Graficación de redes

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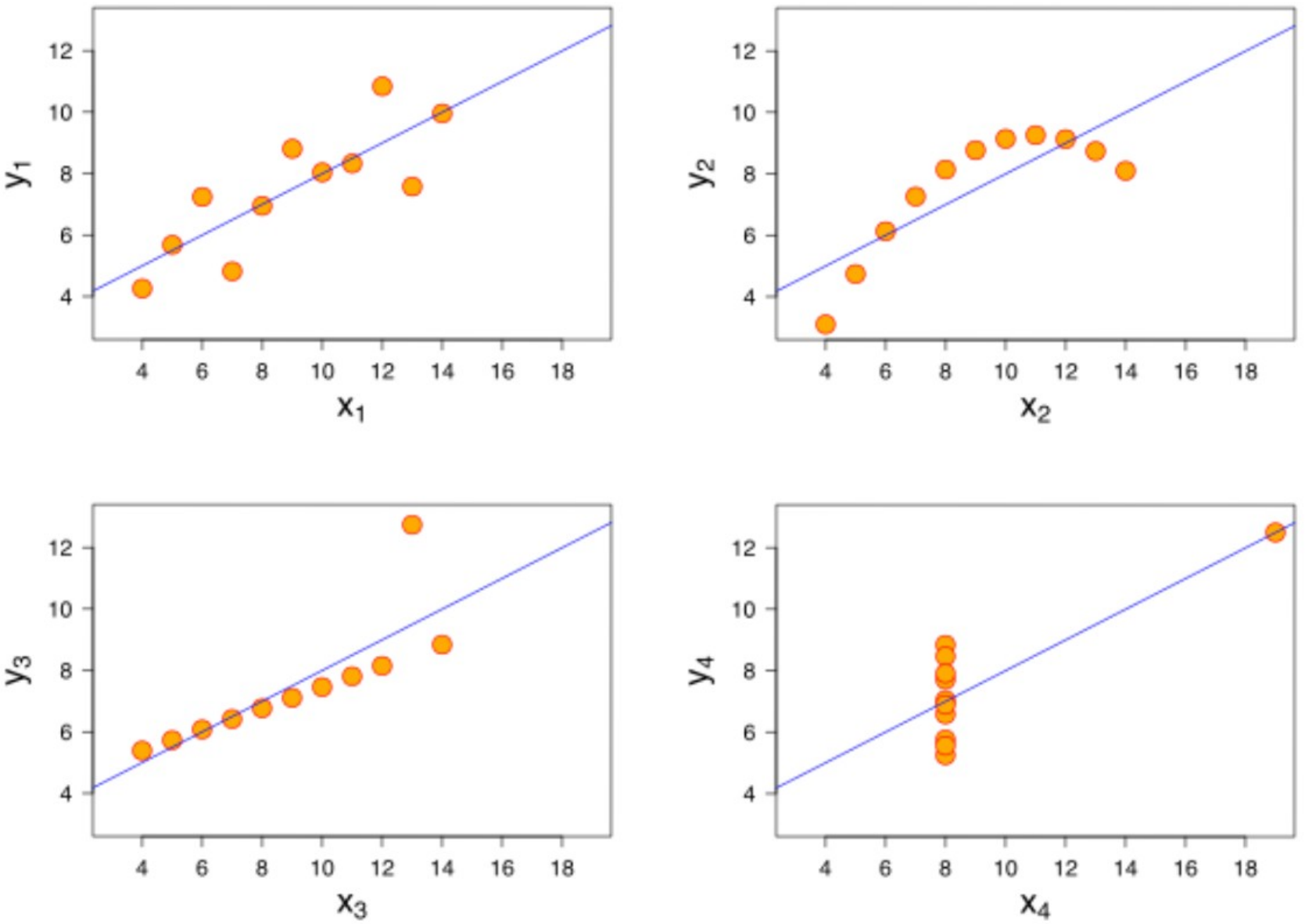
Anscombe's quartet

