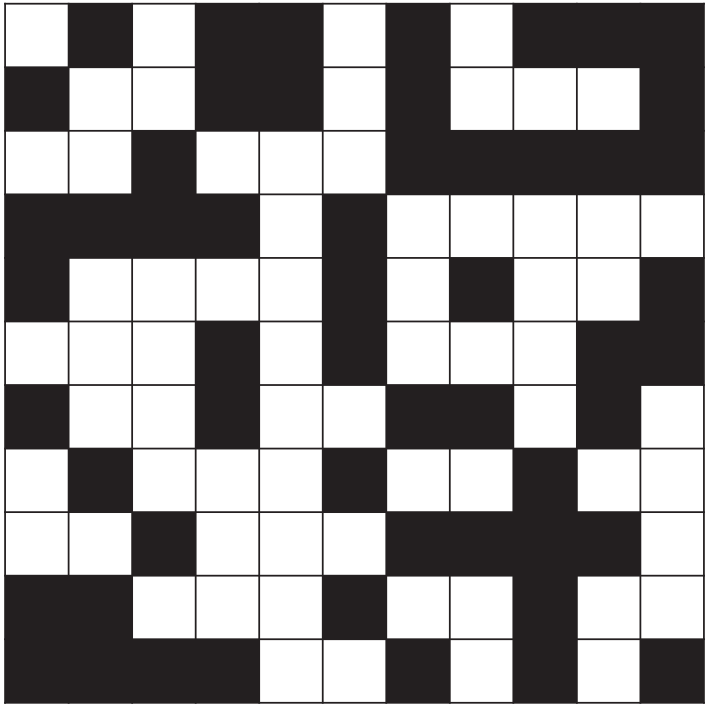
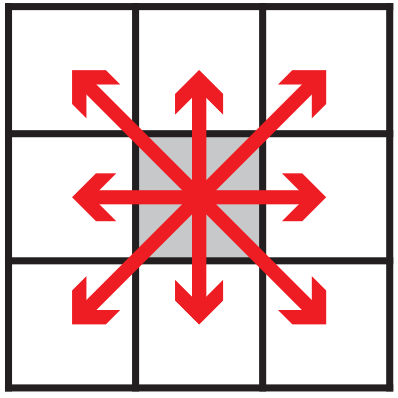
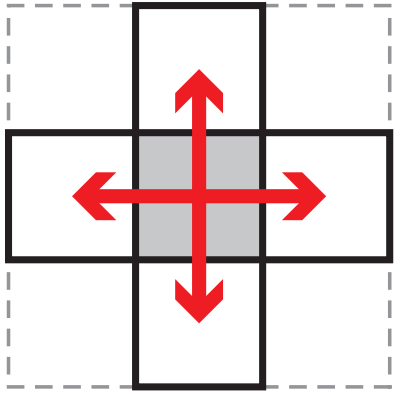




