



trees and networks

Networks

Definition

nodes, edges

Definition

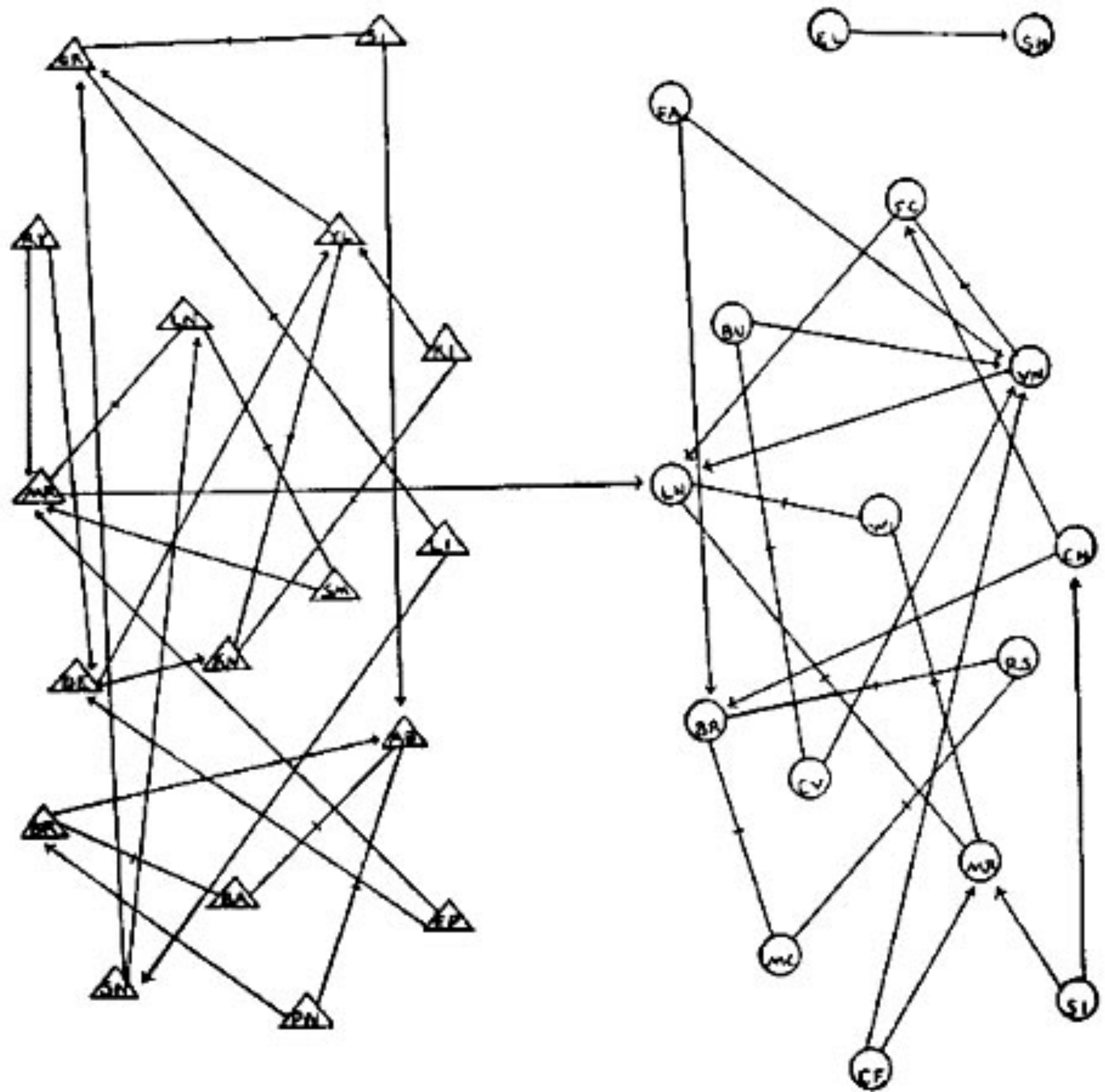
Representation

adjacency list (a, b) (a, c) (c, d)

adjacency matrix

Representation

Applications



Jacob Moreno

1933 NY Times

School network

*Build
your own!*

alice, bob

alice, chris

bob, dale

alice, chris

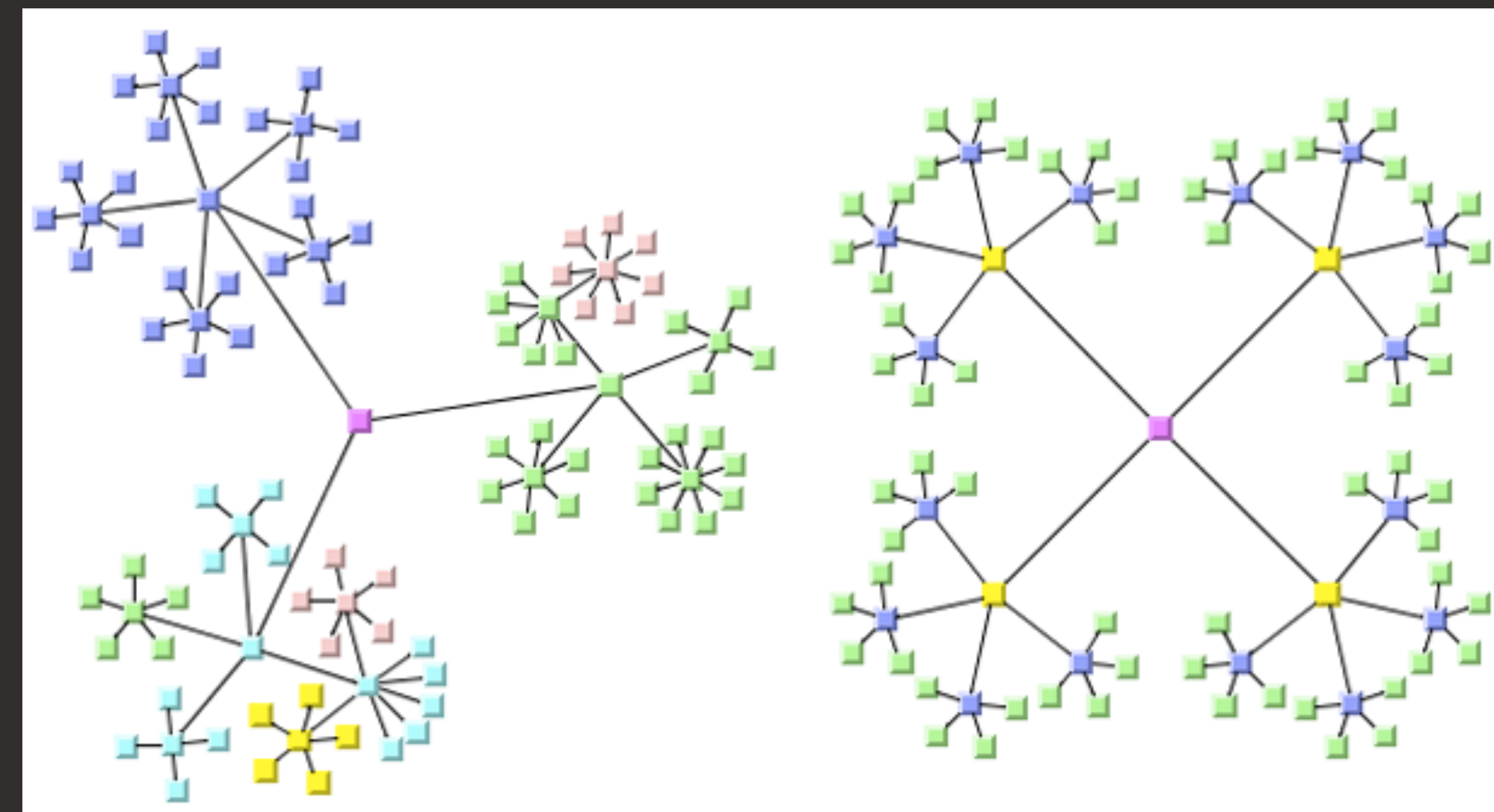
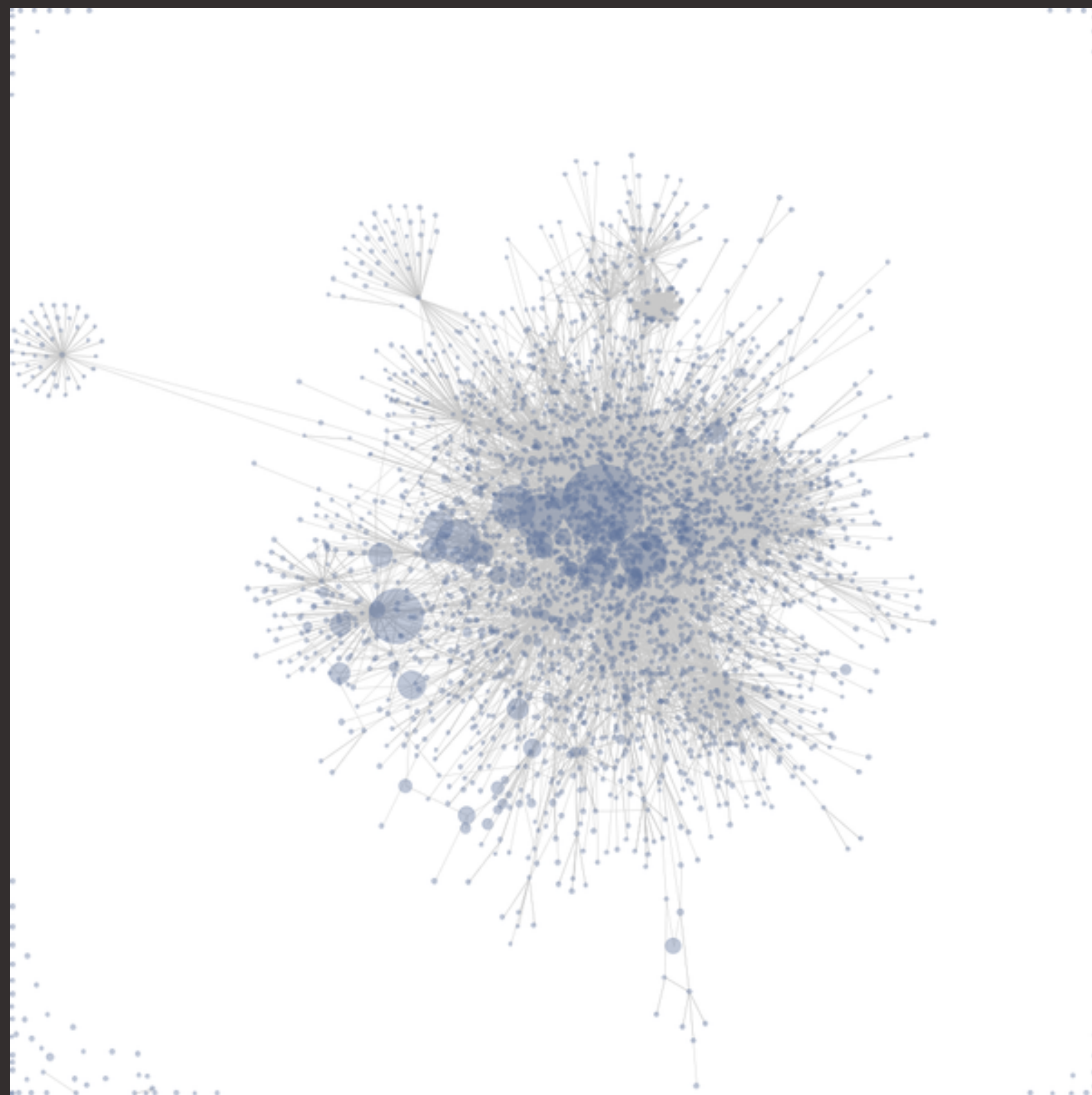
chris, dale

