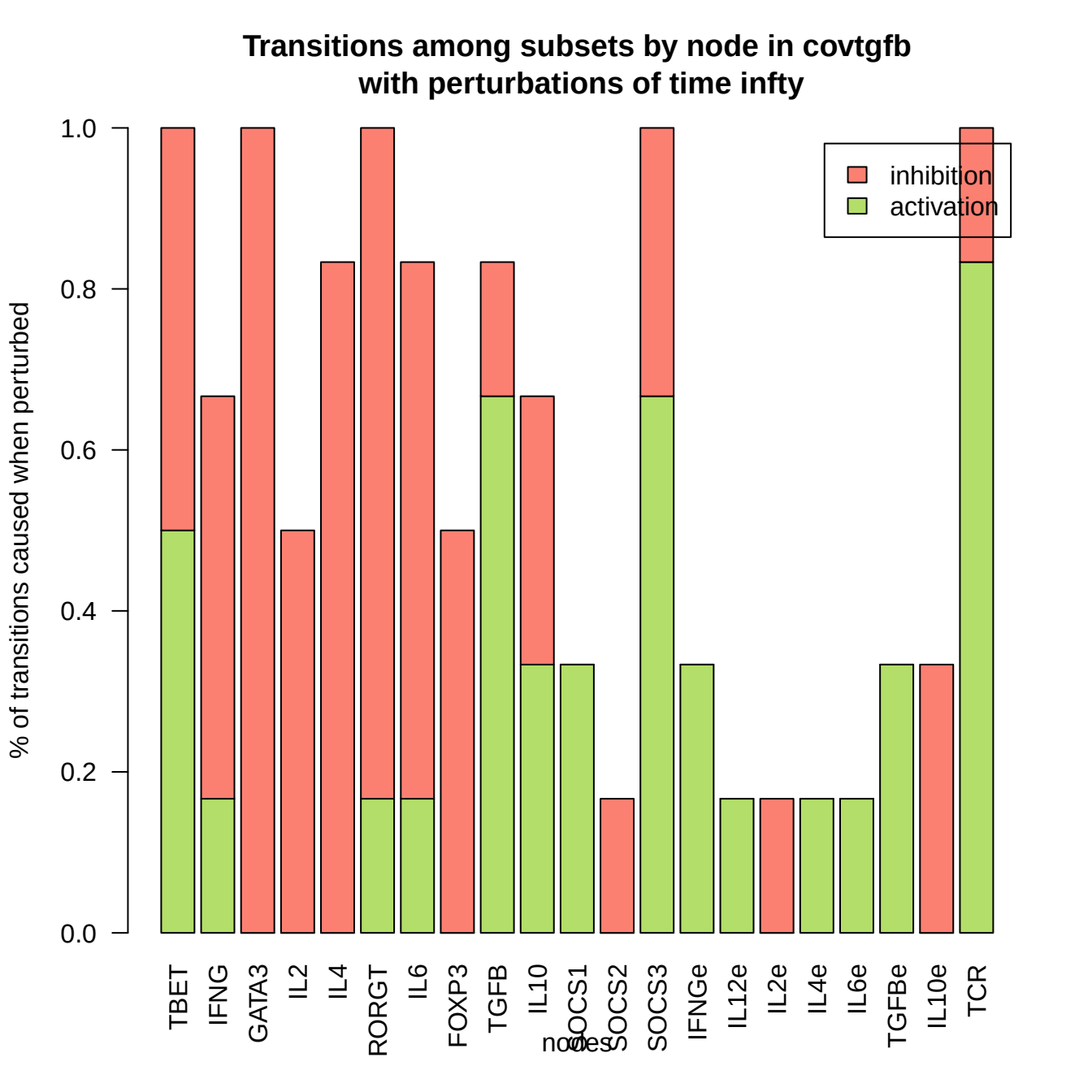

Transitions among subsets by node in covsev
with perturbations of time 1
inhibition
activation
% of transitions caused when perturbed
1.0
0.8
0.6
0.4
0.2
0.0
TBET
IFNG
GATA3
IL2
IL4
RORGT
IL6
FOXP3
TGFB
IL10
SOCS1
SOCS2
SOCS3
IFNGe
IL12e
IL2e
IL4e
IL6e
TGFBe
IL10e
TCR
nodes