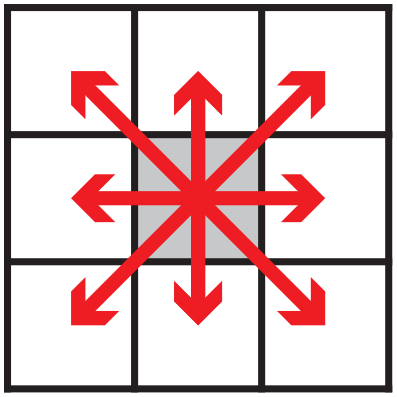
Moore Neighborhood

Each cell “knows” eight neighbors

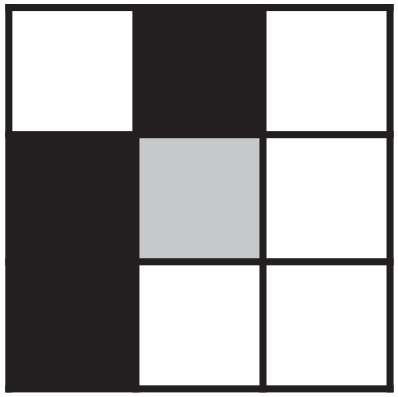


Von Neumann Neighborhood

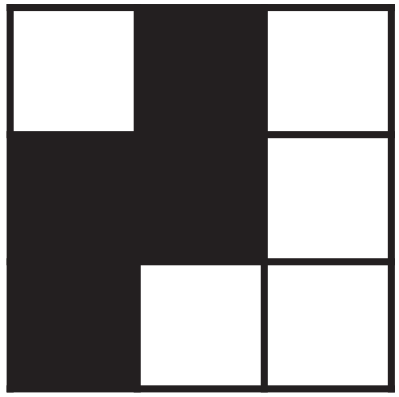
Each cell “knows” four neighbors



Count the black cells in the eight-cell neighborhood

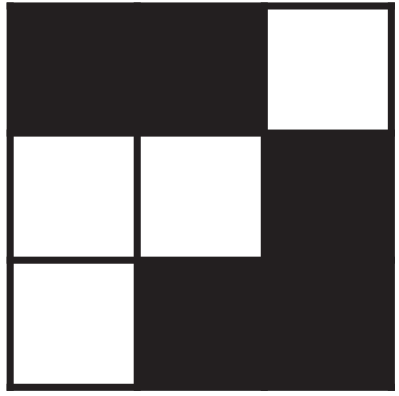


If count is 3, then



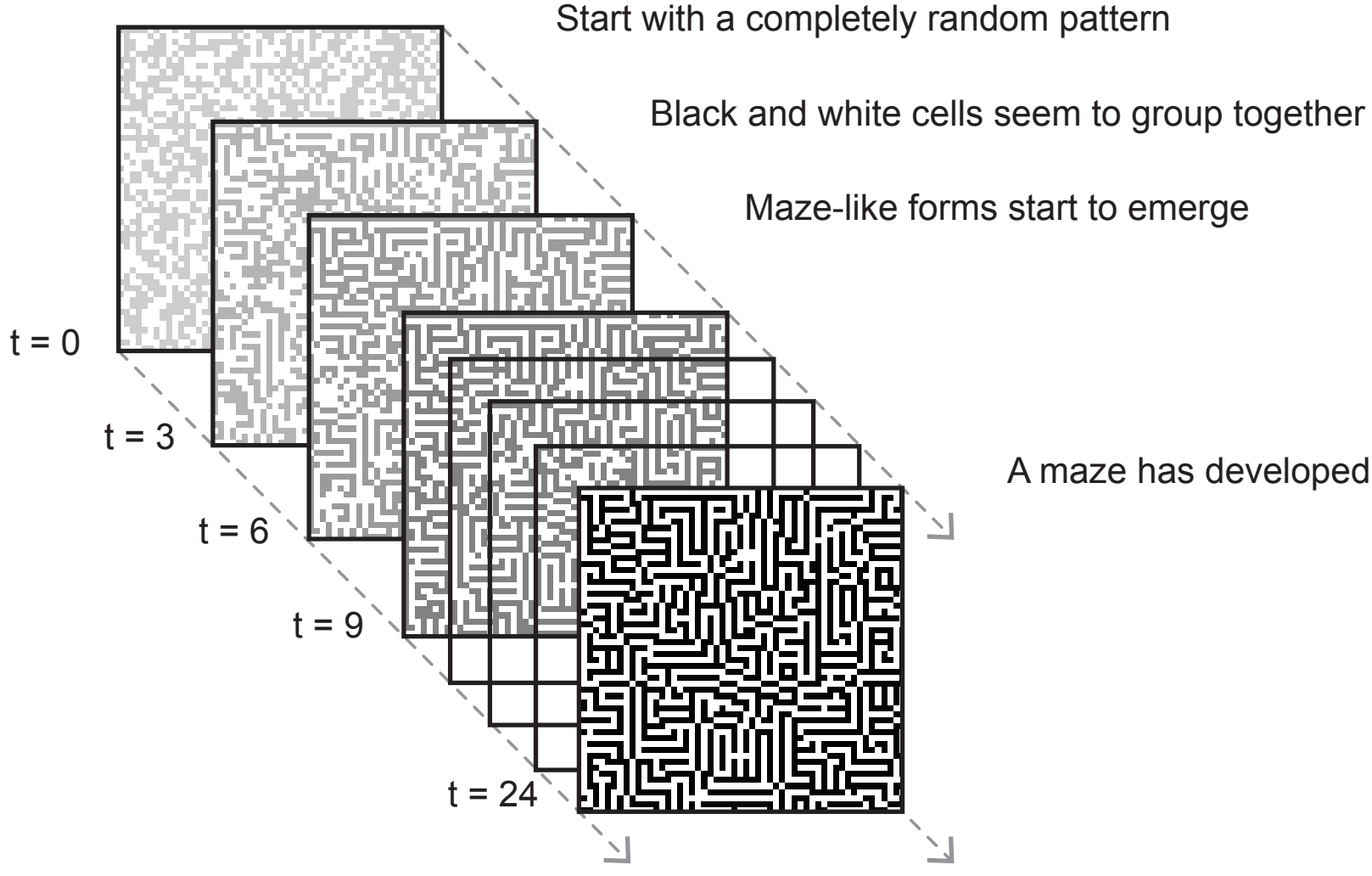
paint it black

If count > 4, then



paint it white

Otherwise, keep cell the same as it was

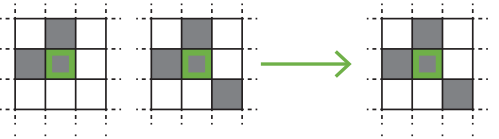

Start with a completely random pattern
Black and white cells seem to group together
Maze-like forms start to emerge
A maze has developed
t = 0
t = 3
t = 6
t = 9
t = 24

rule 01: isolation
if a cell has 1 or 0
neighbors ...