I		II		III		IV	
x	y	x	y	x	y	x	y
10.0	8.04	10.0	9.14	10.0	7.46	8.0	6.58
8.0	6.95	8.0	8.14	8.0	6.77	8.0	5.76
13.0	7.58	13.0	8.74	13.0	12.74	8.0	7.71
9.0	8.81	9.0	8.77	9.0	7.11	8.0	8.84
11.0	8.33	11.0	9.26	11.0	7.81	8.0	8.47
14.0	9.96	14.0	8.10	14.0	8.84	8.0	7.04
6.0	7.24	6.0	6.13	6.0	6.08	8.0	5.25
4.0	4.26	4.0	3.10	4.0	5.39	19.0	12.50
12.0	10.84	12.0	9.13	12.0	8.15	8.0	5.56
7.0	4.82	7.0	7.26	7.0	6.42	8.0	7.91
5.0	5.68	5.0	4.74	5.0	5.73	8.0	6.89

Property	Value	Accuracy
Mean of x	9	exact
Sample variance of x	11	exact
Mean of y	7.50	to 2 decimal places
Sample variance of y	4.125	plus/minus 0.003
Correlation between x and y	0.816	to 3 decimal places
Linear regression line	$y = 3.00 + 0.500x$	to 2 and 3 decimal places, respectively
Coefficient of determination of the linear regression	0.67	to 2 decimal places