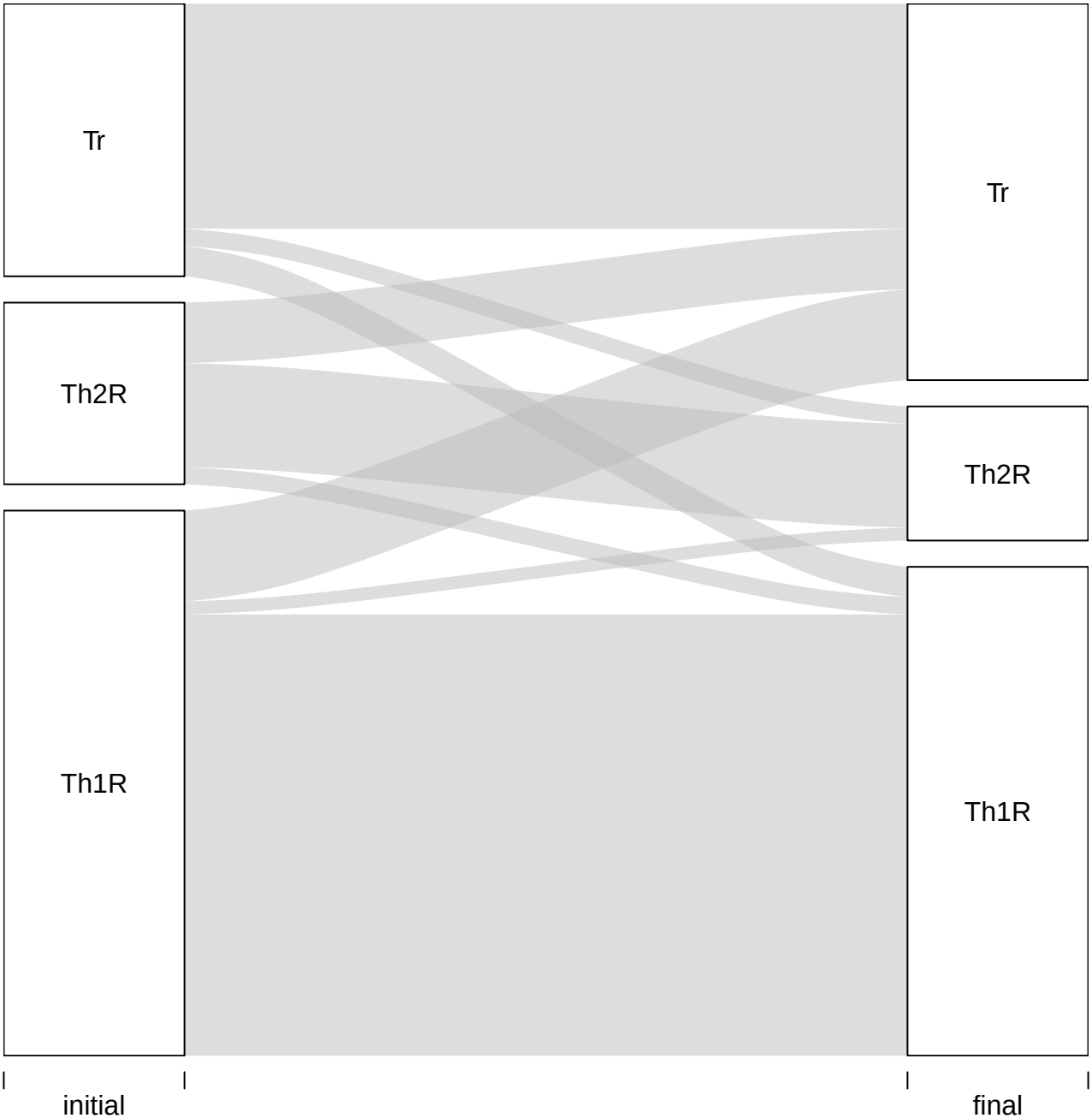

Transitions among subsets by node in covtgfb
with perturbations of time 1
inhibition
activation
% of transitions caused when perturbed
1.0
0.8
0.6
0.4
0.2
0.0
TBET
IFNG
GATA3
IL2
IL4
RORGT
IL6
FOXP3
TGFB
IL10
SOCS1
SOCS2
SOCS3
IFNGe
IL12e
IL2e
IL4e
IL6e
TGFBe
IL10e
TCR
nodes

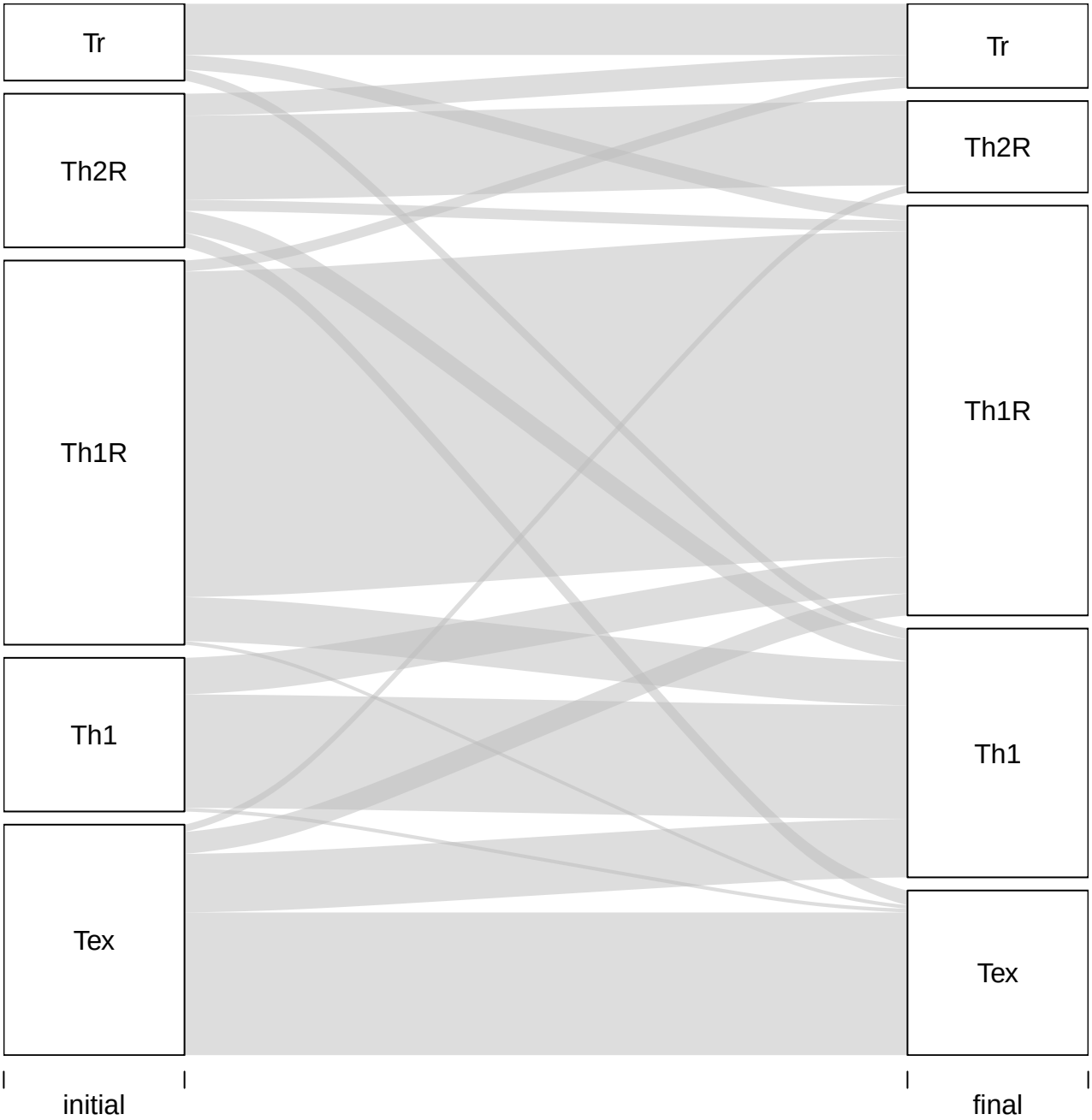

Transitions among subsets by node in covil10
with perturbations of time infty
% of transitions caused when perturbed
1.0
0.8
0.6
0.4
0.2
0.0
inhibition
activation
TBET
IFNG
GATA3
IL2
IL4
RORGT
IL6
FOXP3
TGFB
IL10
SOCS1
SOCS2
SOCS3
IFNGe
IL12e
IL2e
IL4e
IL6e
TGFBe
IL10e
TCR
nodes