...it will die

rule 02: survival
if a cell has exactly 3
neighbors ...

...it will survive



rule 03: overcrowding
if a cell has 4 or more
neighbors ...

...it will die

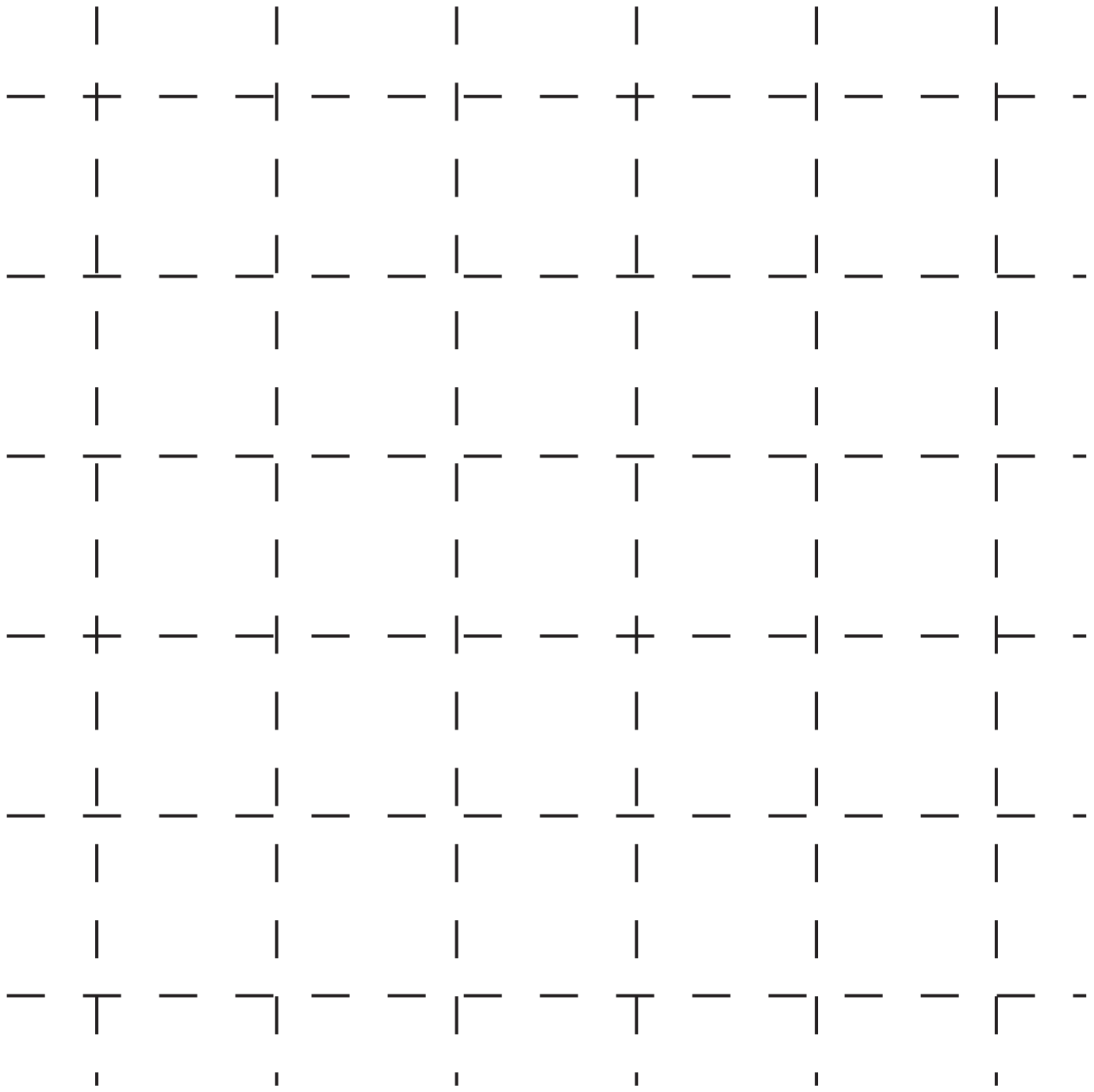
rule 04: birth
if an empty cell has
2 or 3 neighbors ...