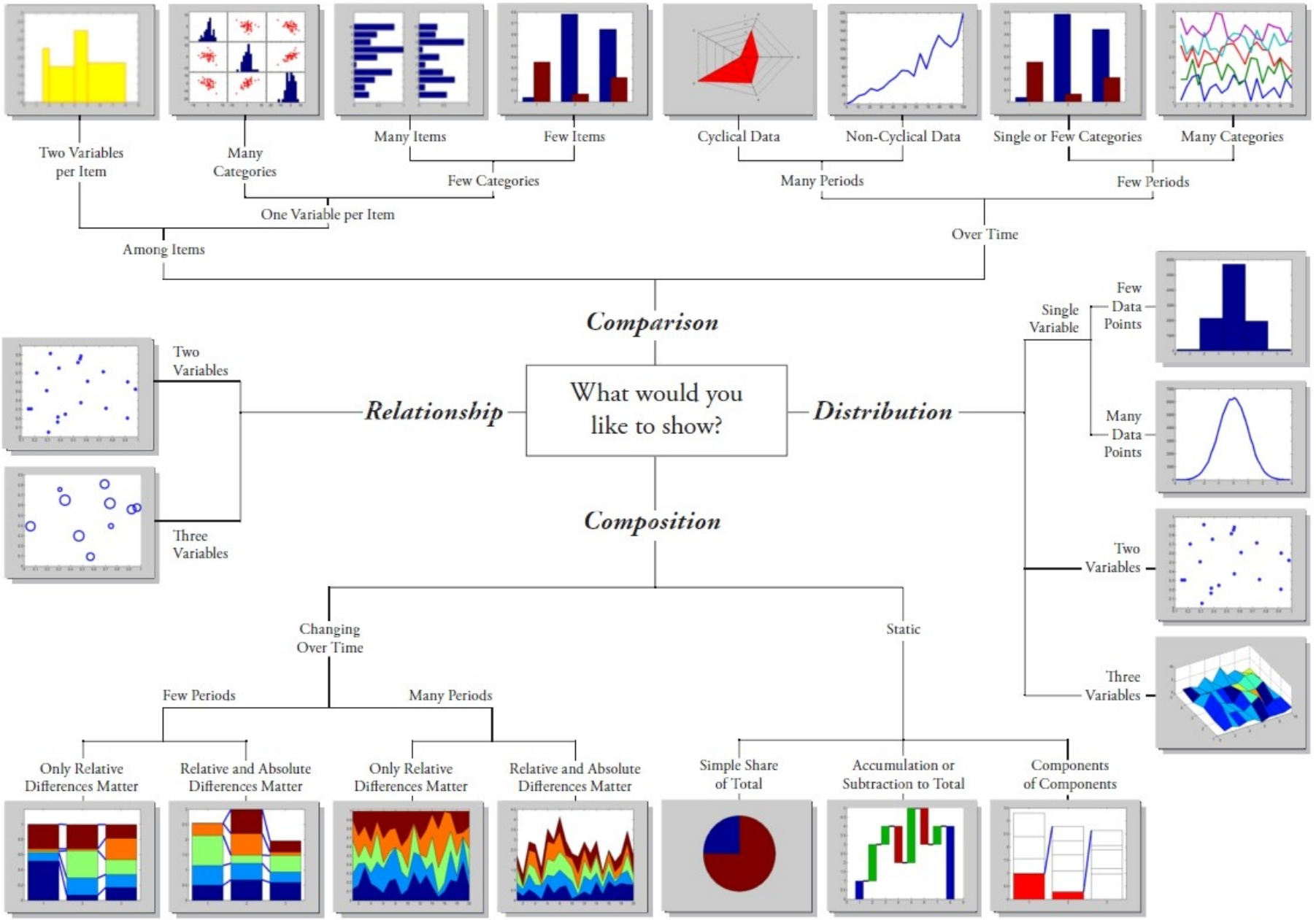

y1
x1
y2
x2
y3
x3
y4
x4
4
6
8
10
12
14
16
18

Encoding

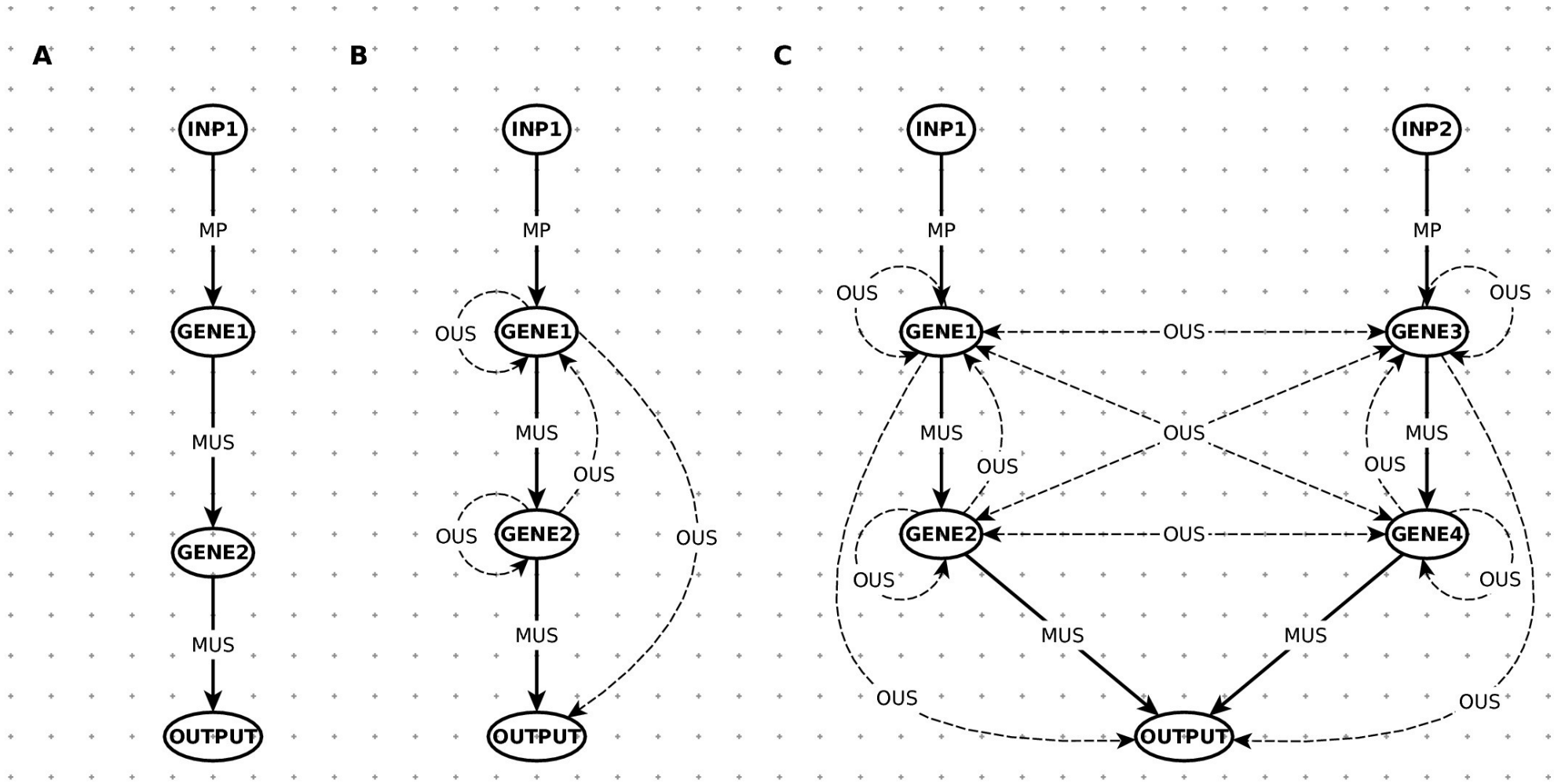
Cleveland and McGill studied what people are able to decode most accurately and ranked them in the following :