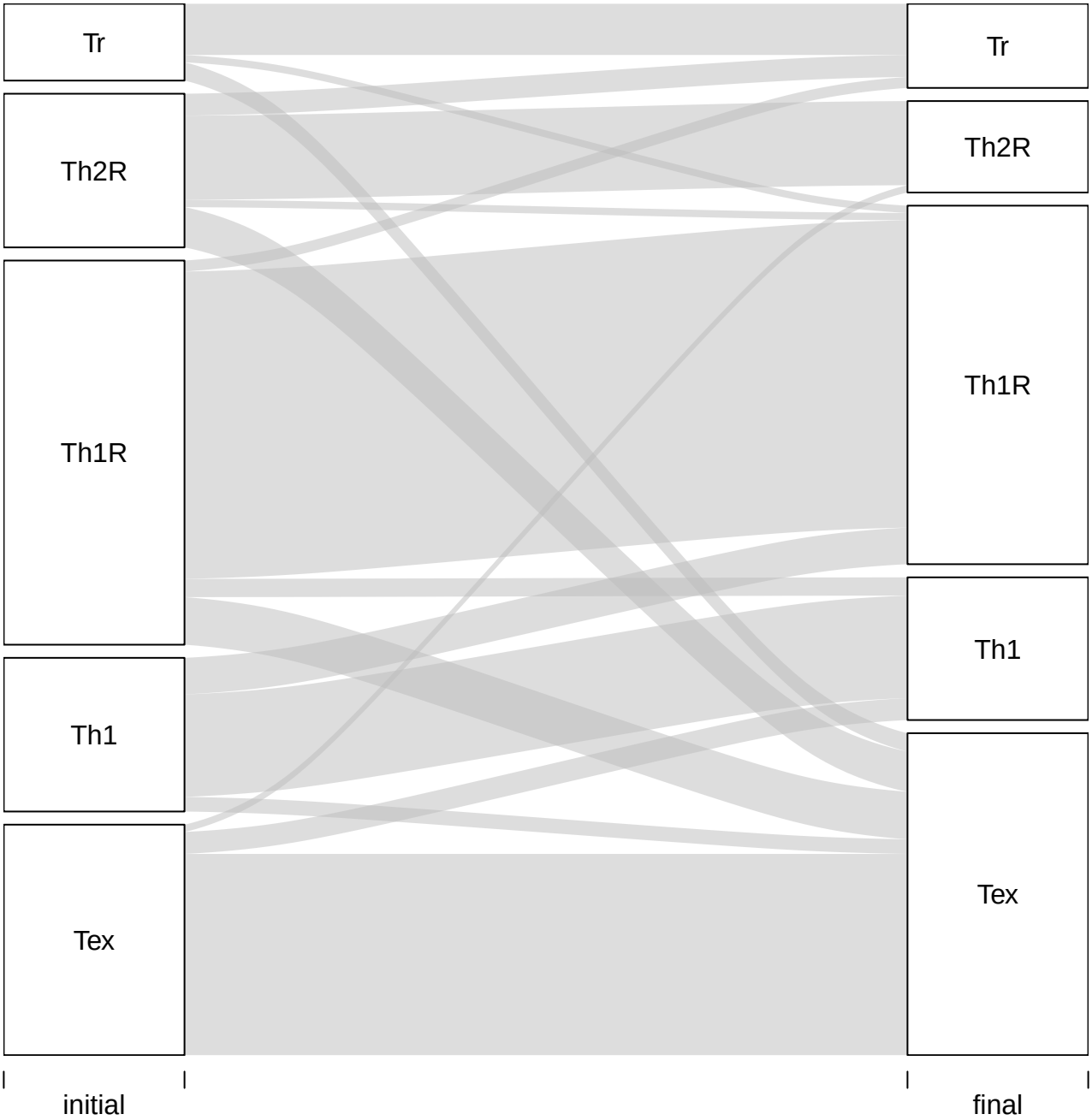

Transitions among subsets by node in covmod
with perturbations of time infty
inhibition
activation
% of transitions caused when perturbed
1.0
0.8
0.6
0.4
0.2
0.0
TBET
IFNG
GATA3
IL2
IL4
RORGT
IL6
FOXP3
TGFB
IL10
SOCS1
SOCS2
SOCS3
IFNGe
IL12e
IL2e
IL4e
IL6e
TGFBe
IL10e
TCR
nodes

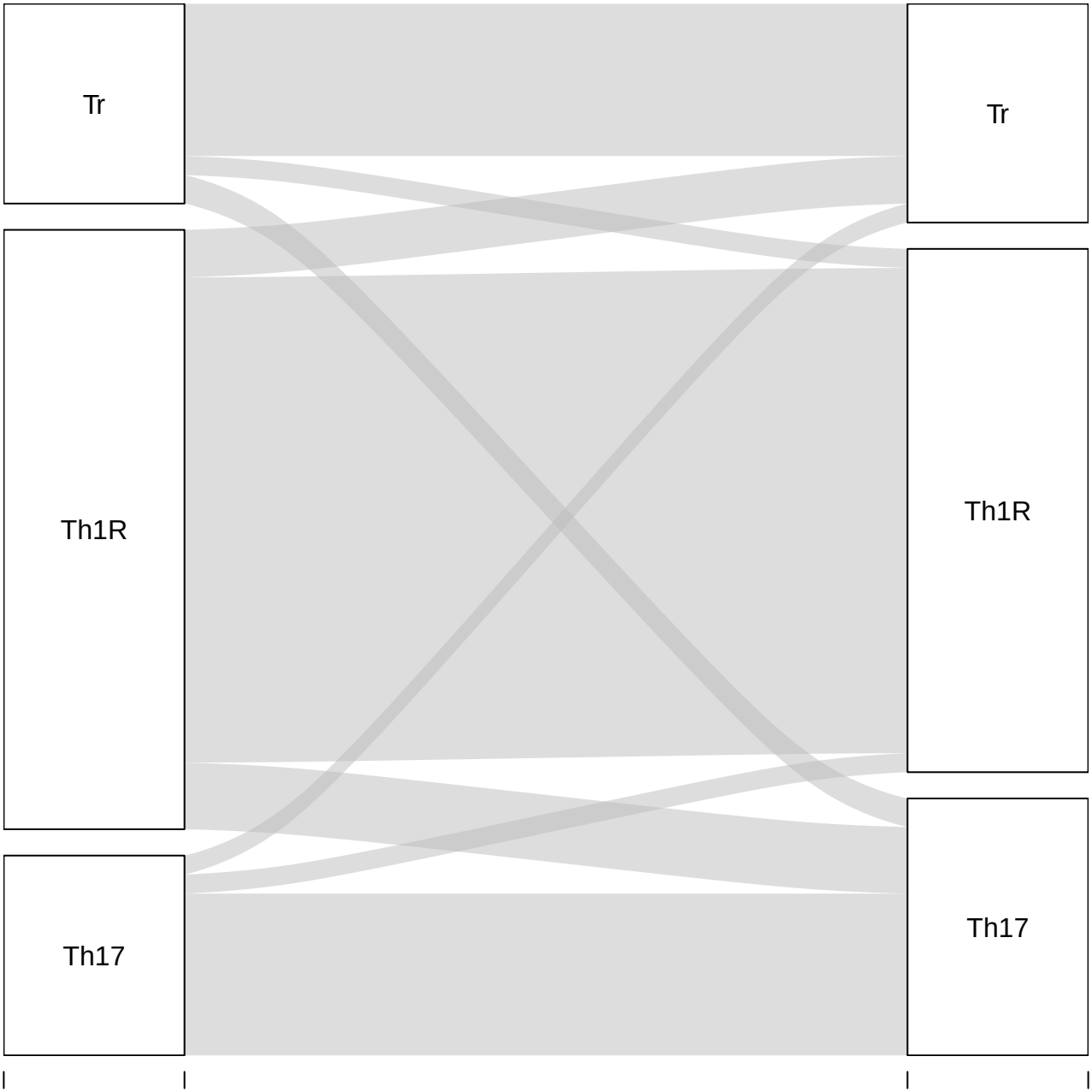

Transitions among subsets by node in covsev
with perturbations of time infty
inhibition
activation
% of transitions caused when perturbed
1.0
0.8
0.6
0.4
0.2
0.0
TBET
IFNG
GATA3
IL2
IL4
RORGT
IL6
FOXP3
TGFB
IL10
SOCS1
SOCS2
SOCS3
IFNGe
IL12e
IL2e
IL4e
IL6e
TGFBe
IL10e
TCR
nodes