...it will give birth

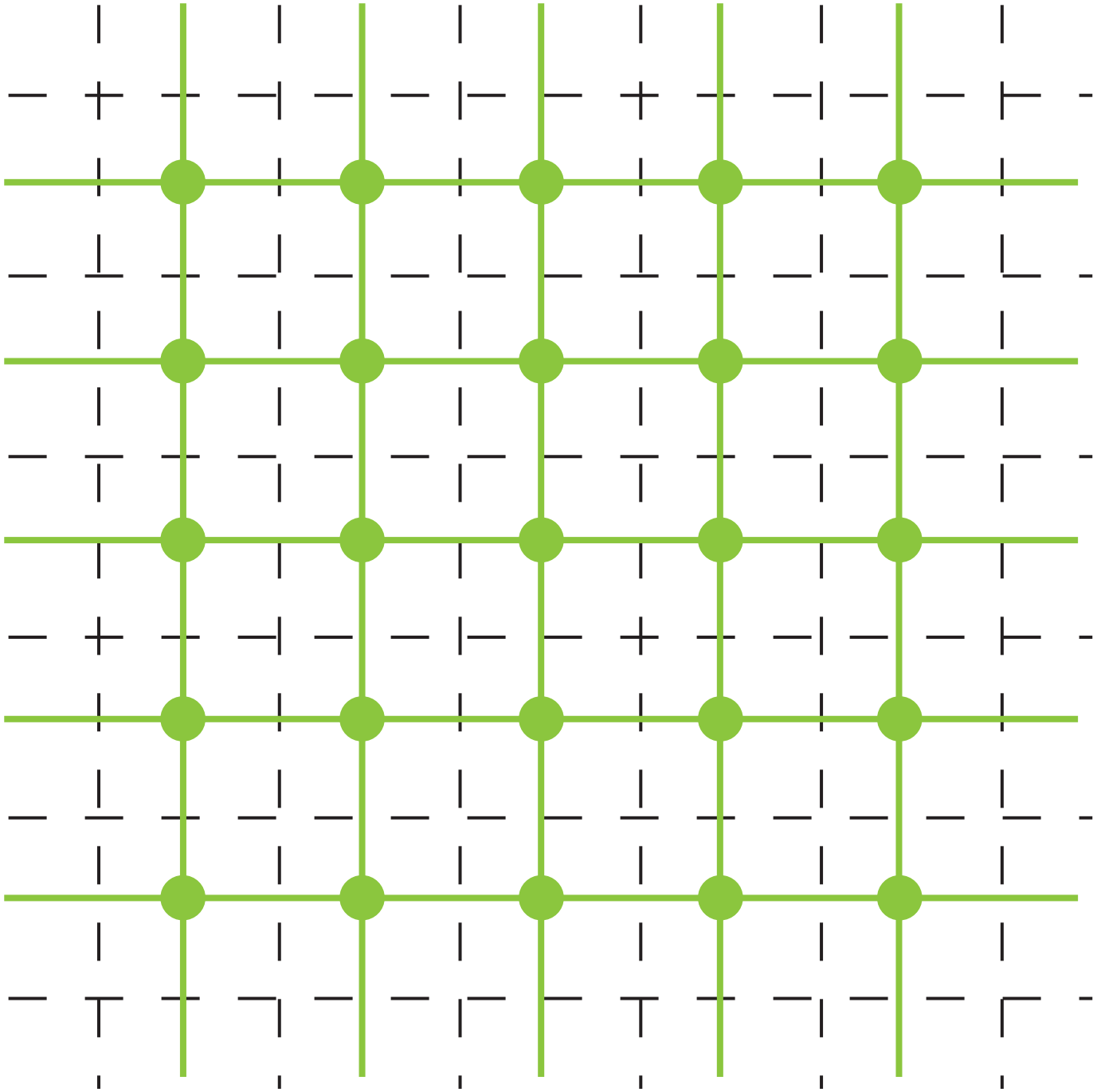
time = 0

time + 1