1) Position along a common scale e.g. scatter plot
2) Position on identical but nonaligned scales e.g. multiple scatter plots
3) Length e.g. bar chart
4) Angle & Slope (tie) e.g. pie chart
5) Area e.g. bubbles
6) Volume, density, and color saturation (tie) e.g. heatmap
7) Color hue e.g. newsmap

Chart Suggestions—A Thought-Starter

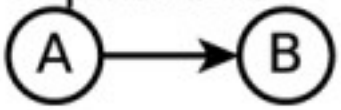


Modified with permision -Doug Hull
blogs.mathworks.com/videos
hull@mathworks.com 2009
www.ExtremePresentation.com
© 2009 A. Abela — a.v.abela@gmail.com

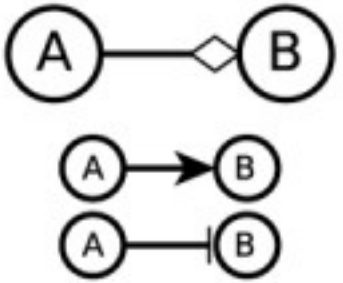

A
INP1
MP
GENE1
MUS
GENE2
MUS
OUTPUT
B
INP1
MP
OUS
GENE1
MUS
OUS
OUS
GENE2
OUS
MUS
OUTPUT
C
INP1
INP2
MP
MP
OUS
OUS
GENE1
OUS
GENE3
MUS
OUS
MUS
OUS
OUS
GENE2
OUS
GENE4
OUS
OUS
MUS
MUS
OUS
OUS
OUTPUT