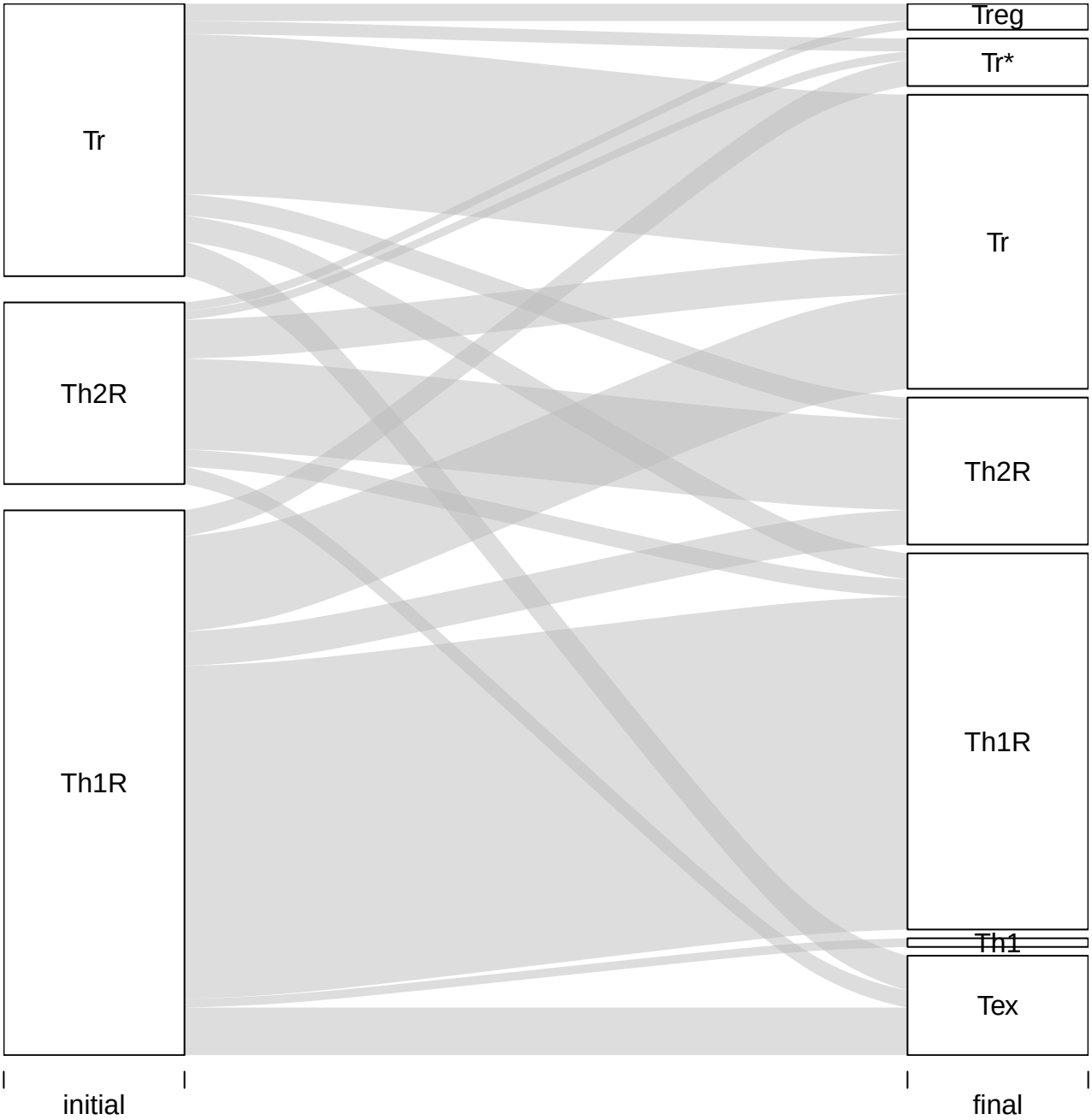

Transitions among subsets by node in covtgfb
with perturbations of time infty
% of transitions caused when perturbed
1.0
0.8
0.6
0.4
0.2
0.0
inhibition
activation
TBET
IFNG
GATA3
IL2
IL4
RORGT
IL6
FOXP3
TGFB
IL10
SOCS1
SOCS2
SOCS3
IFNGe
IL12e
IL2e
IL4e
IL6e
TGFBe
IL10e
TCR
nodes