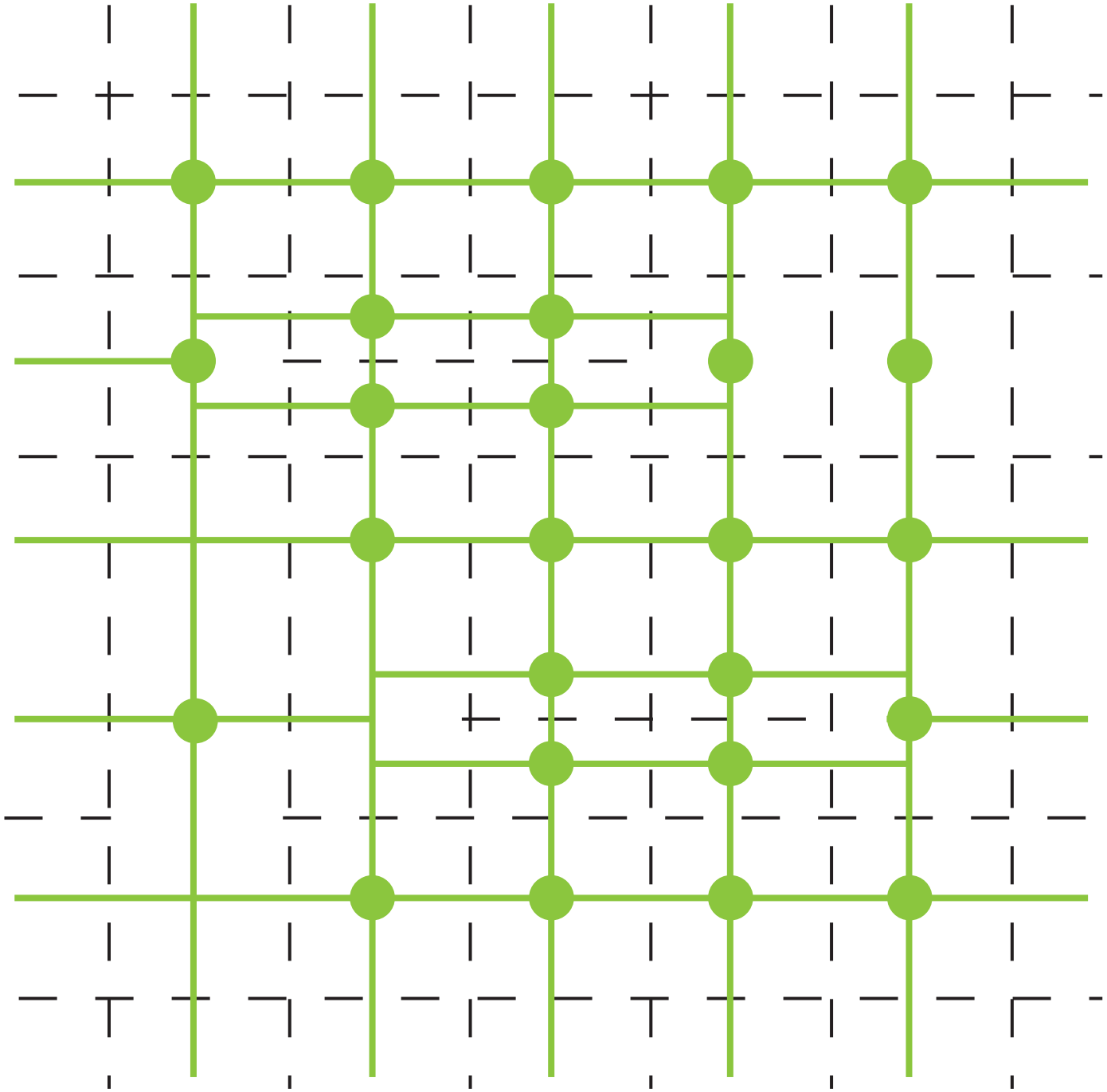
subject to change

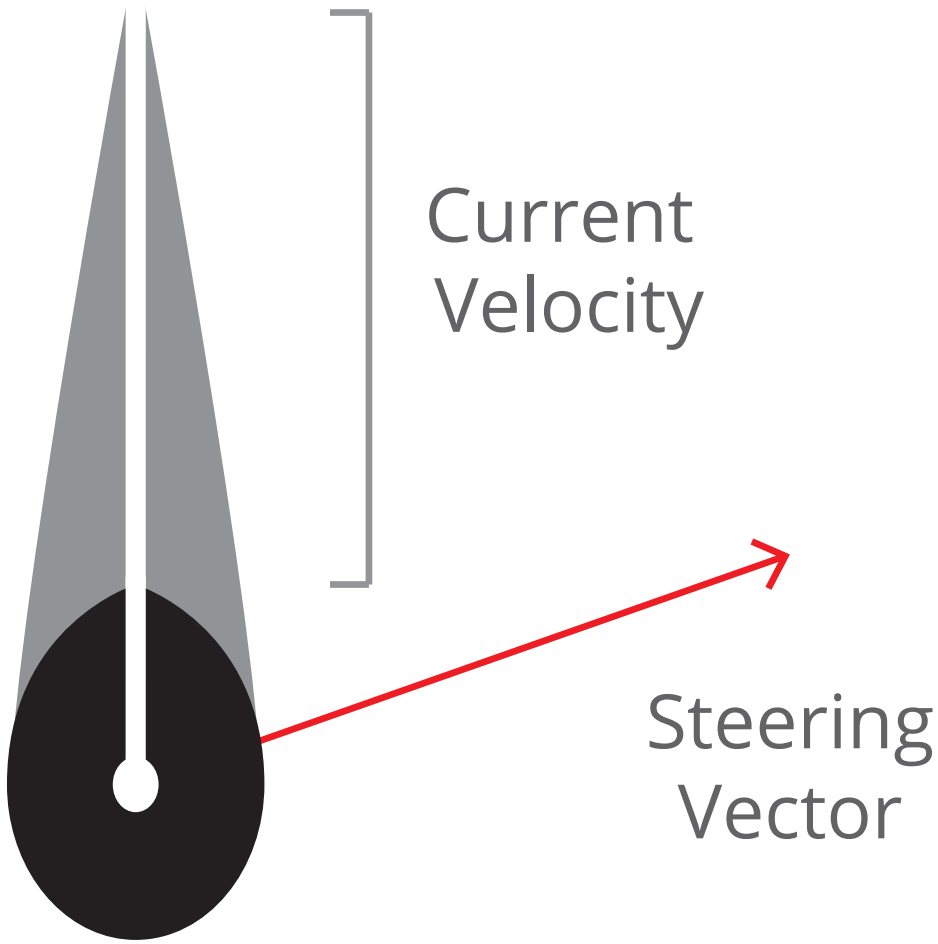