G

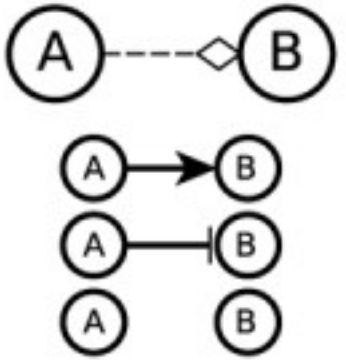
MP: mandatory positive

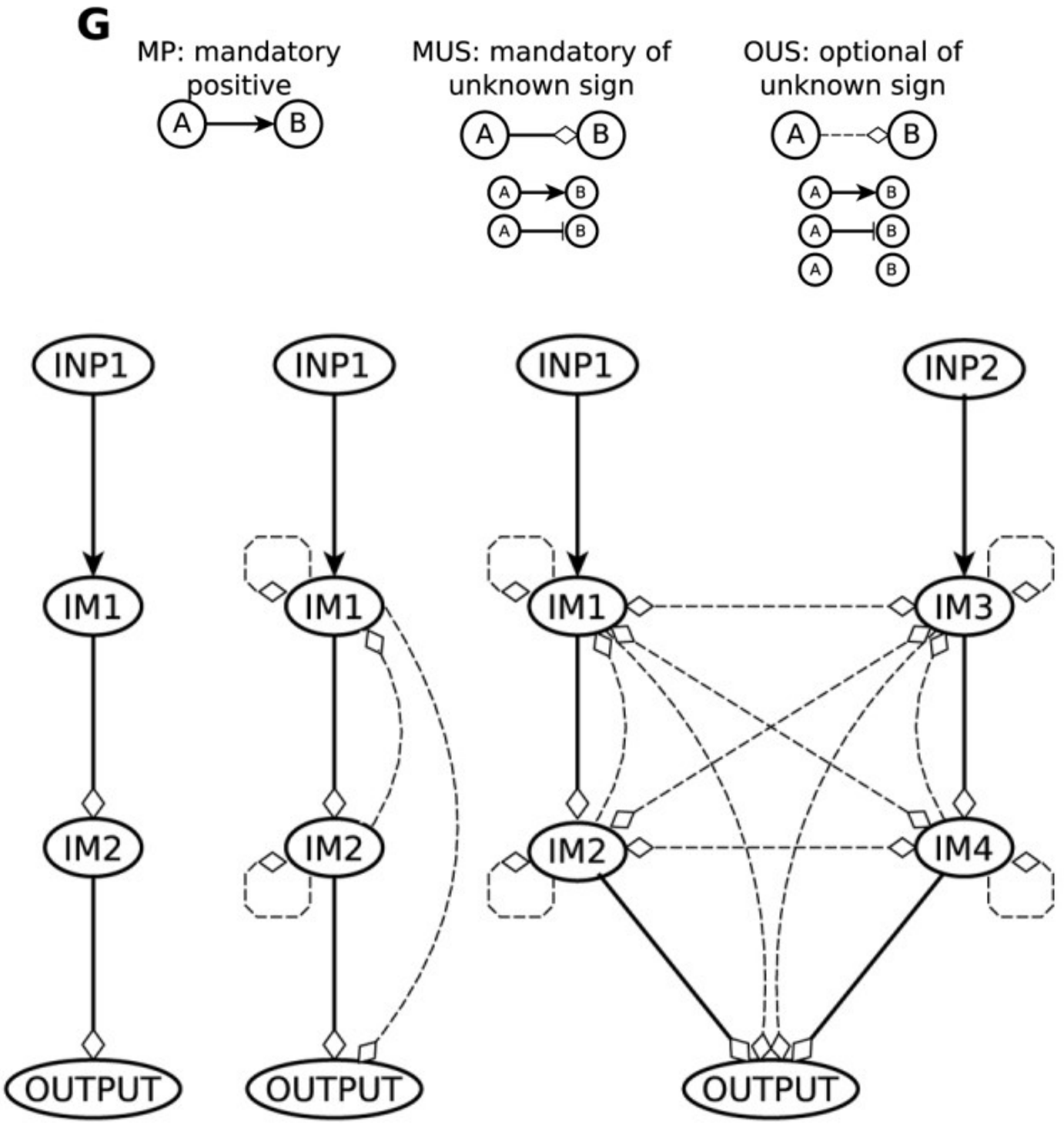


MUS: mandatory of unknown sign



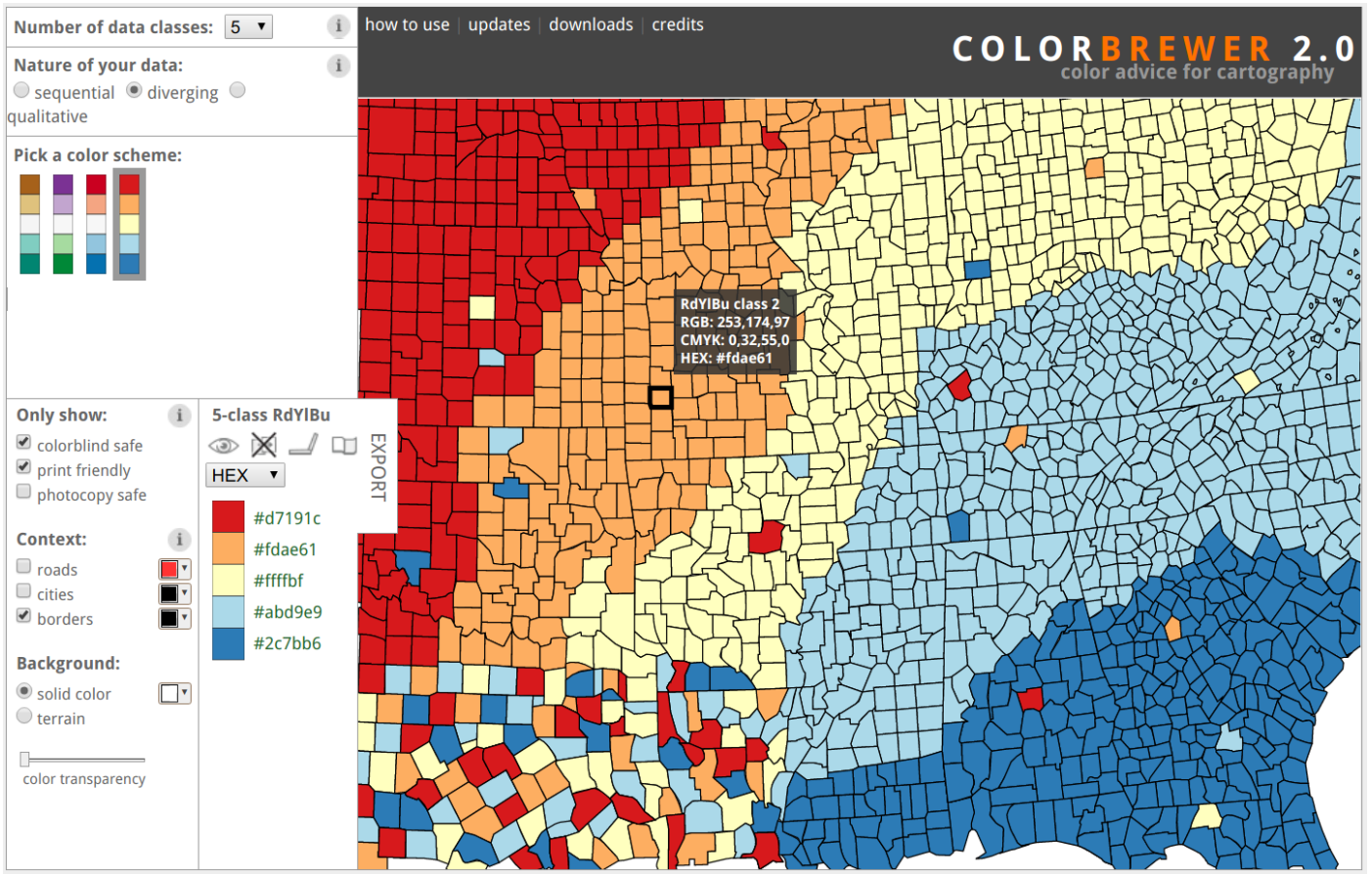
OUS: optional of unknown sign




G
MP: mandatory positive
A
B
MUS: mandatory of unknown sign
A
B
A
B
A
B
OUS: optional of unknown sign
A
B
A
B
A
B
A
B
INP1
IM1
IM2
OUTPUT
INP1
IM1
IM2
OUTPUT
INP1
INP2
IM1
IM3
IM2
IM4
OUTPUT