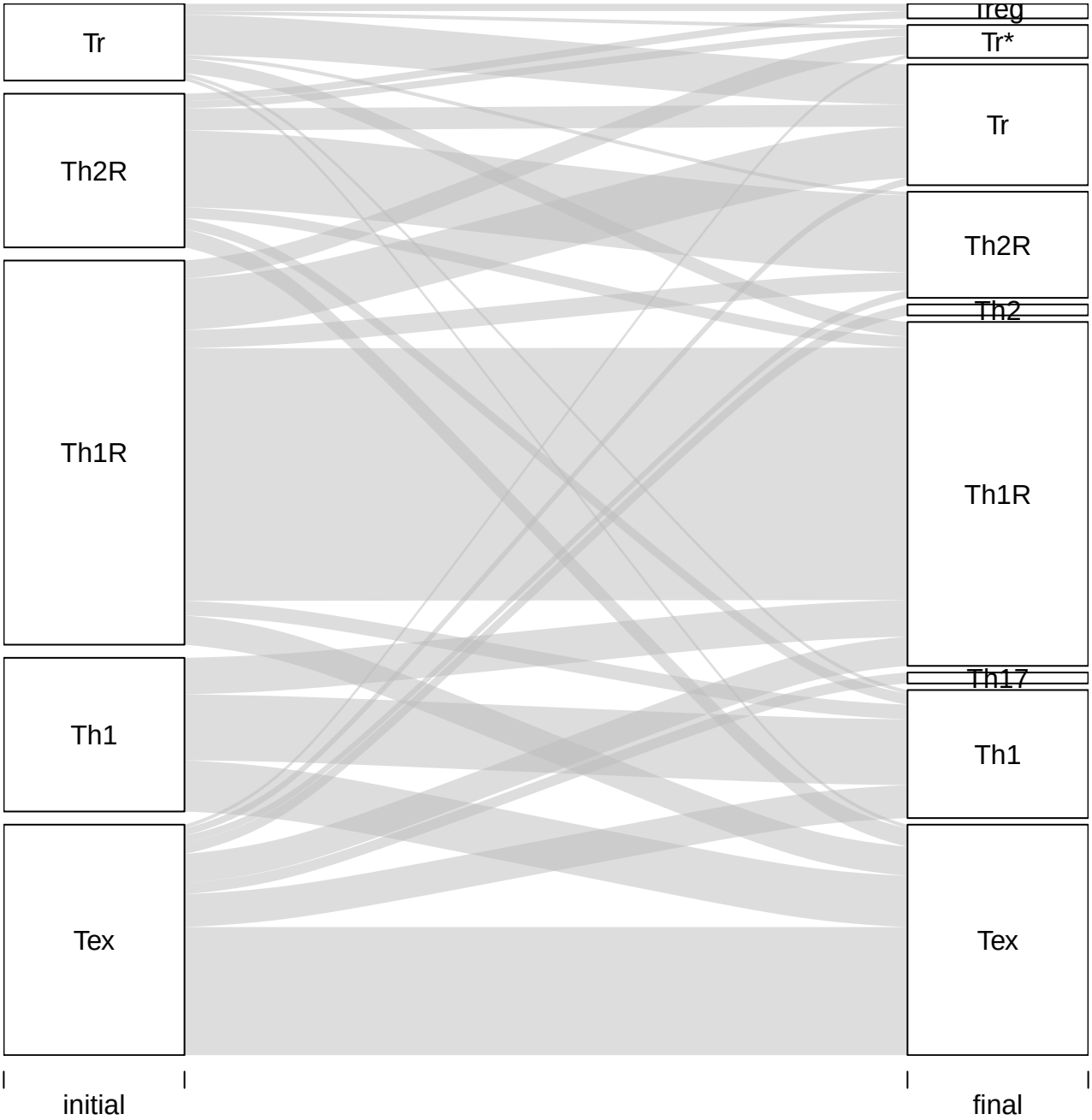

Tr
Th2R
Th1R
Tr
Th2R
Th1R
initial
final

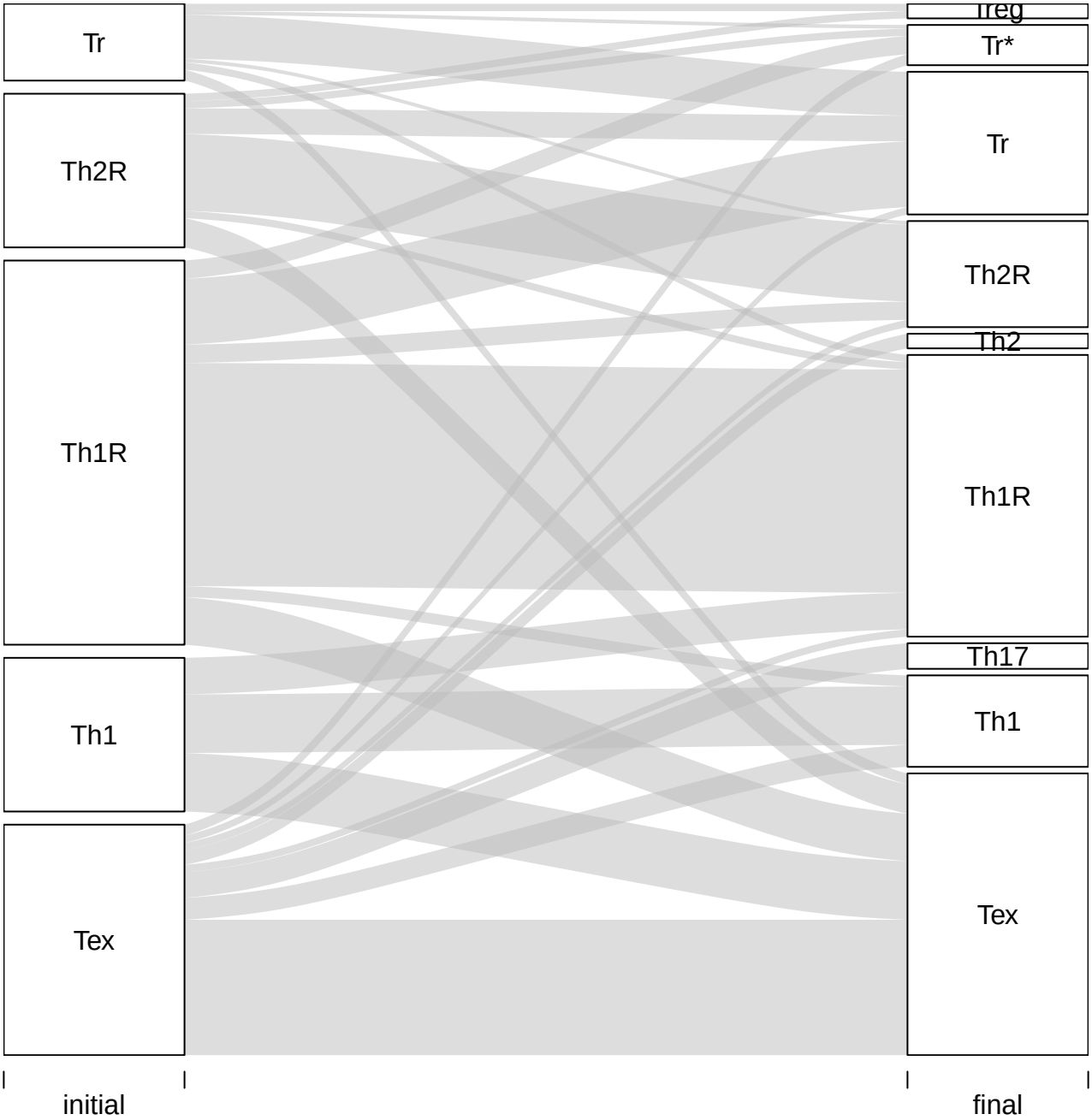

Tr
Th2R
Th1R
Th1
Tex
Tr
Th2R
Th1R
Th1
Tex
initial
final

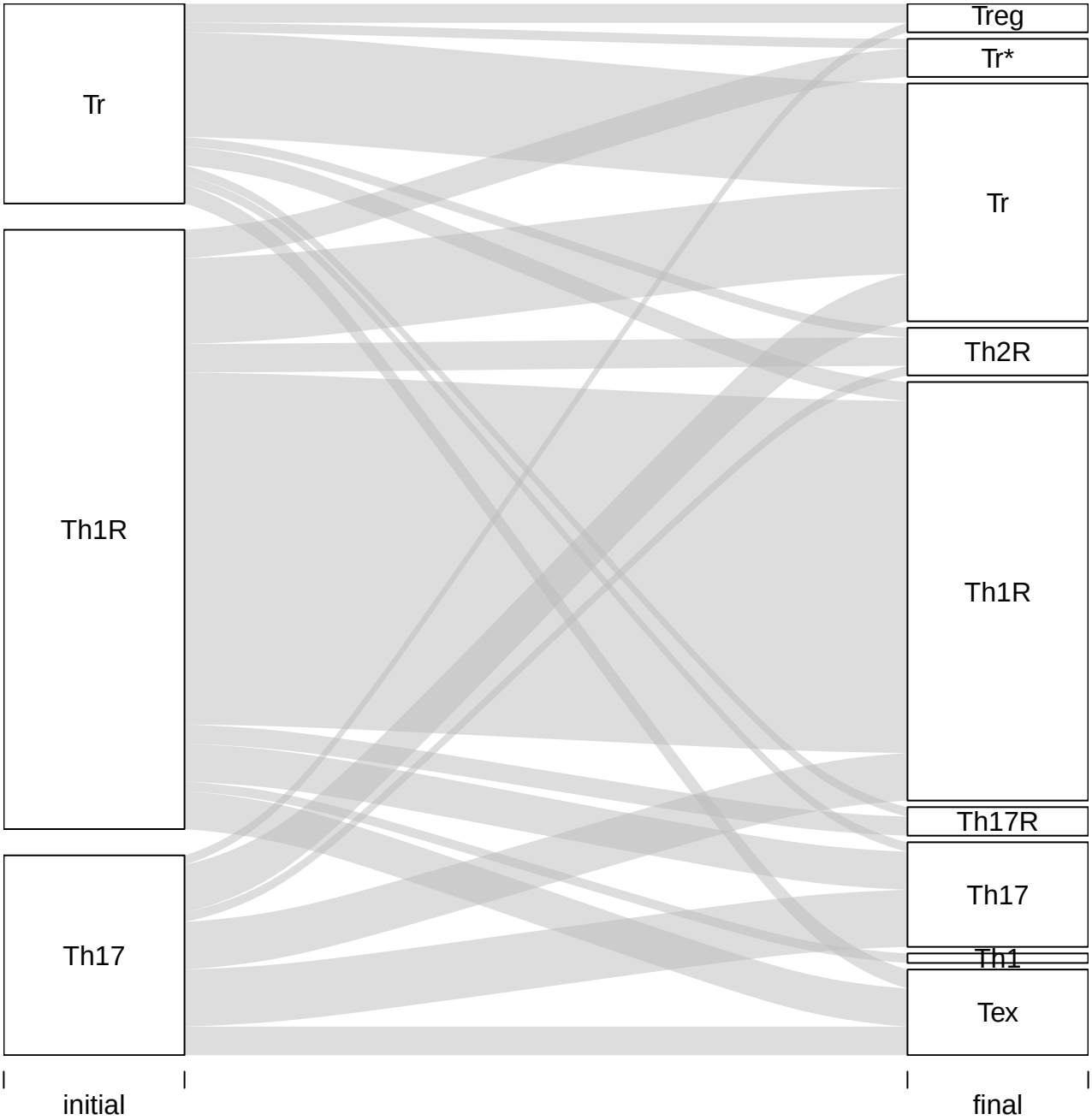

Tr
Th2R
Th1R
Th1
Tex
Tr
Th2R
Th1R
Th1
Tex
initial
final

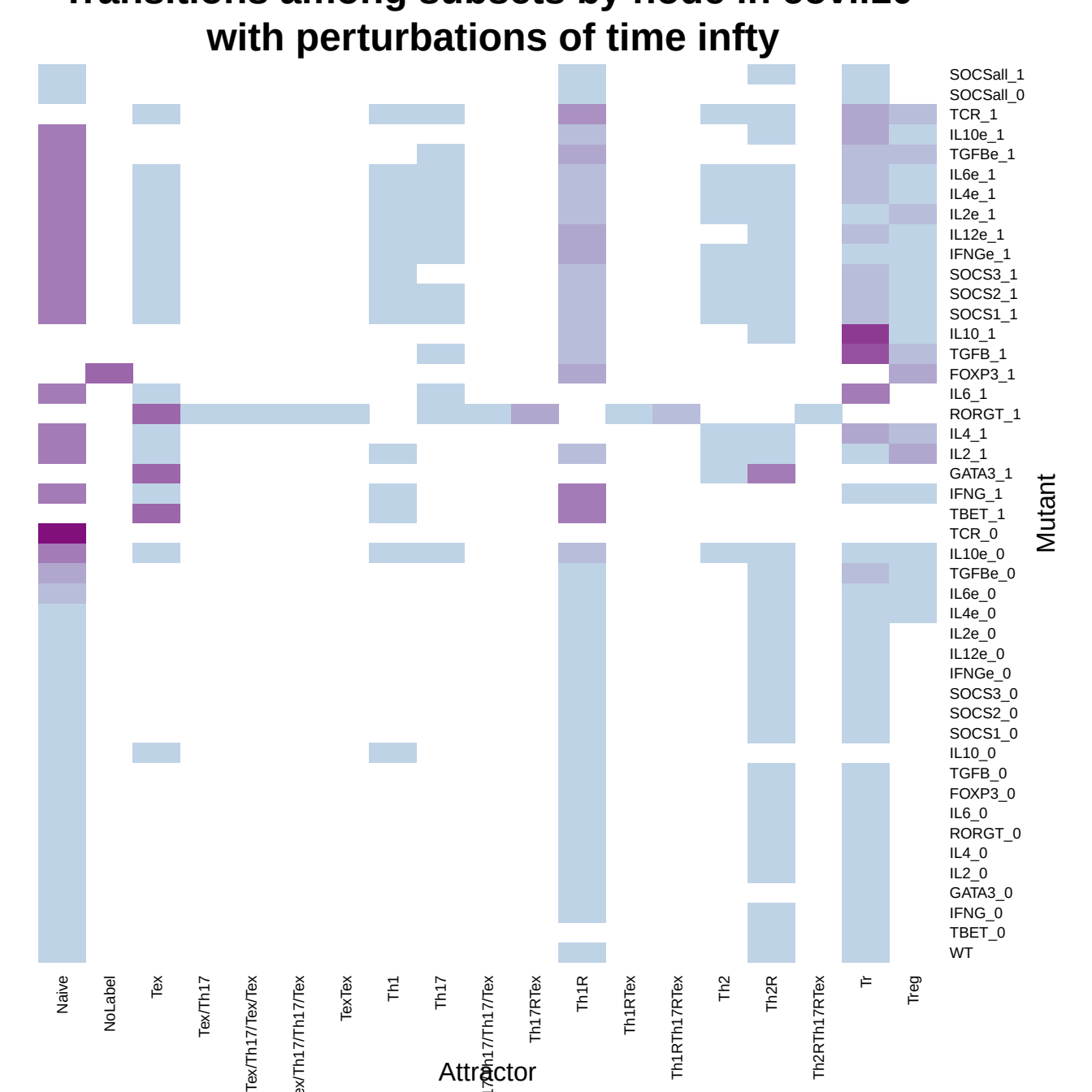

Tr
Th1R
Th17
Tr
Th1R
Th17
initial
final


Tr
Th2R
Th1R
Treg
Tr*
Tr
Th2R
Th1R
Th1
Tex
initial
final

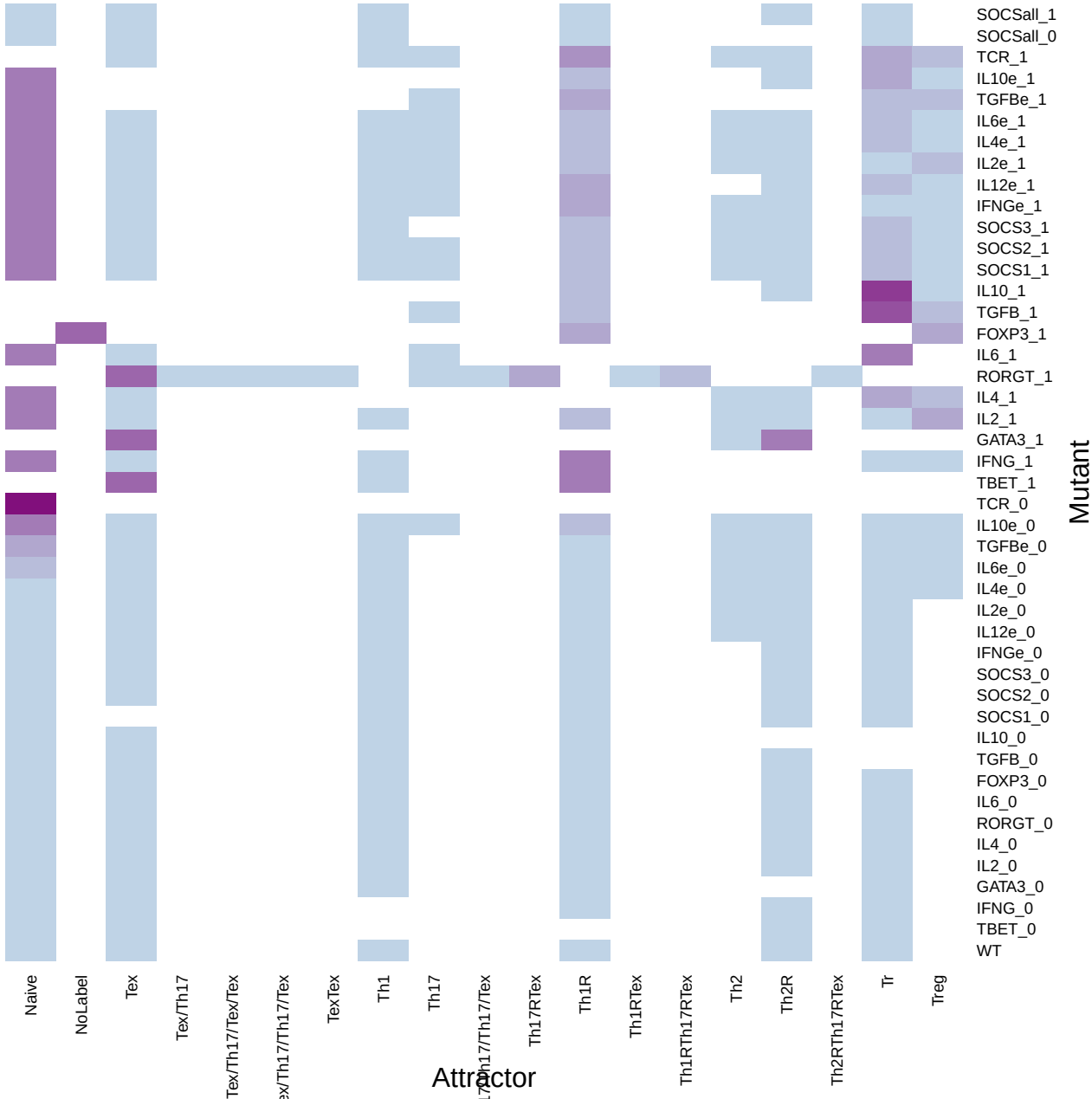

Tr
Th2R
Th1R
Th1
Tex
initial
Treg
Tr*
Tr
Th2R
Th2
Th1R
Th17
Th1
Tex
final

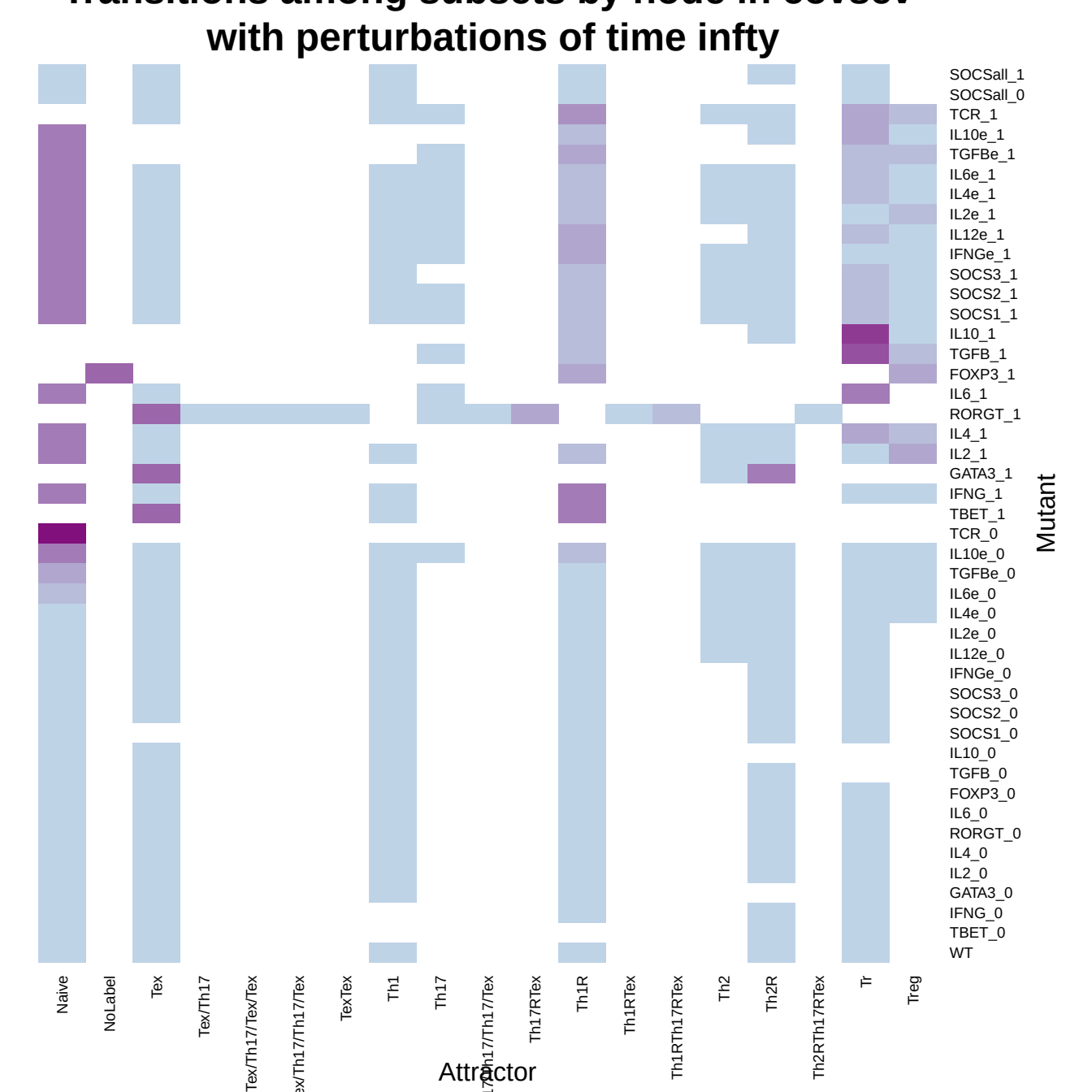

Tr
Th2R
Th1R
Th1
Tex
initial
Treg
Tr*
Tr
Th2R
Th2
Th1R
Th17
Th1
Tex
final


Tr