bob, dale

dale, fred

fred, erin

Techniques



Node-link

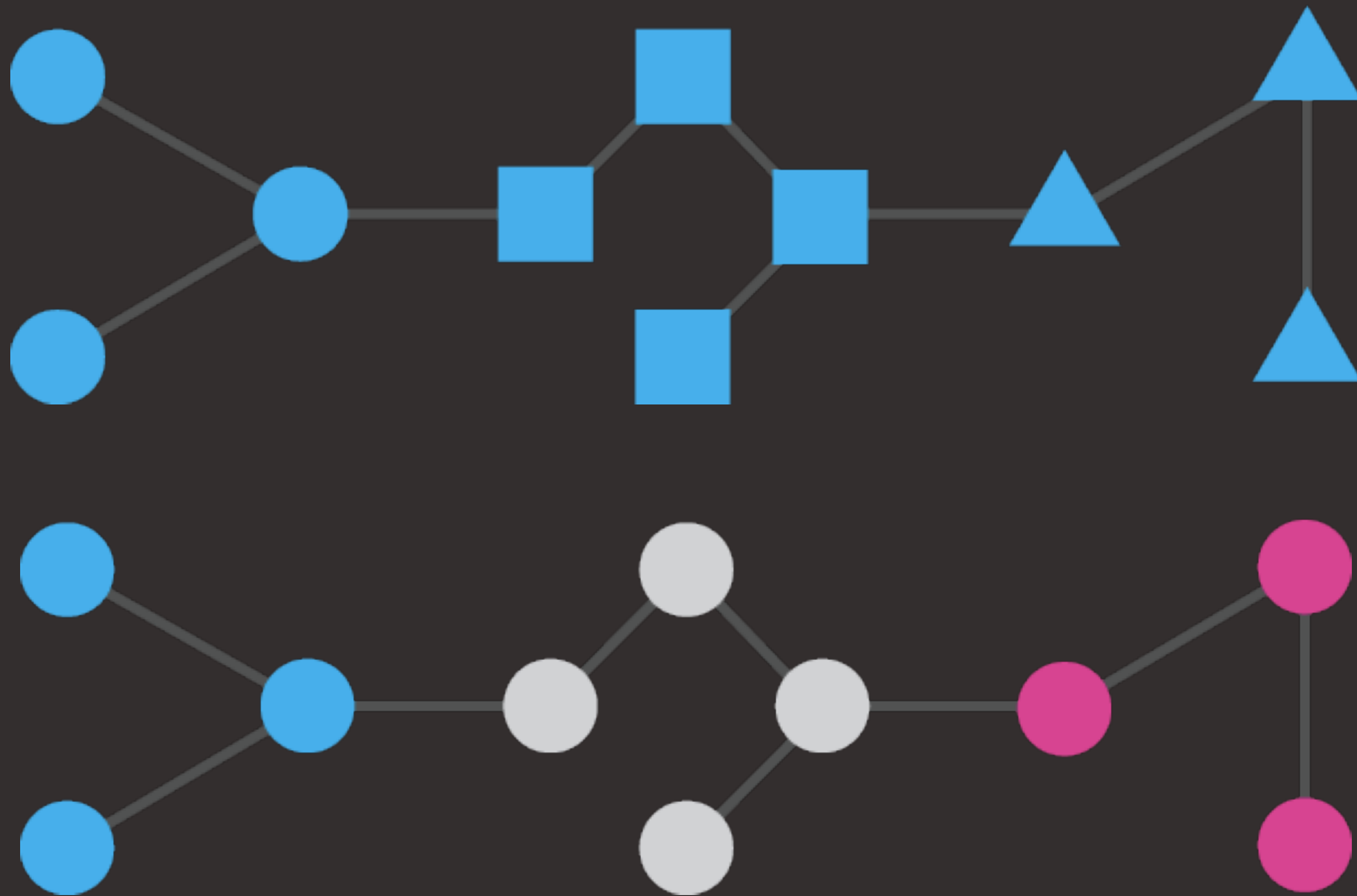
Layouts

Force-directed

Radial

Design options

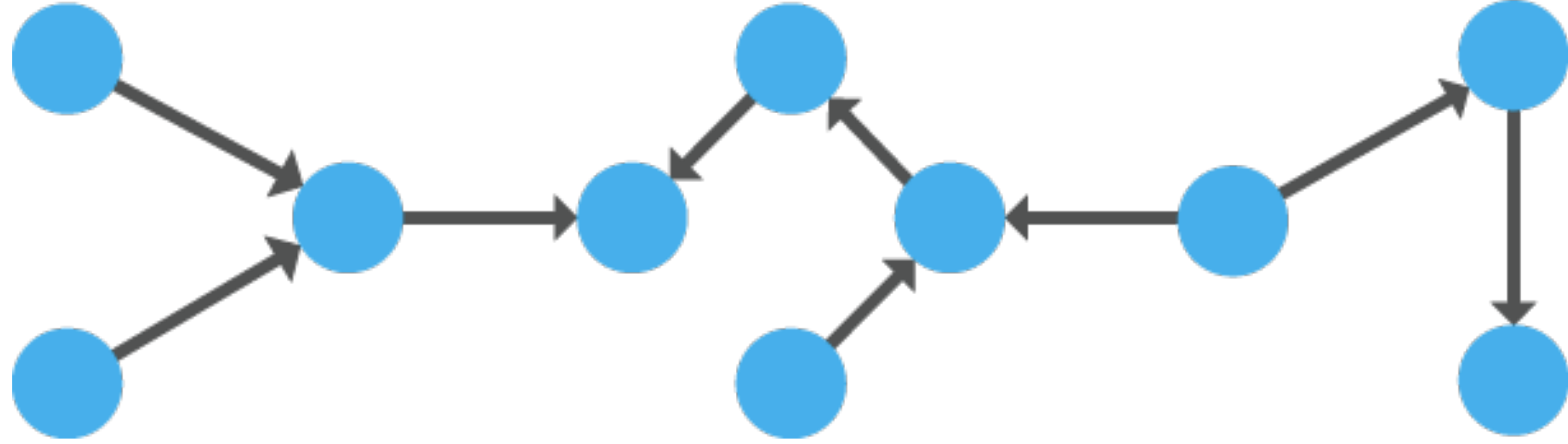
Nodes



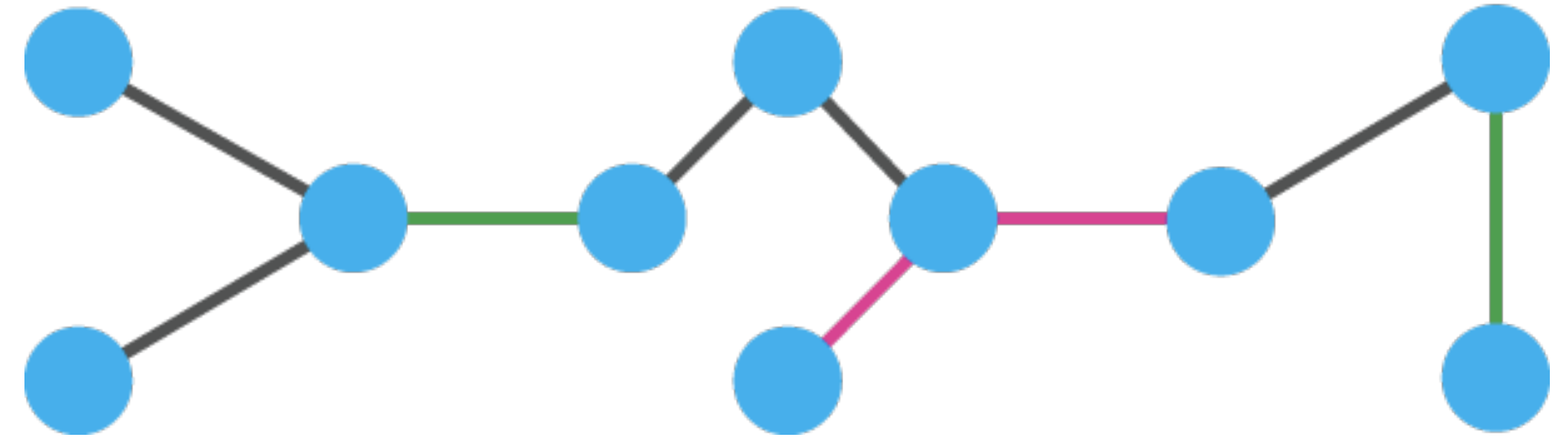
shape vs. color

Edges

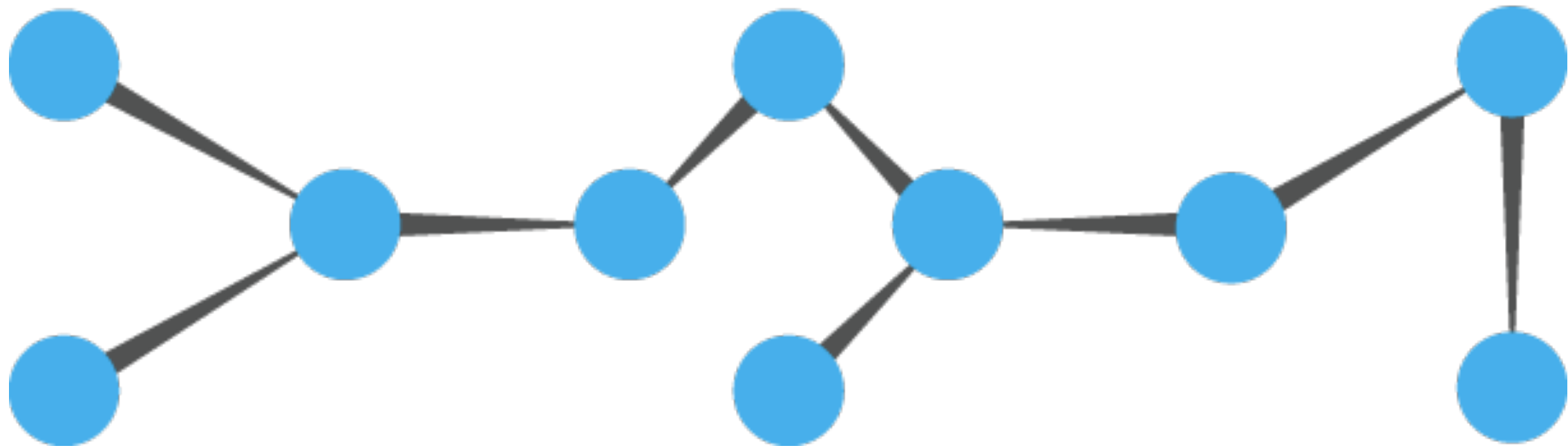