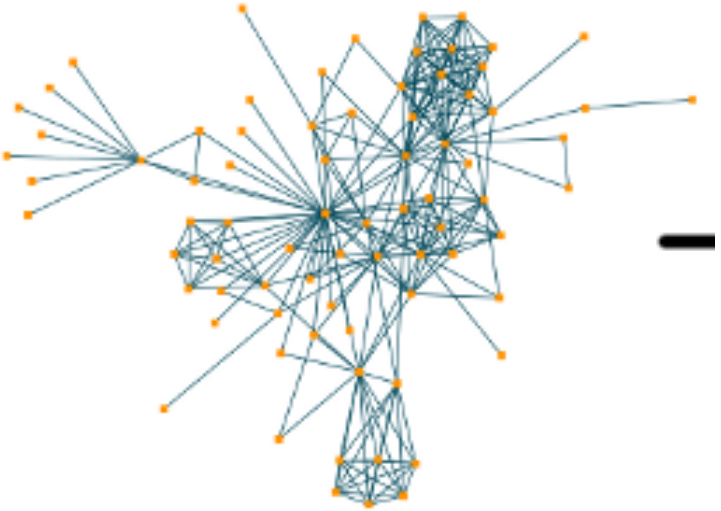
Color

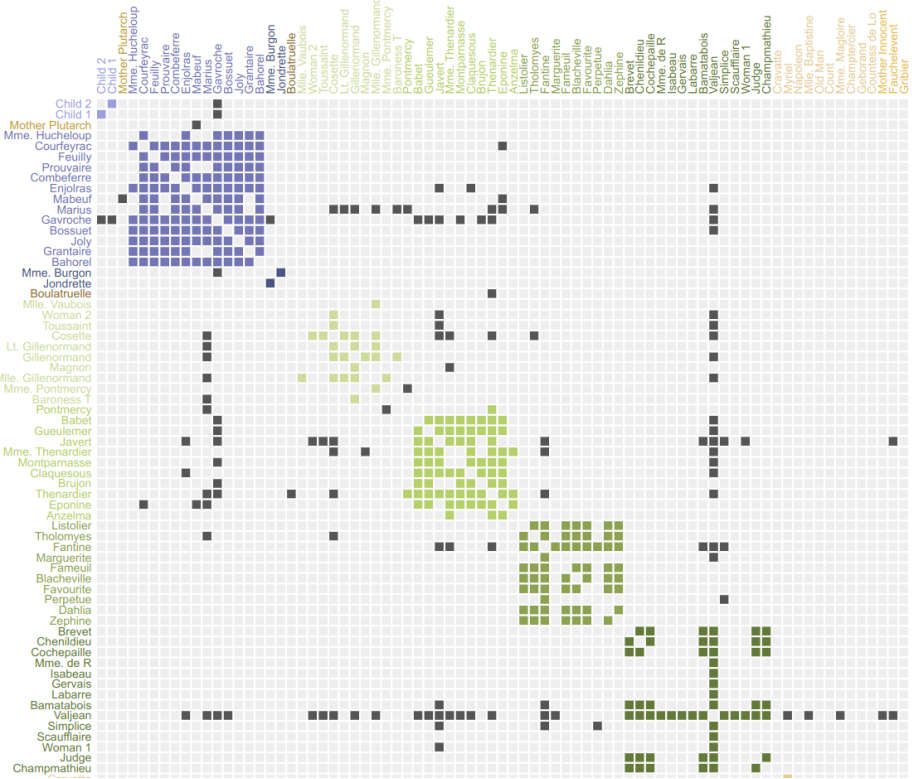
- Color suggestions: http://colorbrewer2.org
- Saturated colors are used to highlight

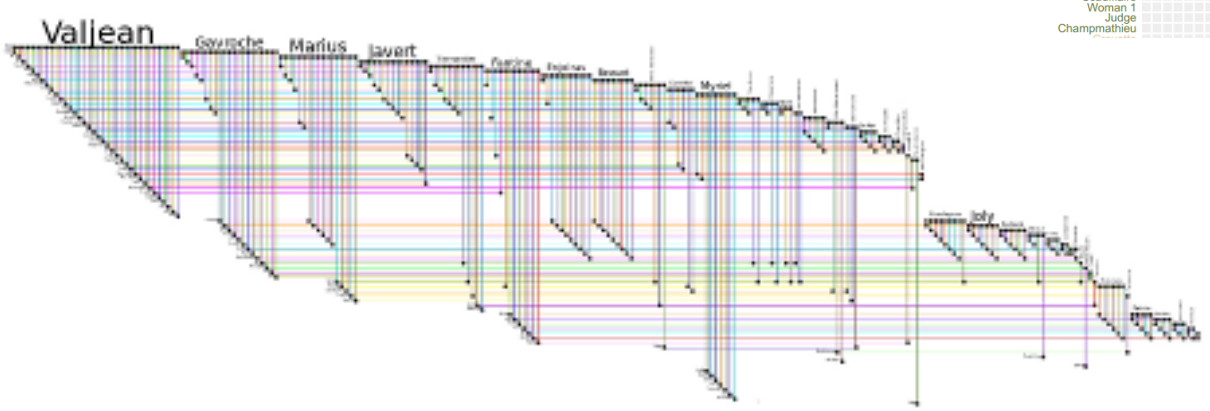


Network

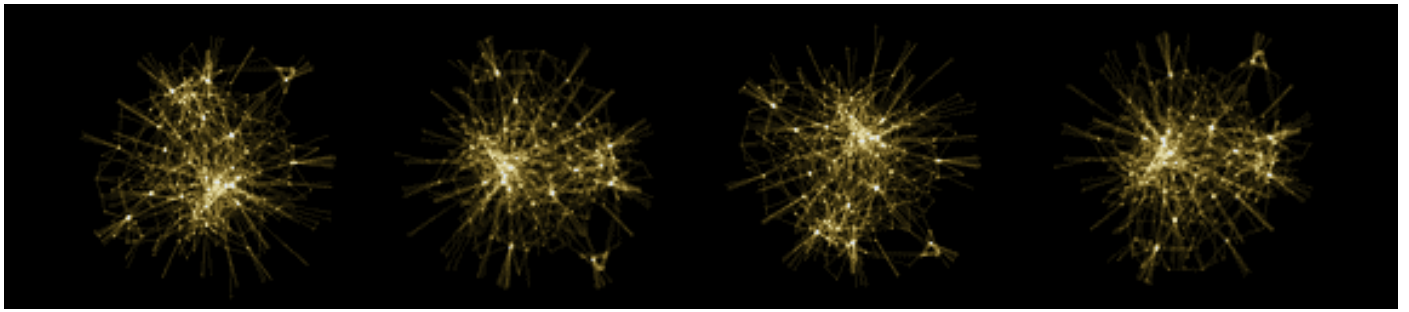
- Represent interactions
- Can have multiple types of nodes and edges