Th1R
Th17
initial
Treg
Tr*
Tr
Th2R
Th1R
Th17R
Th17
Th1
Tex
final

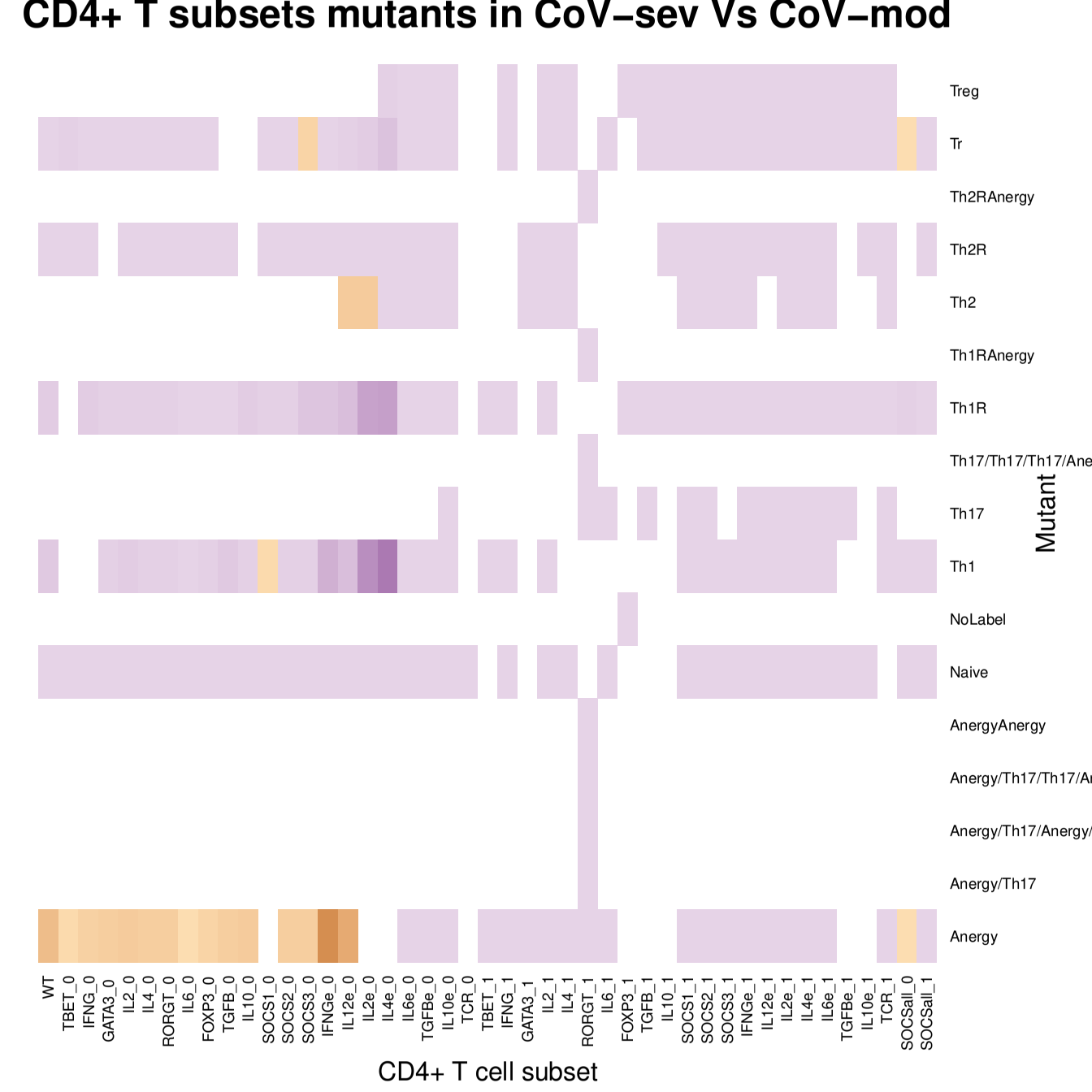

transitions among subsets by node in covid2
with perturbations of time infty
SOCSall_1
SOCSall_0
TCR_1
IL10e_1
TGFBe_1
IL6e_1
IL4e_1
IL2e_1
IL12e_1
IFNGe_1
SOCS3_1
SOCS2_1
SOCS1_1
IL10_1
TGFB_1
FOXP3_1
IL6_1
RORGT_1
IL4_1
IL2_1
GATA3_1
IFNG_1
TBET_1
TCR_0
IL10e_0
TGFBe_0
IL6e_0
IL4e_0
IL2e_0
IL12e_0
IFNGe_0
SOCS3_0
SOCS2_0
SOCS1_0
IL10_0
TGFB_0
FOXP3_0
IL6_0
RORGT_0
IL4_0
IL2_0
GATA3_0
IFNG_0
TBET_0
WT
Mutant
Naive
NoLabel
Tex
Tex/Th17
Tex/Th17/Tex/Tex
Tex/Th17/Th17/Tex
TexTex
Th1
Th17
Th17/Th17/Tex
Th17RTex
Th1R
Th1RTex
Th1RTh17RTex
Th2
Th2R