Edge Direction



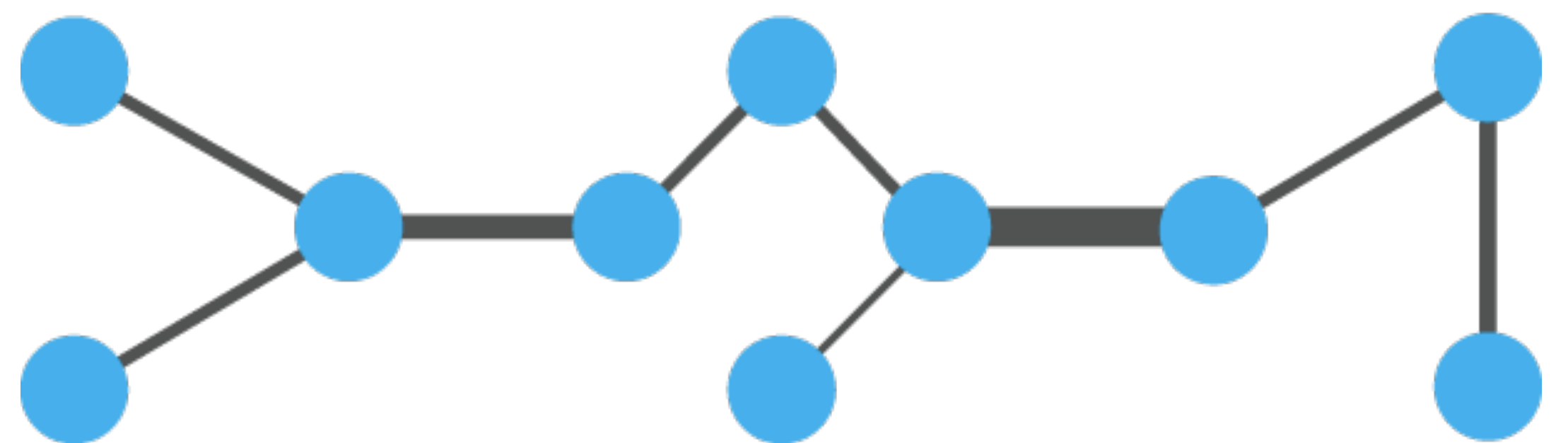
Edge Color



Edge Tapering

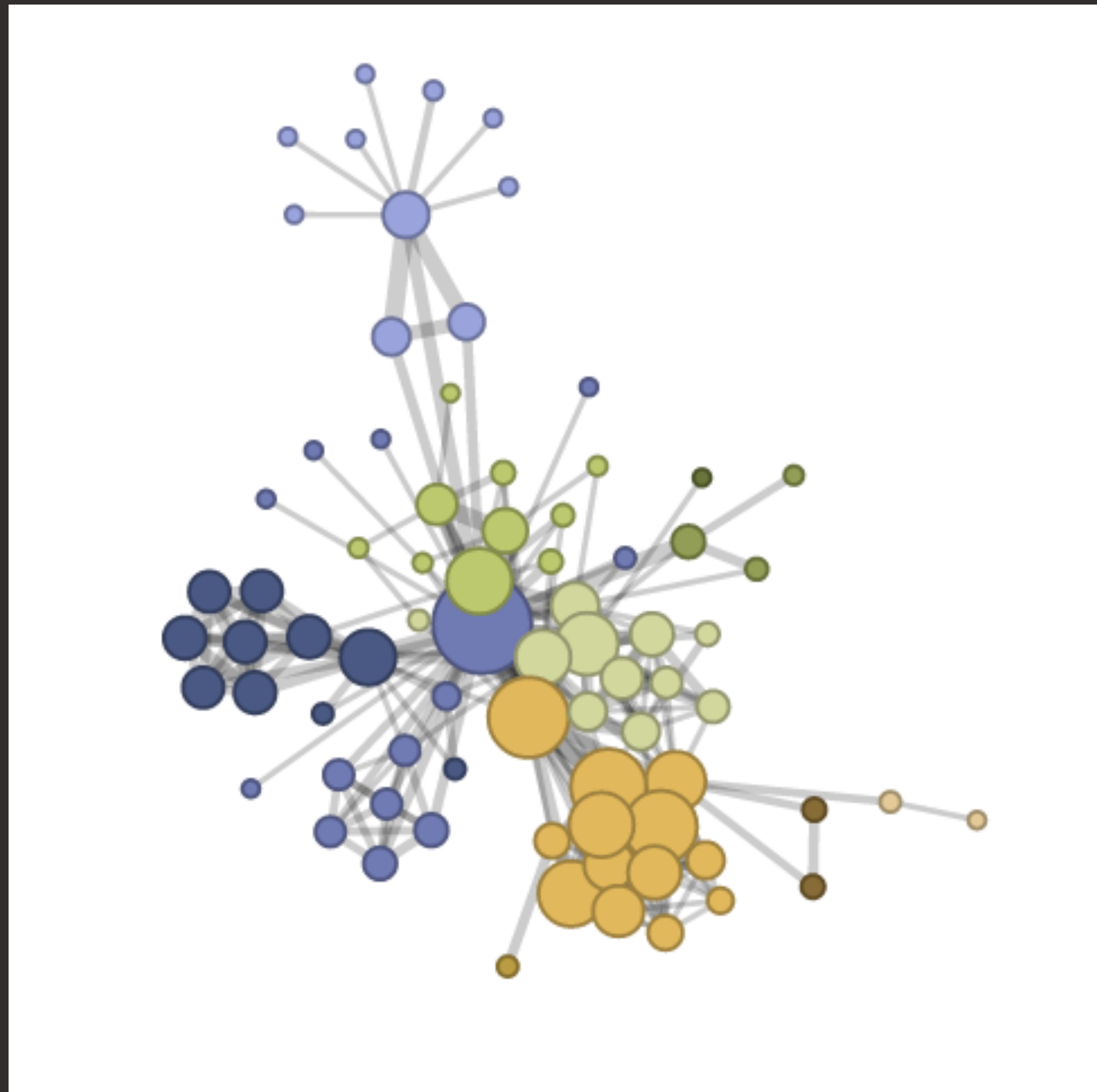


Edge Size

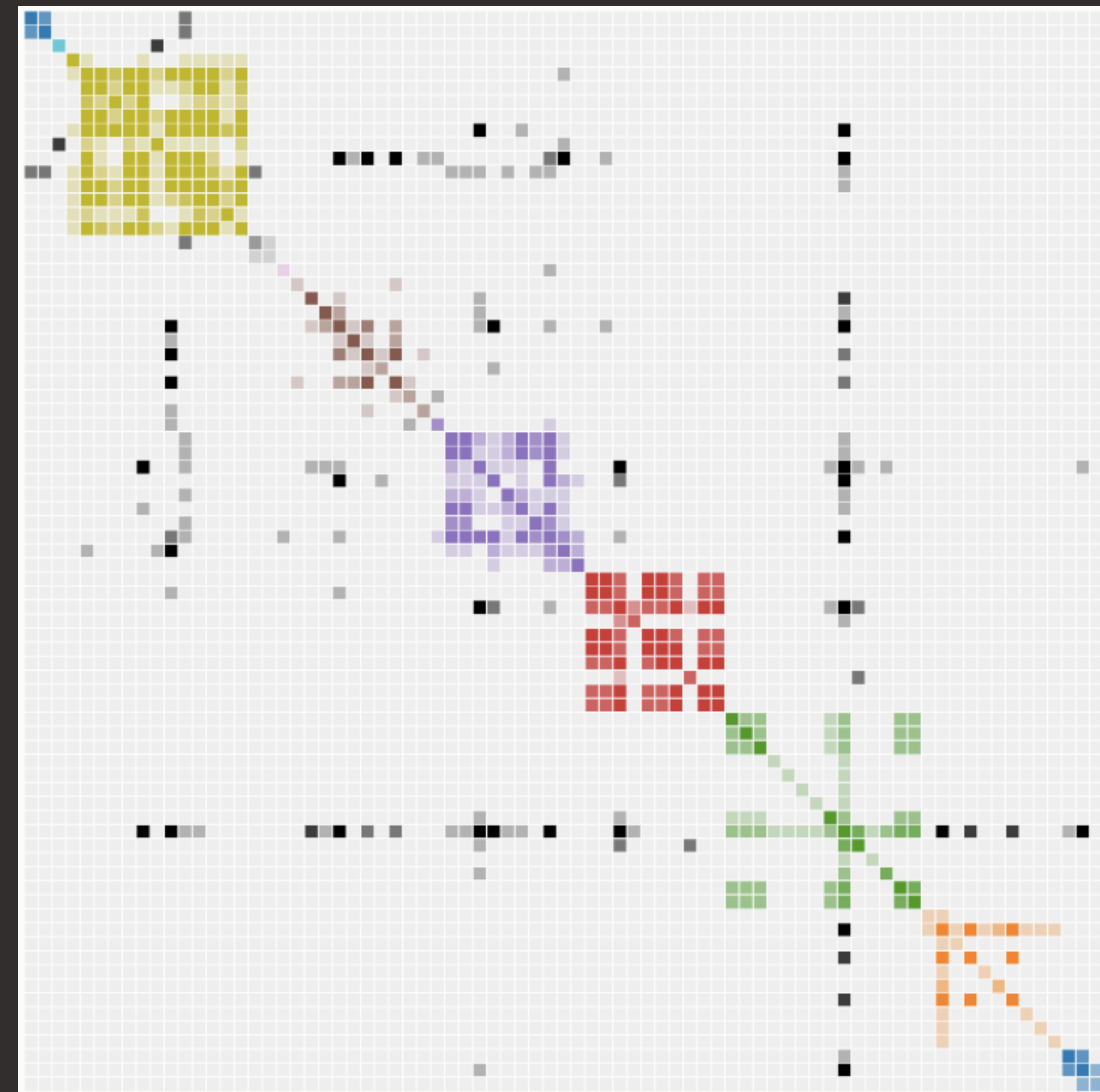
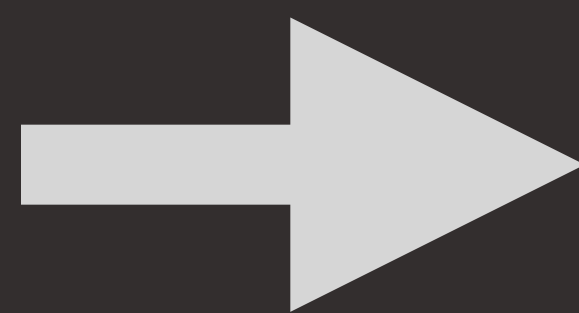
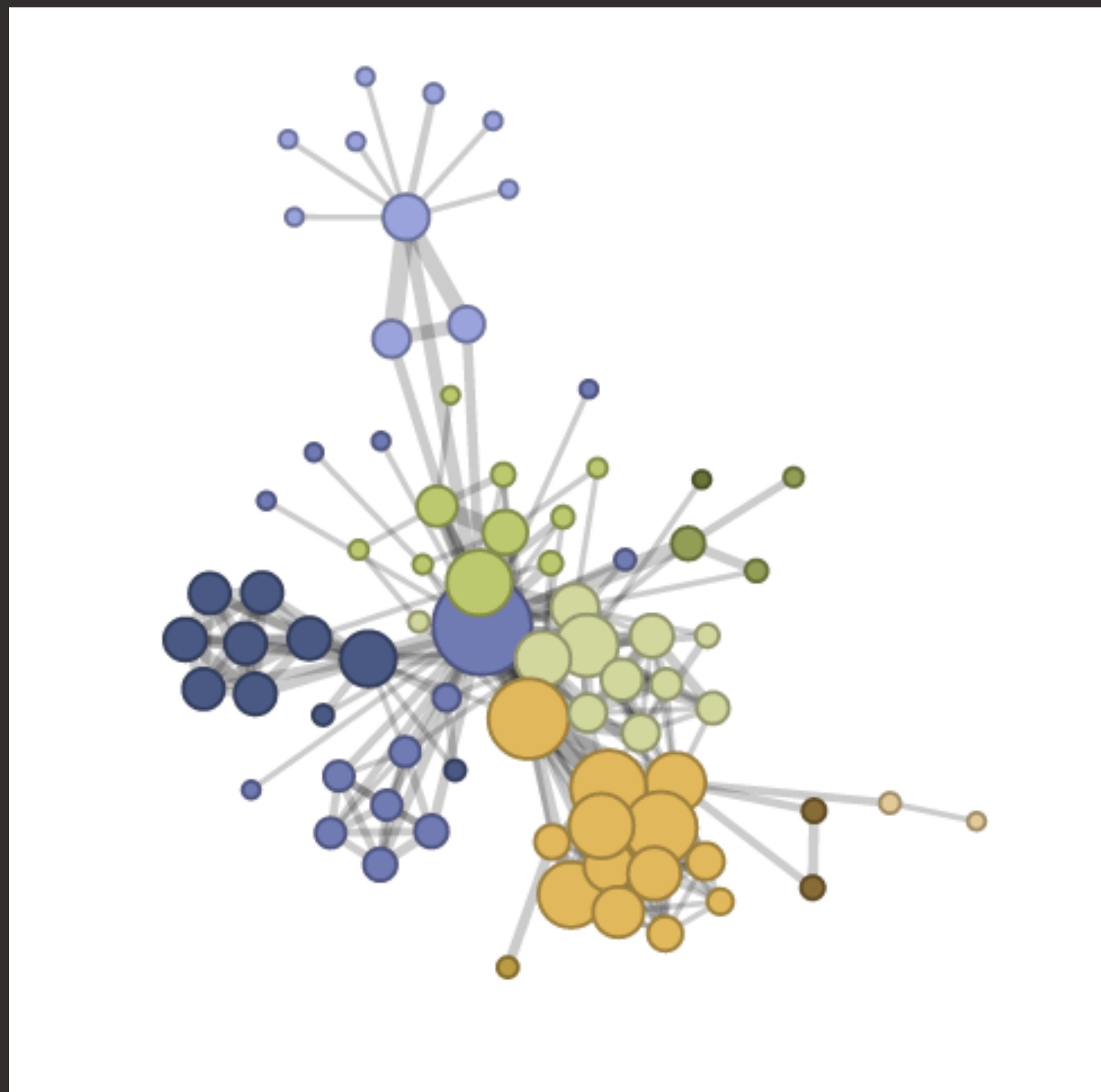