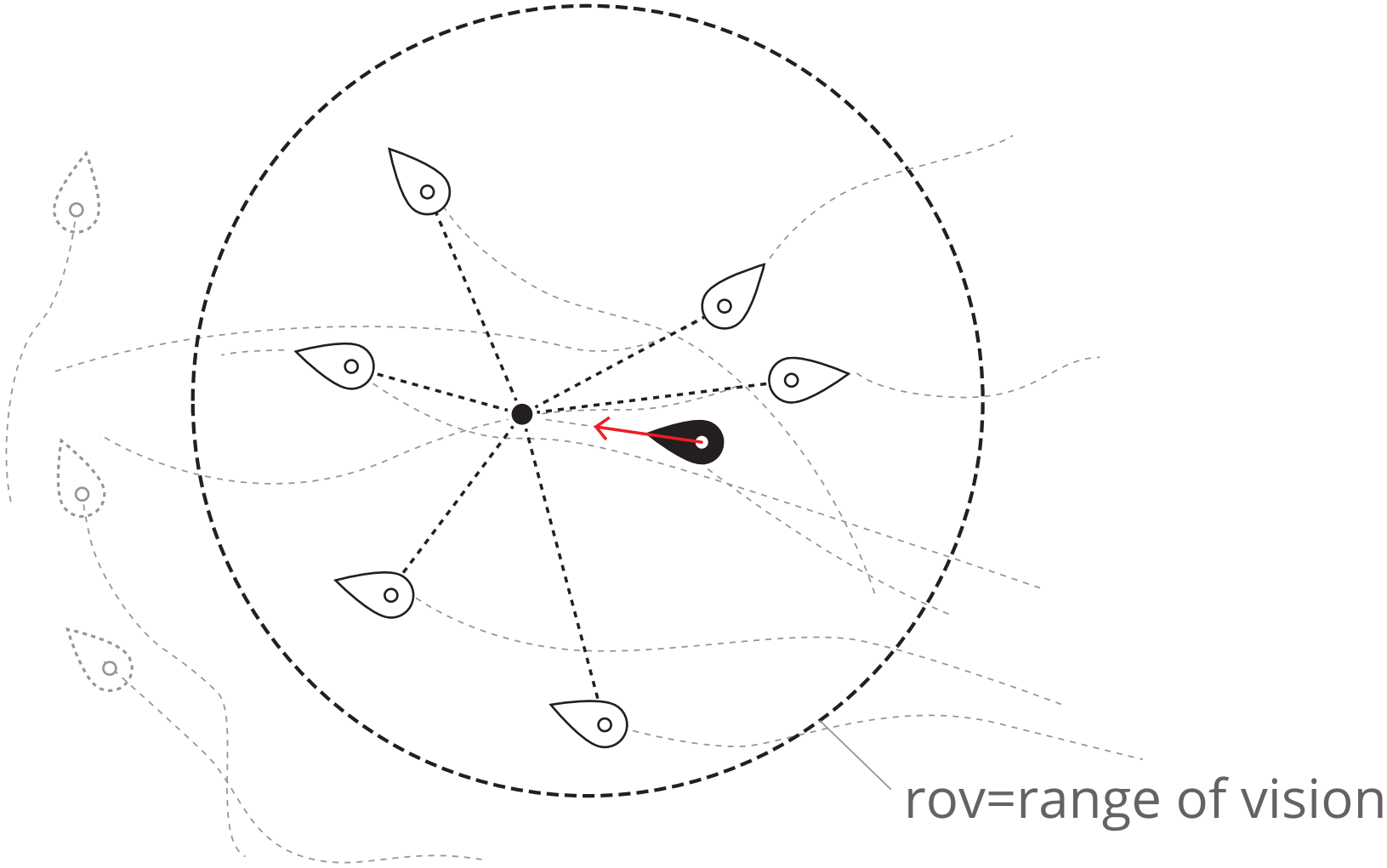
subject to change

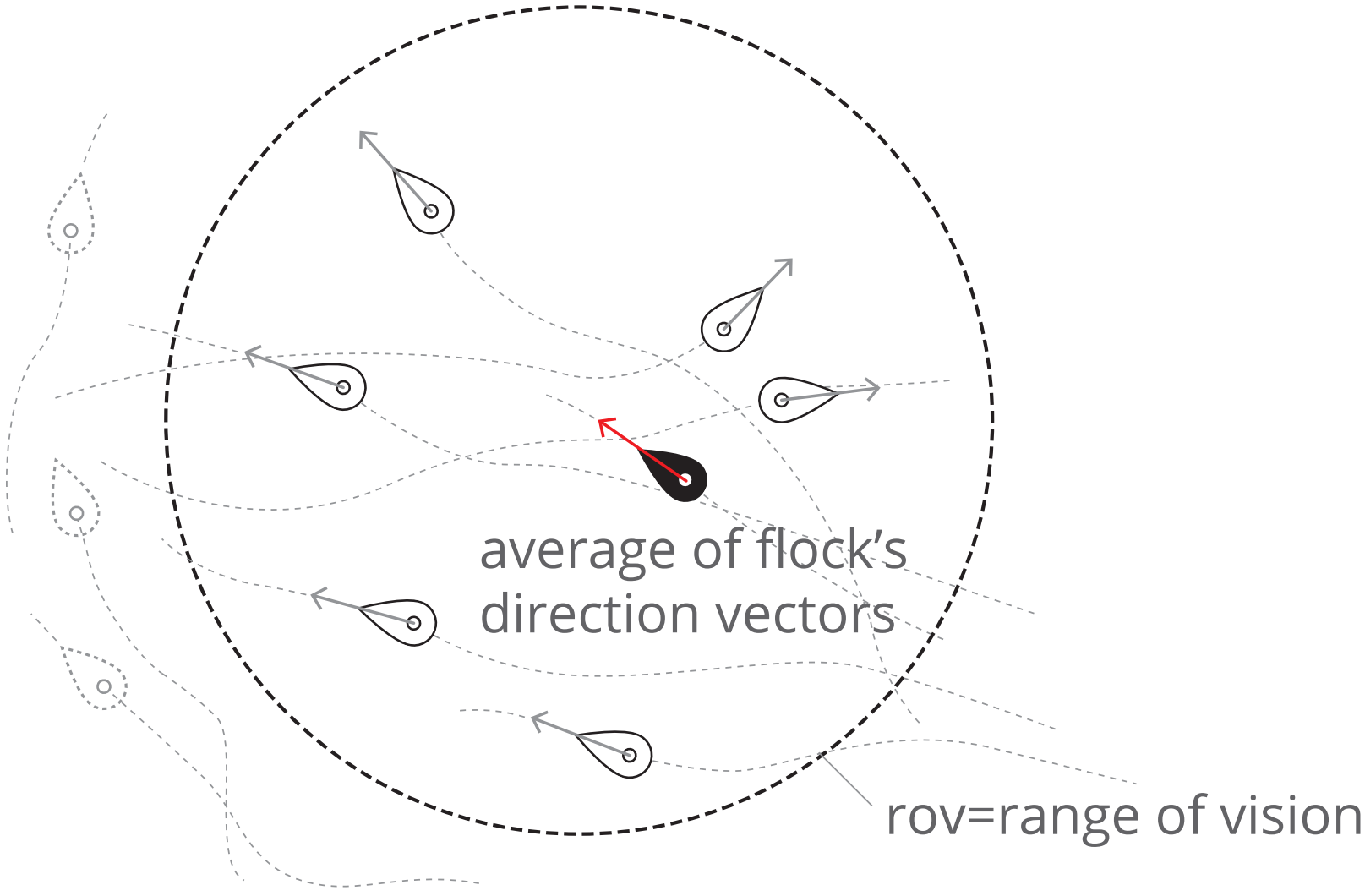