Th2RTh17RTex
Tr
Treg
Attractor

Transitions among subsets by node in cevmed with perturbations of time infty




transitions among subsets by node in sevsev
with perturbations of time infty
SOCSall_1
SOCSall_0
TCR_1
IL10e_1
TGFBe_1
IL6e_1
IL4e_1
IL2e_1
IL12e_1
IFNGe_1
SOCS3_1
SOCS2_1
SOCS1_1
IL10_1
TGFB_1
FOXP3_1
IL6_1
RORGT_1
IL4_1
IL2_1
GATA3_1
IFNG_1
TBET_1
TCR_0
IL10e_0
TGFBe_0
IL6e_0
IL4e_0
IL2e_0
IL12e_0
IFNGe_0
SOCS3_0
SOCS2_0
SOCS1_0
IL10_0
TGFB_0
FOXP3_0
IL6_0
RORGT_0
IL4_0
IL2_0
GATA3_0
IFNG_0
TBET_0
WT
Mutant
Naive
NoLabel
Tex
Tex/Th17
Tex/Th17/Tex/Tex
Tex/Th17/Th17/Tex
TexTex
Th1
Th17
Th17/Th17/Tex
Th17RTex
Th1R
Th1RTex
Th1RTh17RTex
Th2
Th2R
Th2RTh17RTex
Tr
Treg
Attractor

Transitions among subsets by node in covtgfb with perturbations of time infty


CD4+ T subsets mutants in CoV−sev Vs CoV−mod
Treg
Tr
Th2RAnergy
Th2R
Th2
Th1RAnergy
Th1R
Th17/Th17/Th17/Ane
Th17
Th1
NoLabel
Naive
AnergyAnergy
Anergy/Th17/Th17/A
Anergy/Th17/Anergy/
Anergy/Th17
Anergy
Mutant
WT
TBET_0
IFNG_0
GATA3_0
IL2_0
IL4_0
RORGT_0
IL6_0
FOXP3_0
TGFB_0
IL10_0
SOCS1_0
SOCS2_0
SOCS3_0
IFNGe_0
IL12e_0
IL2e_0
IL4e_0
IL6e_0
TGFBe_0
IL10e_0
TCR_0
TBET_1
IFNG_1
GATA3_1
IL2_1
IL4_1
RORGT_1
IL6_1
FOXP3_1
TGFB_1
IL10_1
SOCS1_1
SOCS2_1
SOCS3_1
IFNGe_1
IL12e_1
IL2e_1
IL4e_1
IL6e_1
TGFBe_1
IL10e_1
TCR_1
SOCSall_0
SOCSall_1
CD4+ T cell subset