direction

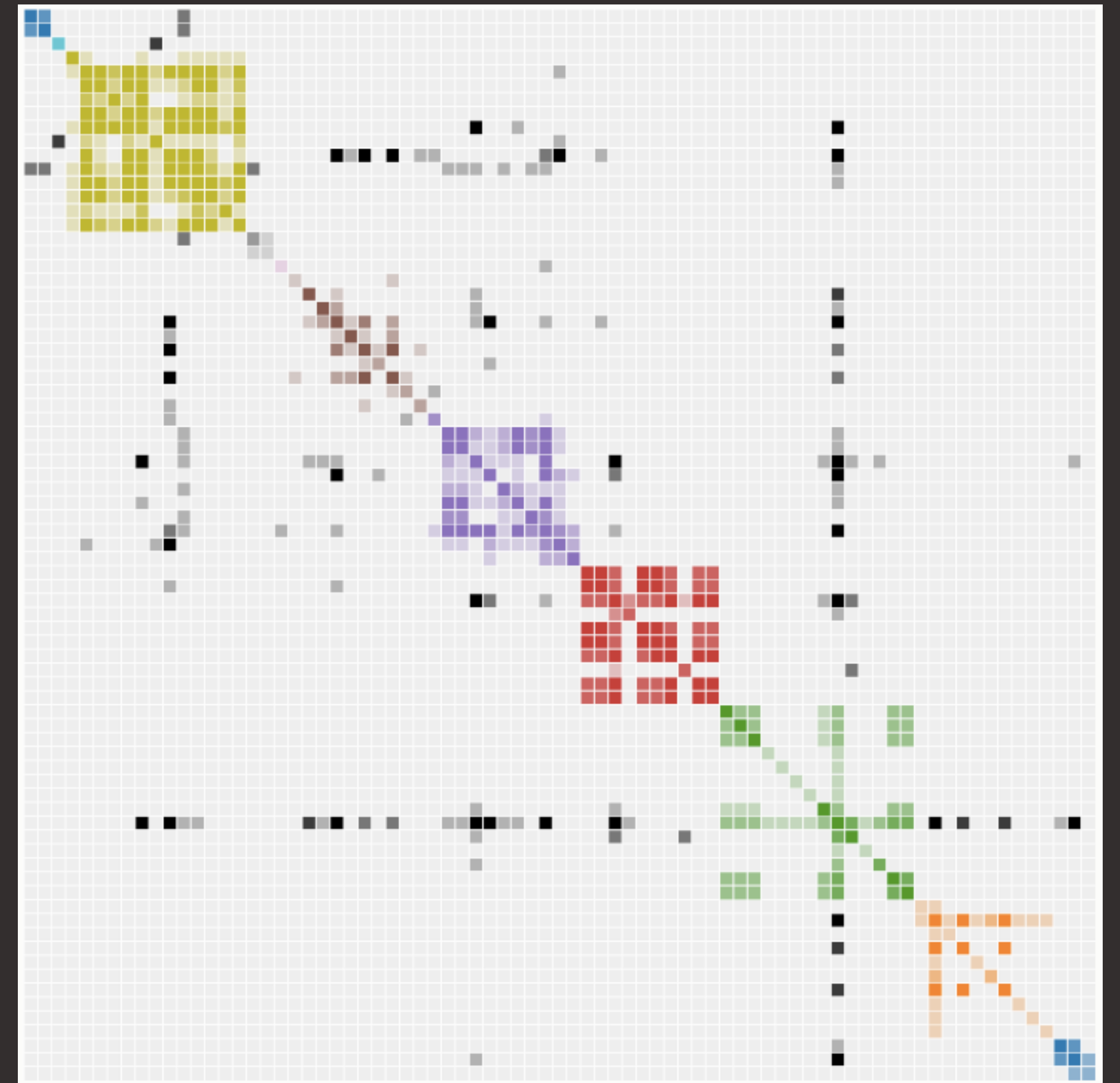
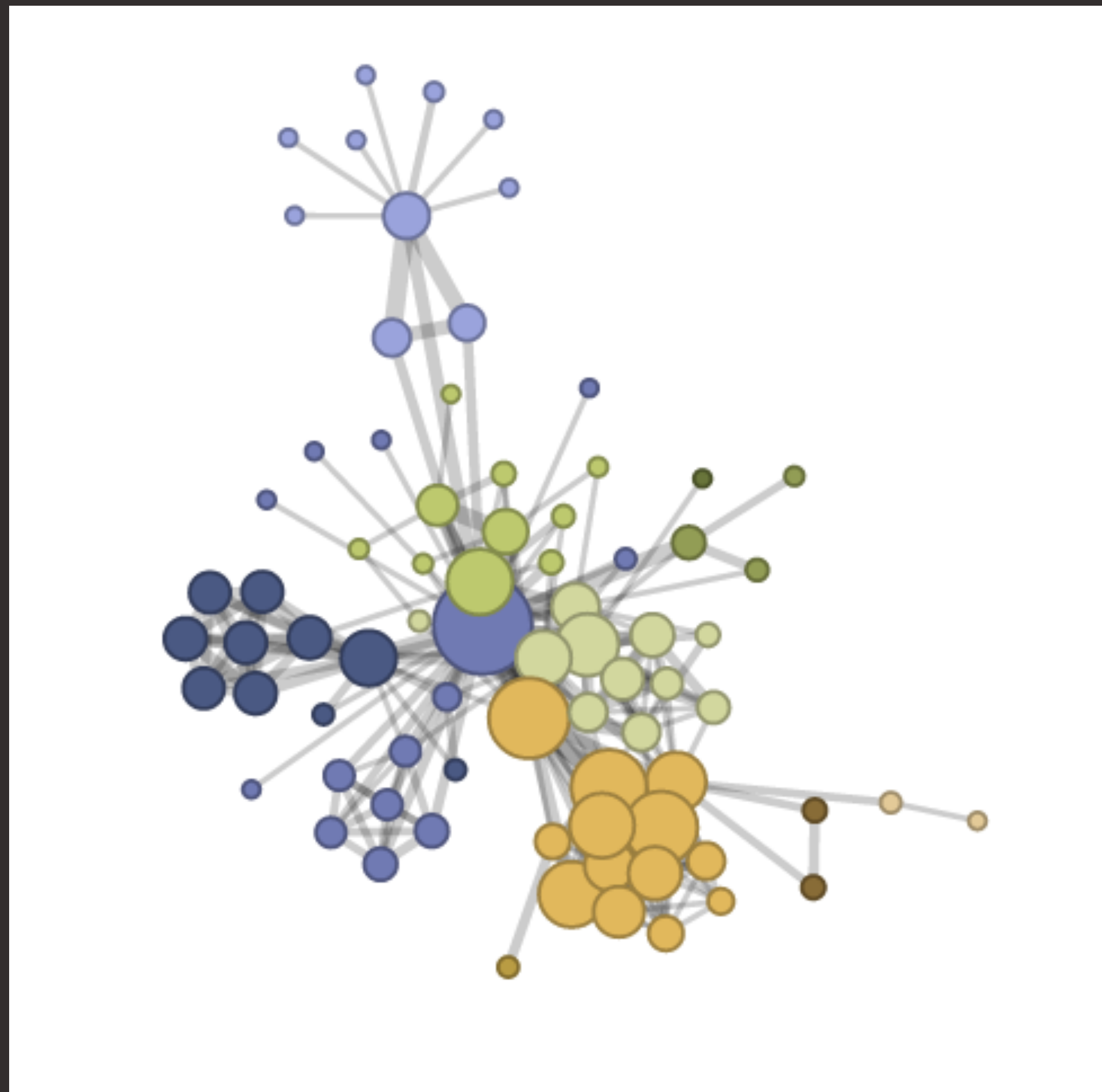
value