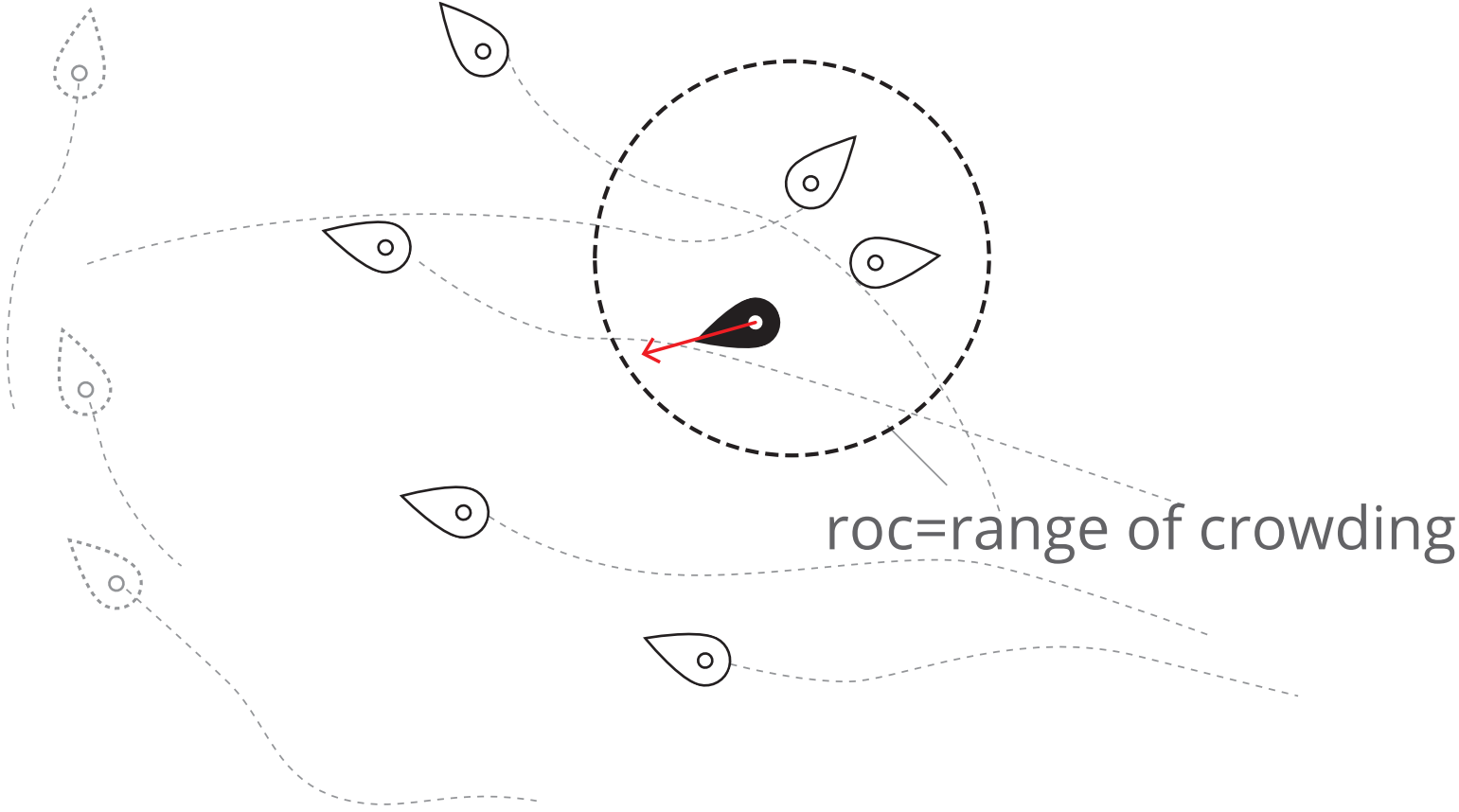
subject to change




Current
Velocity
Steering
Vector


rov=range of vision


average of flock's
direction vectors
rov=range of vision


roc=range of crowding