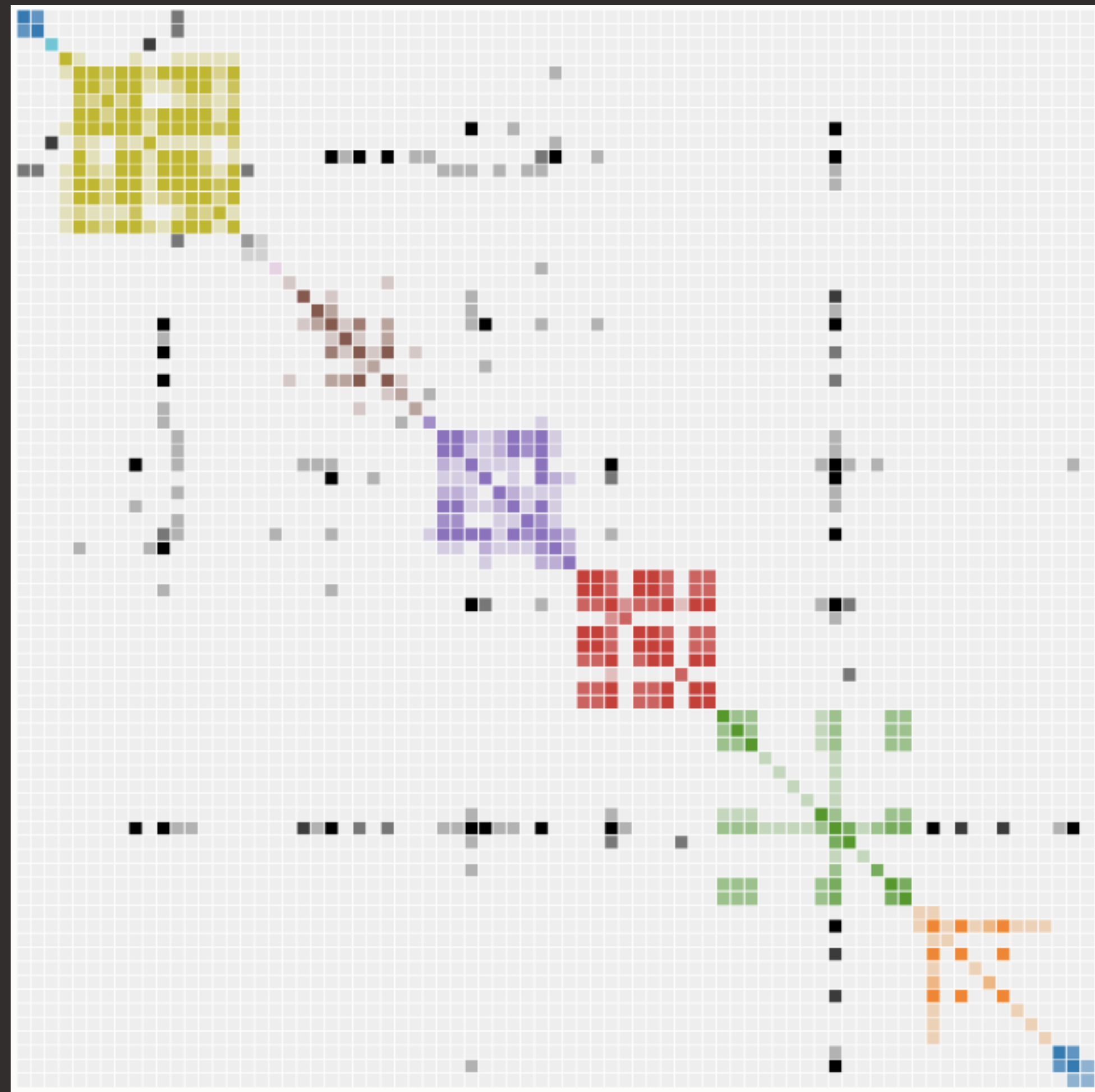
Limitations?



Matrices

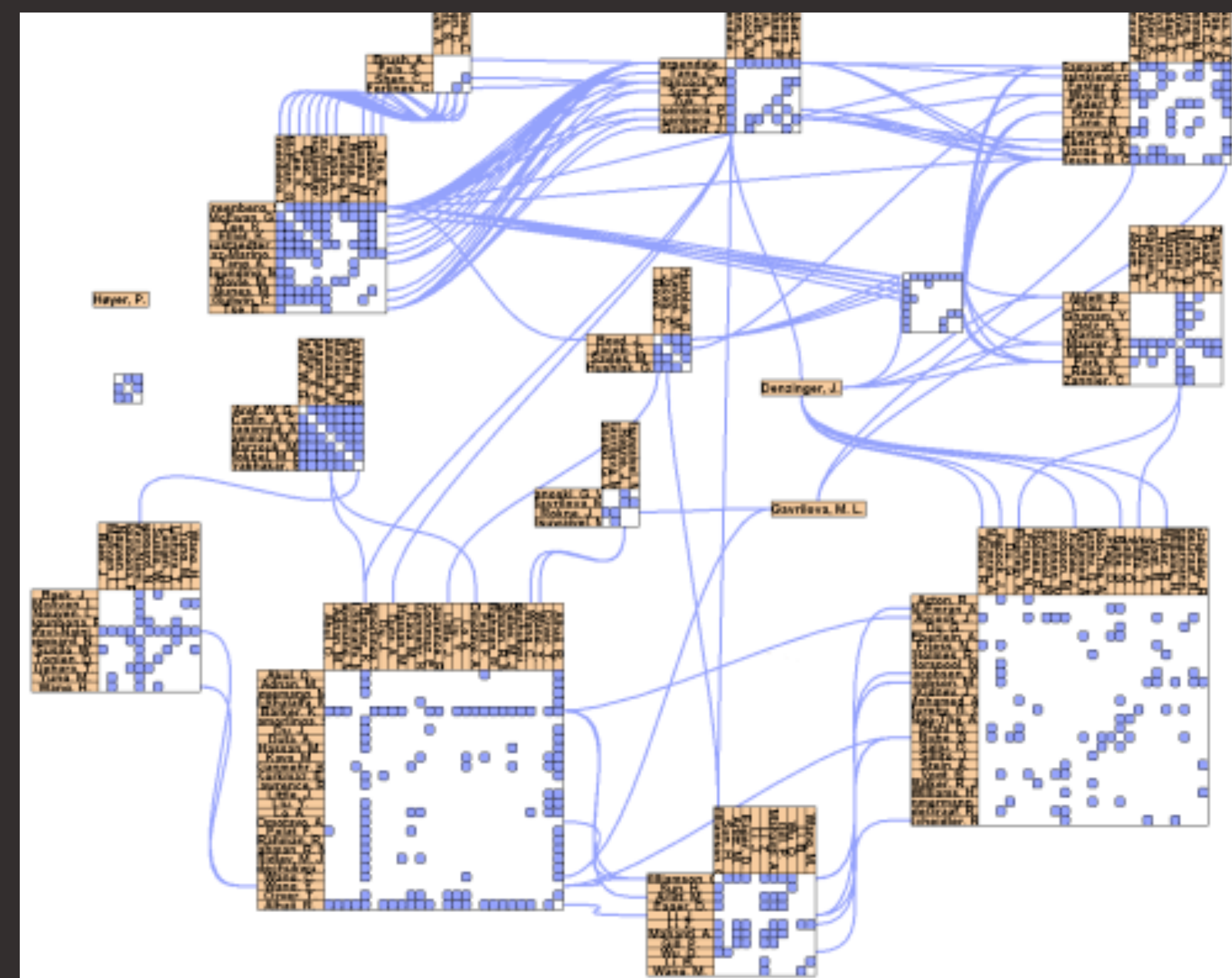
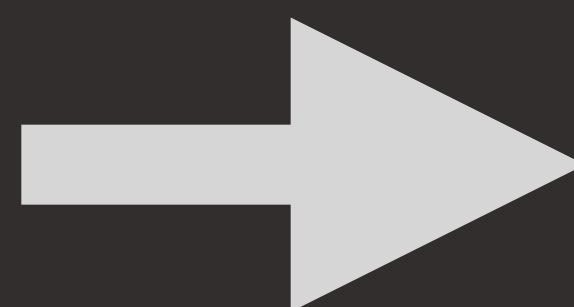
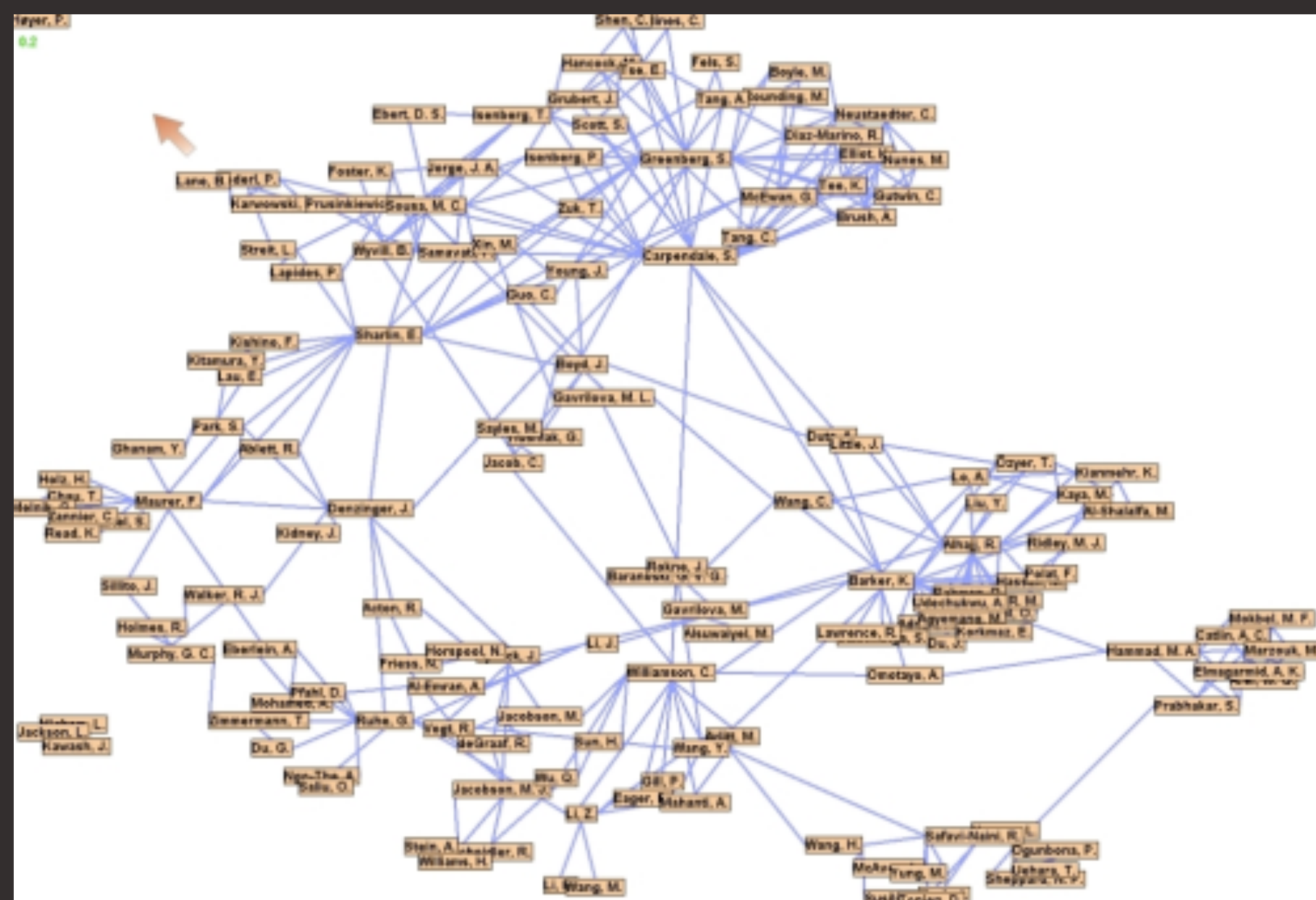


Advantages

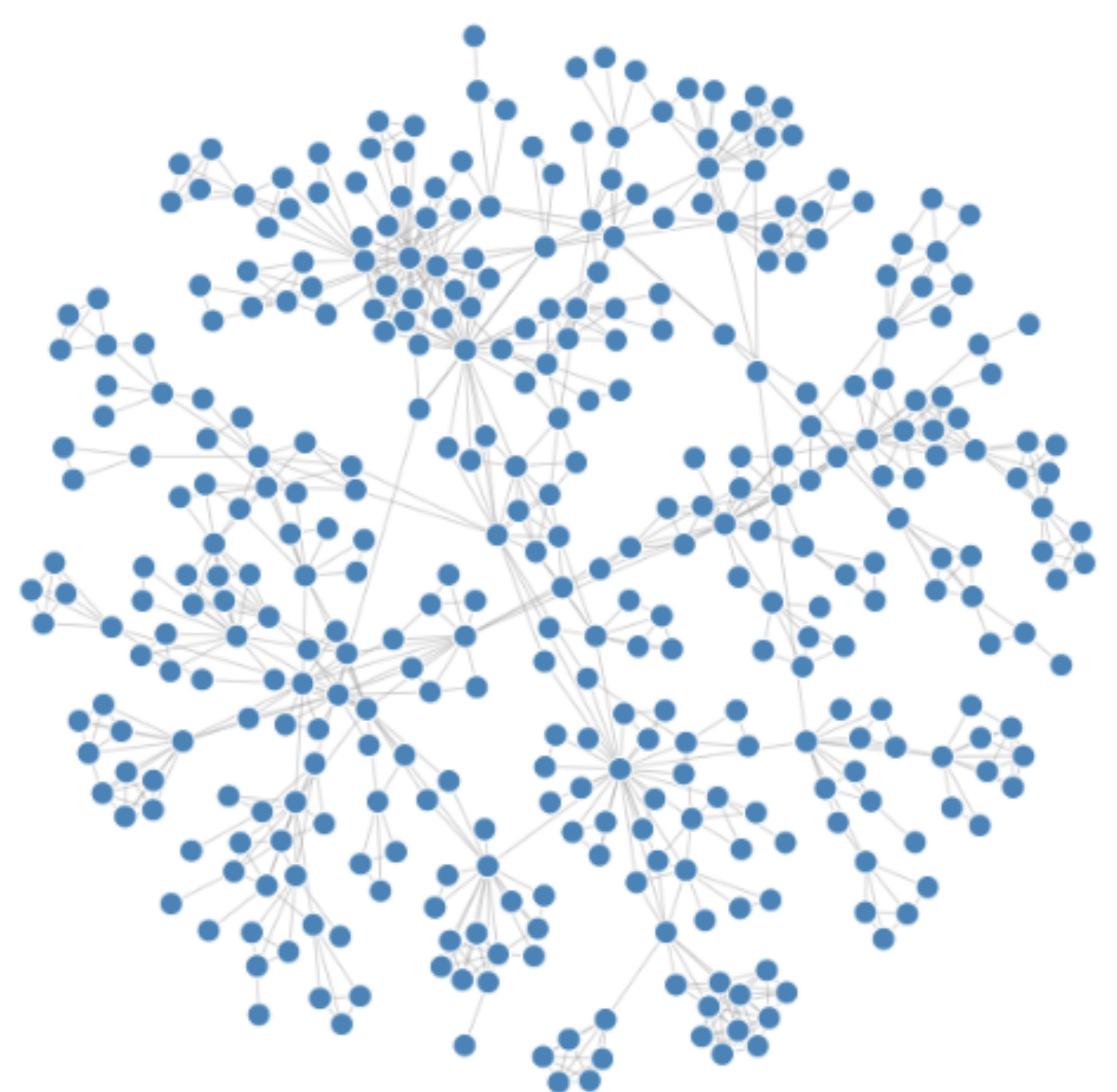
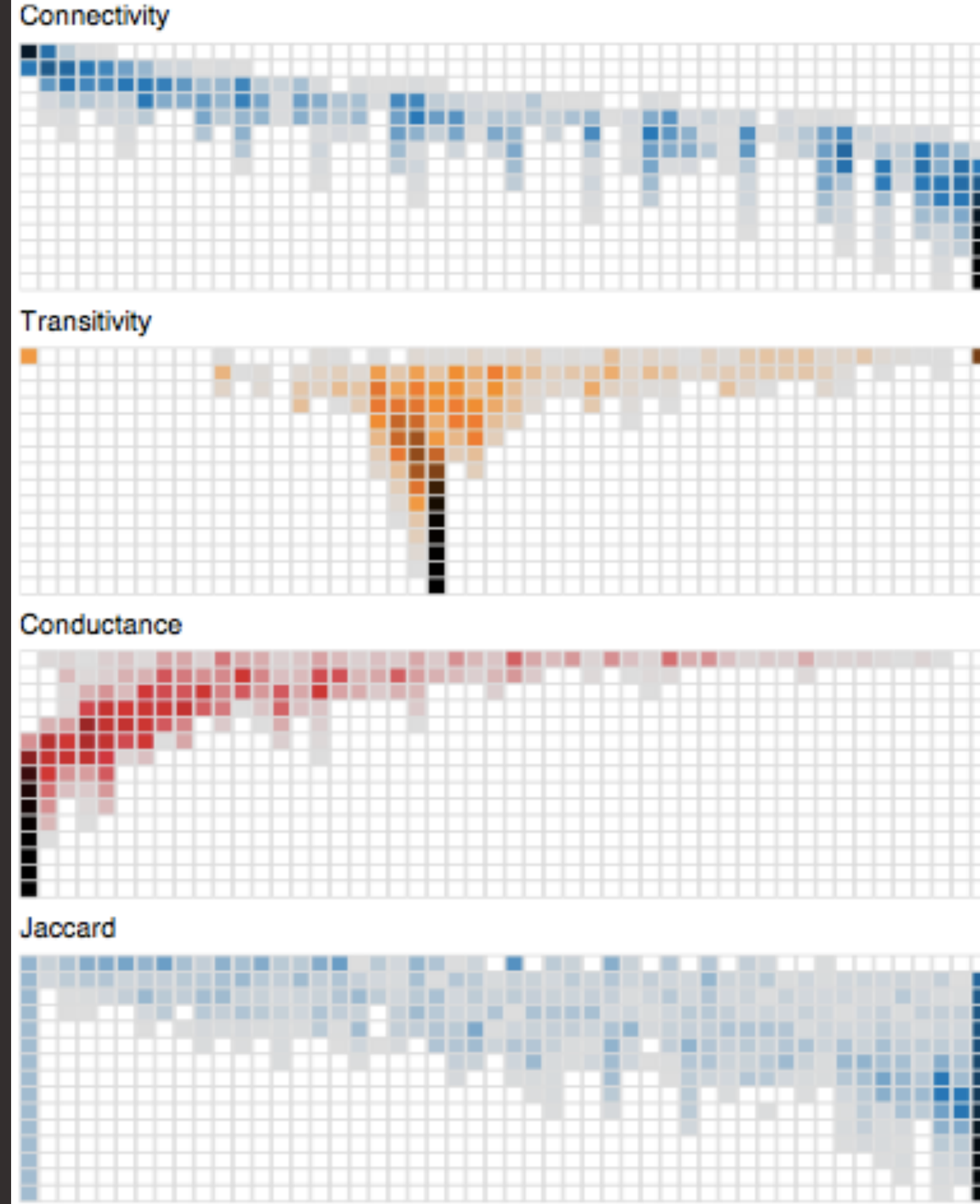


Tradeoffs

State-of-the-art



Node-Trix



Graph Prism

Trees

Definition

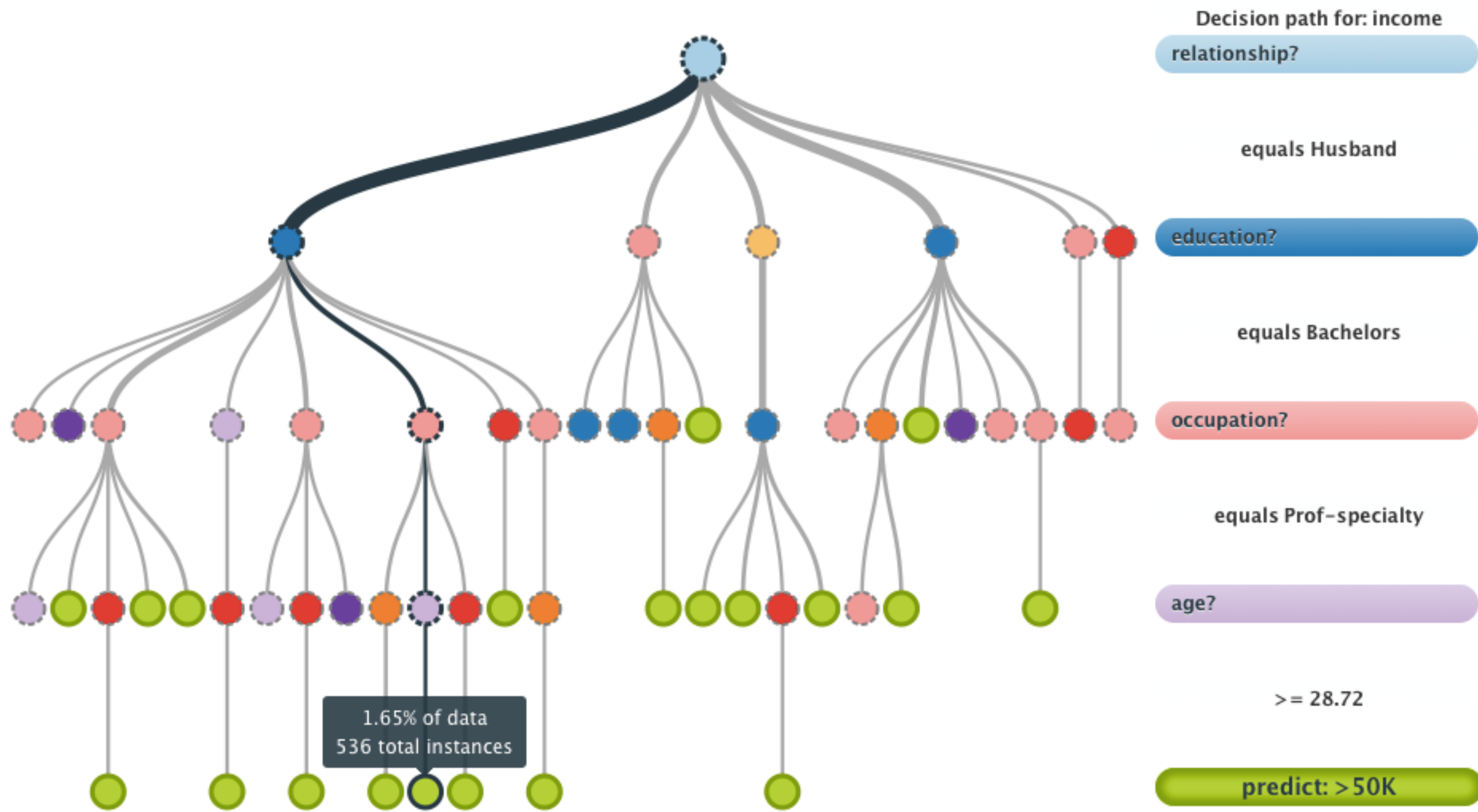
a: b, c, d

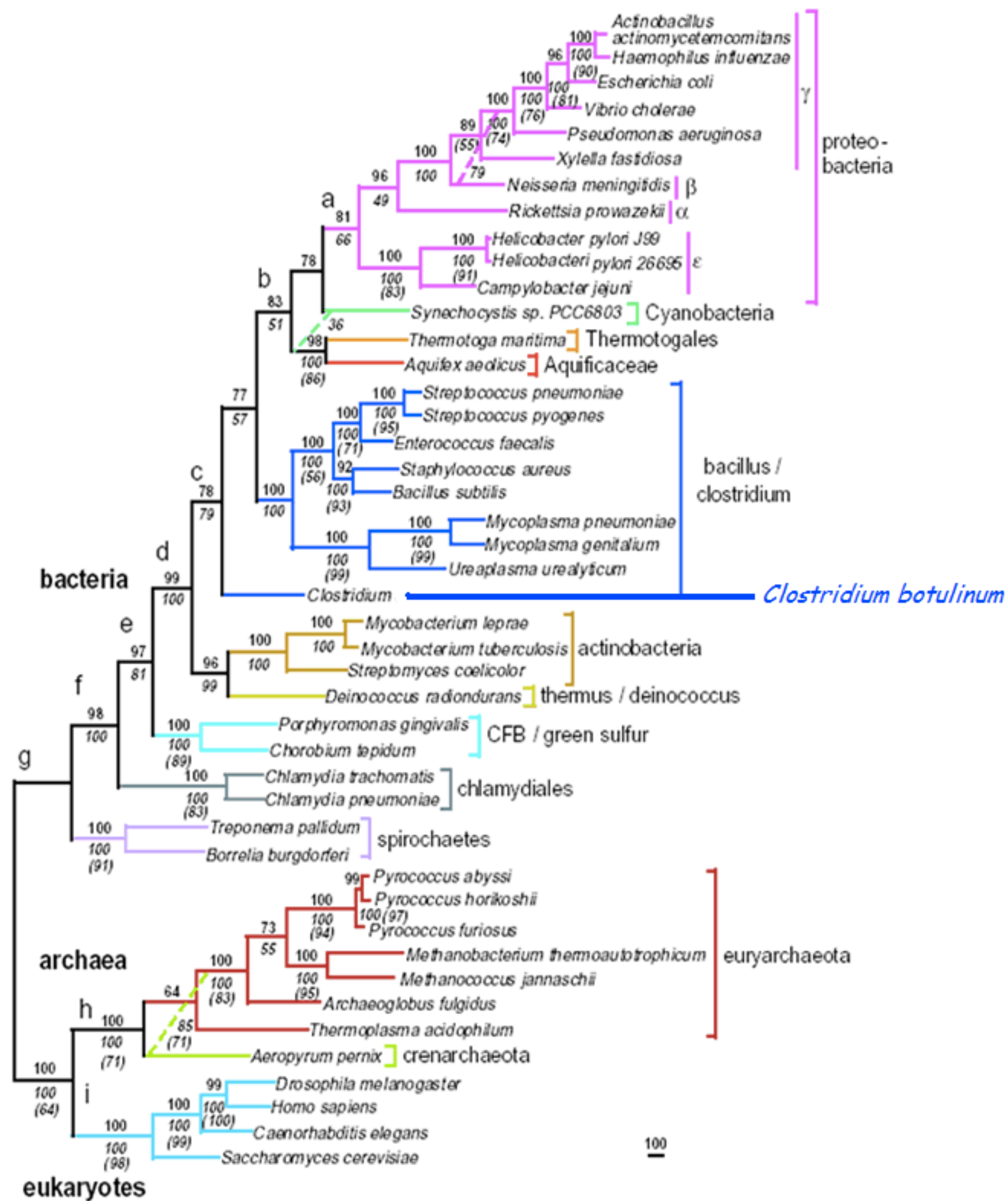
b: e, f

c: g

Representation

Applications





*Where do we
find trees?*

*Build
your own!*

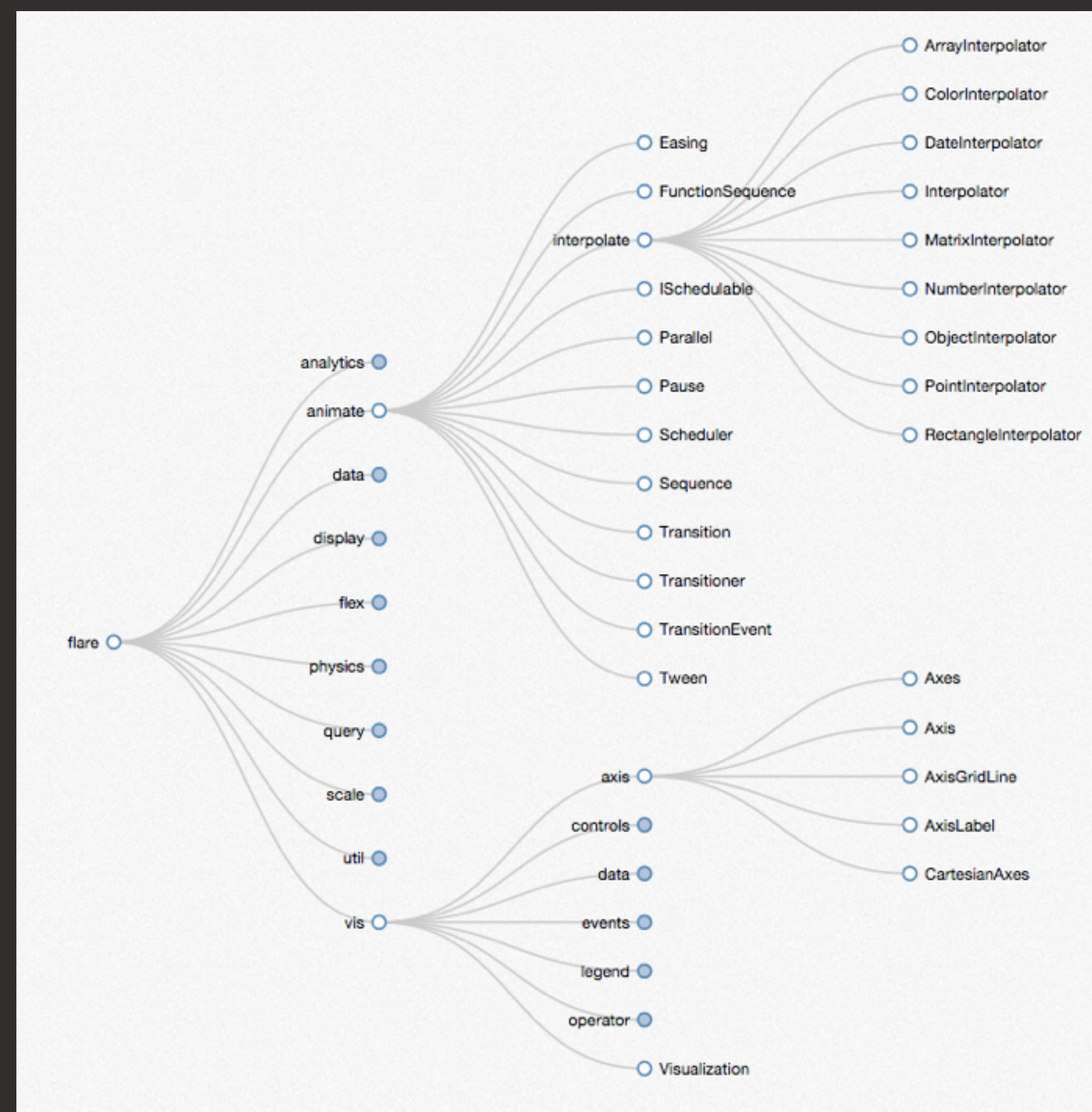
alice: bob, chris

bob: dale

dale: fred

chris: erin

Techniques



“Node-link”

Layouts

Vertical /

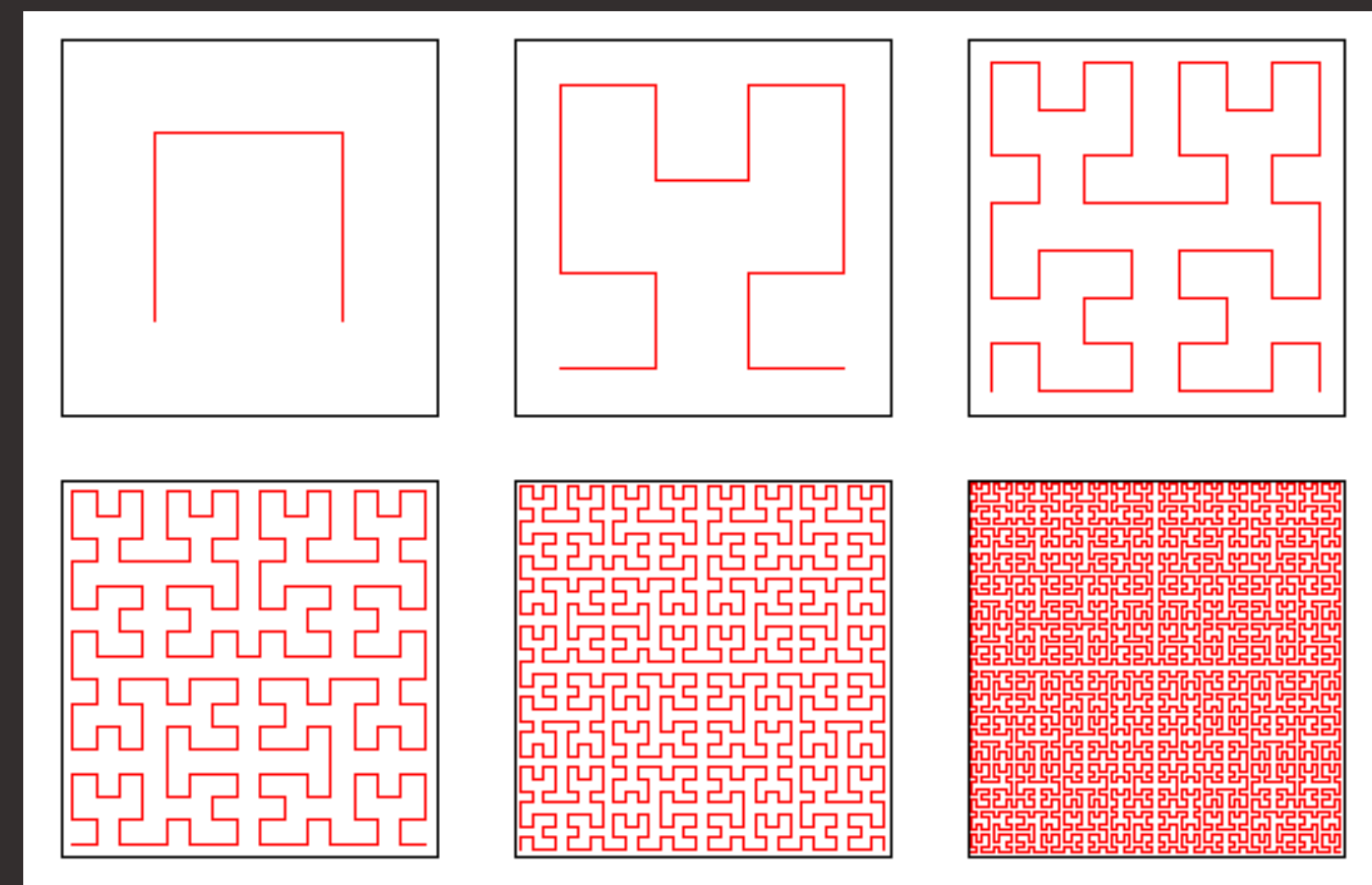
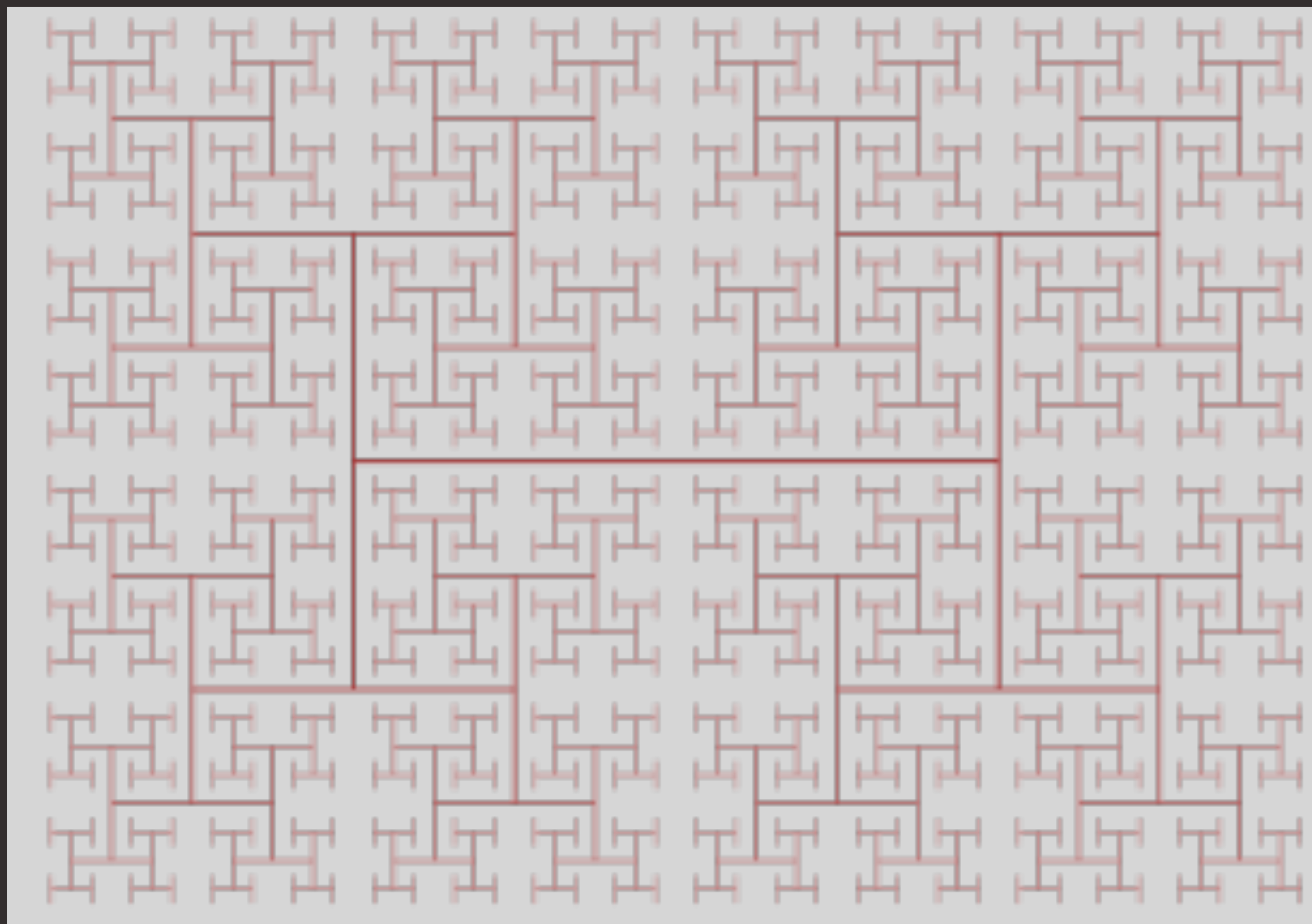
Horizontal

Radial

Limitations

Space-filling

Treemaps

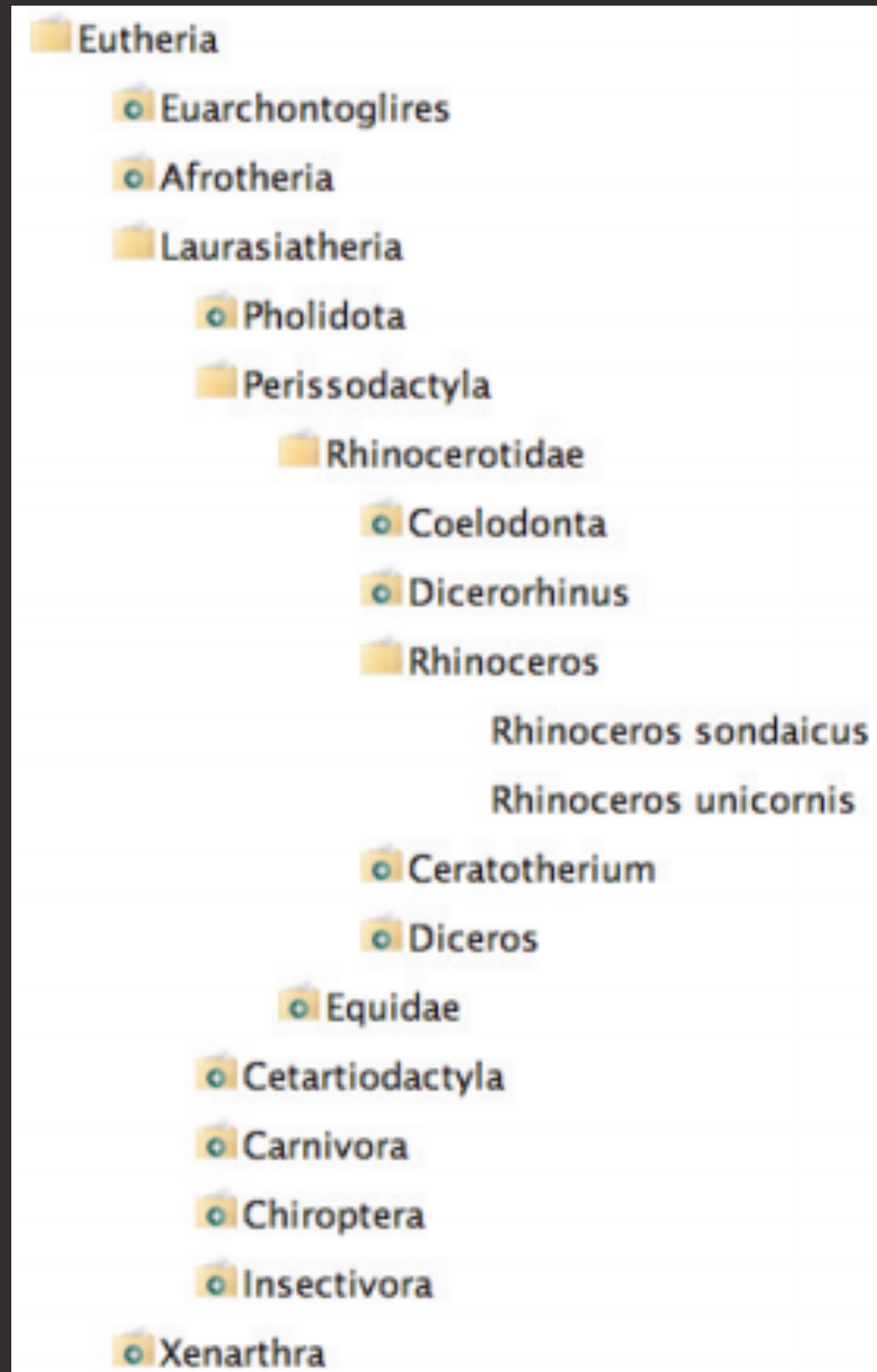


H-tree

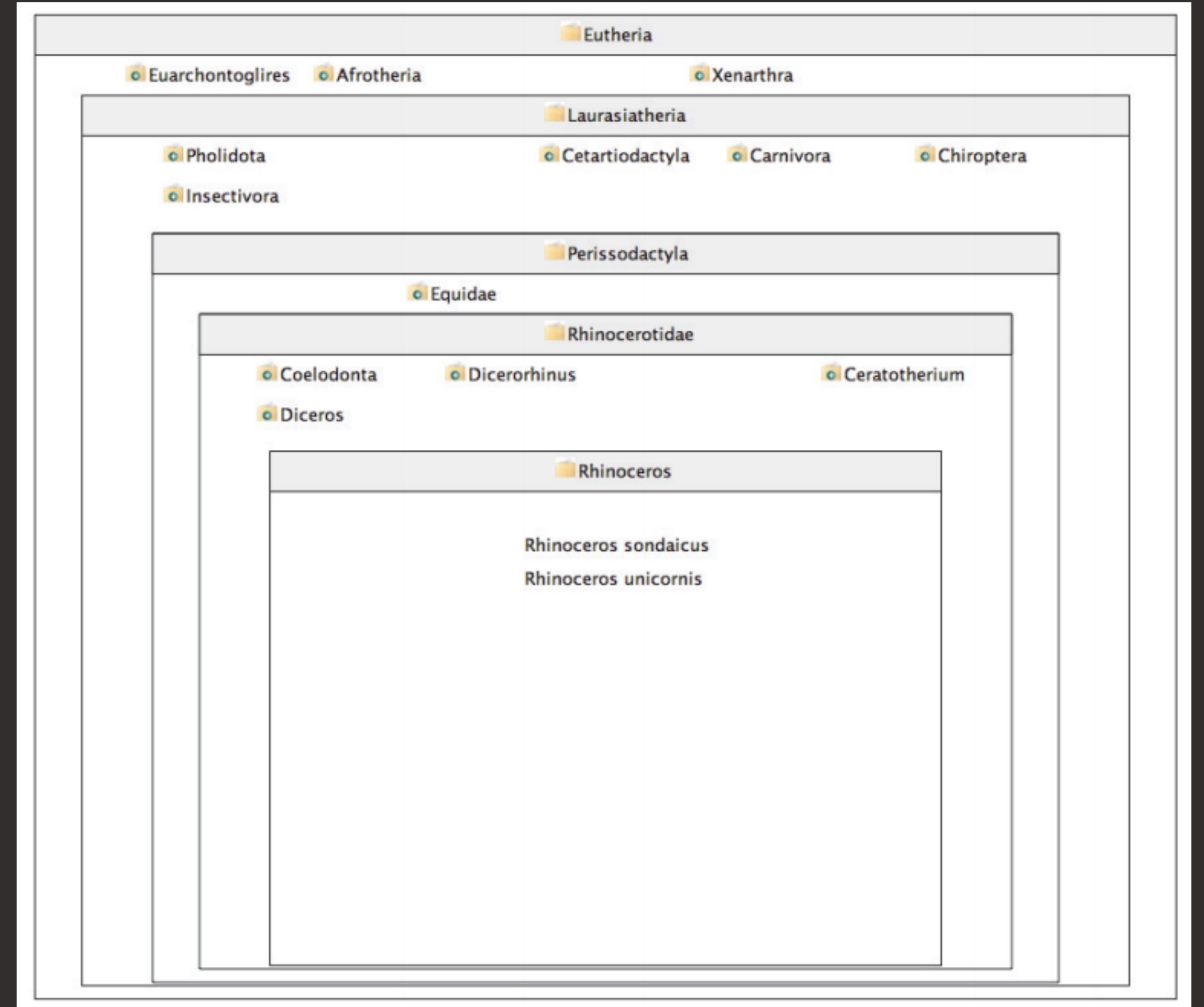
treeposter

State-of-the-art

*Which do you
prefer?*



tree



nested boxes