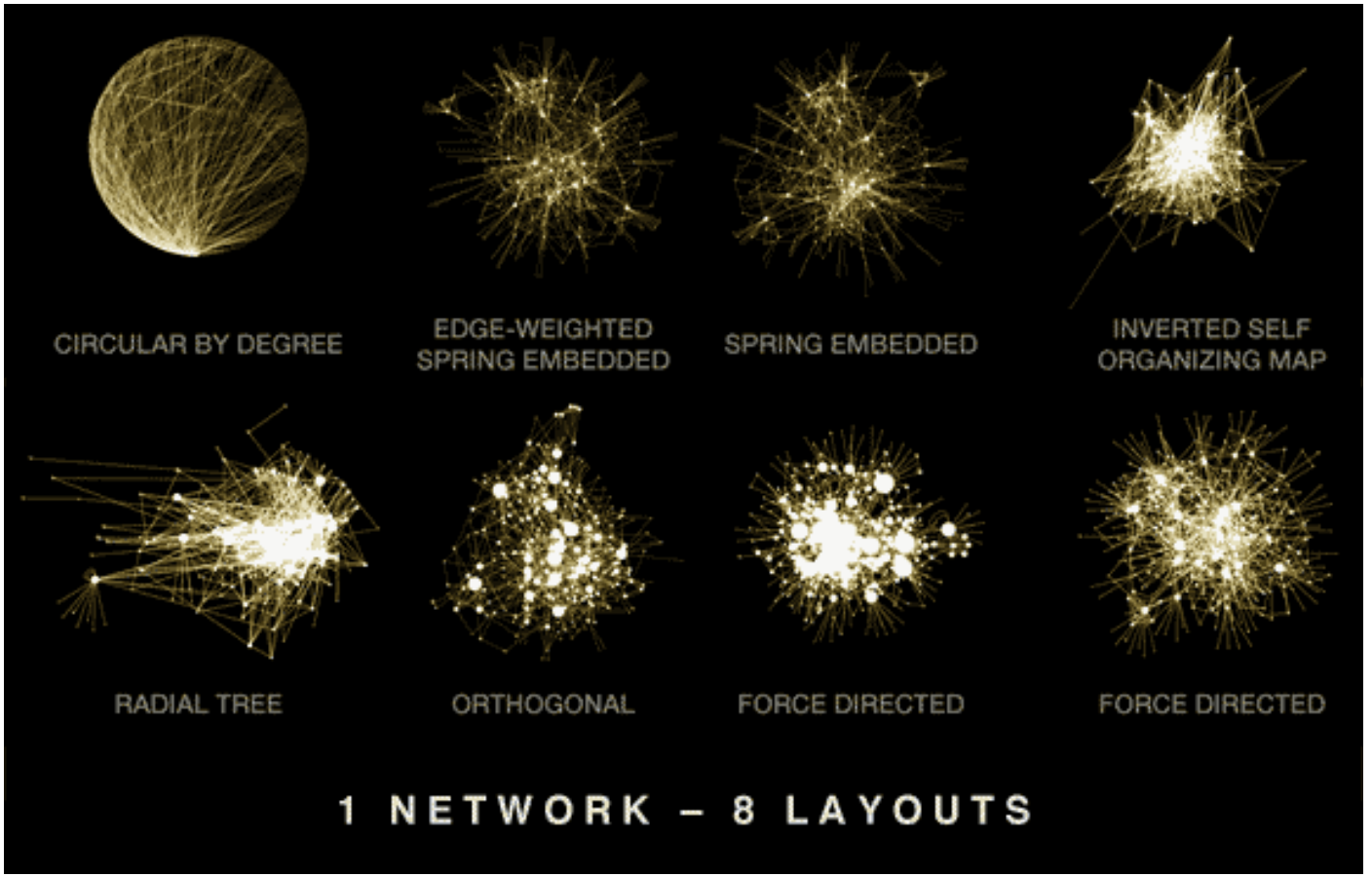


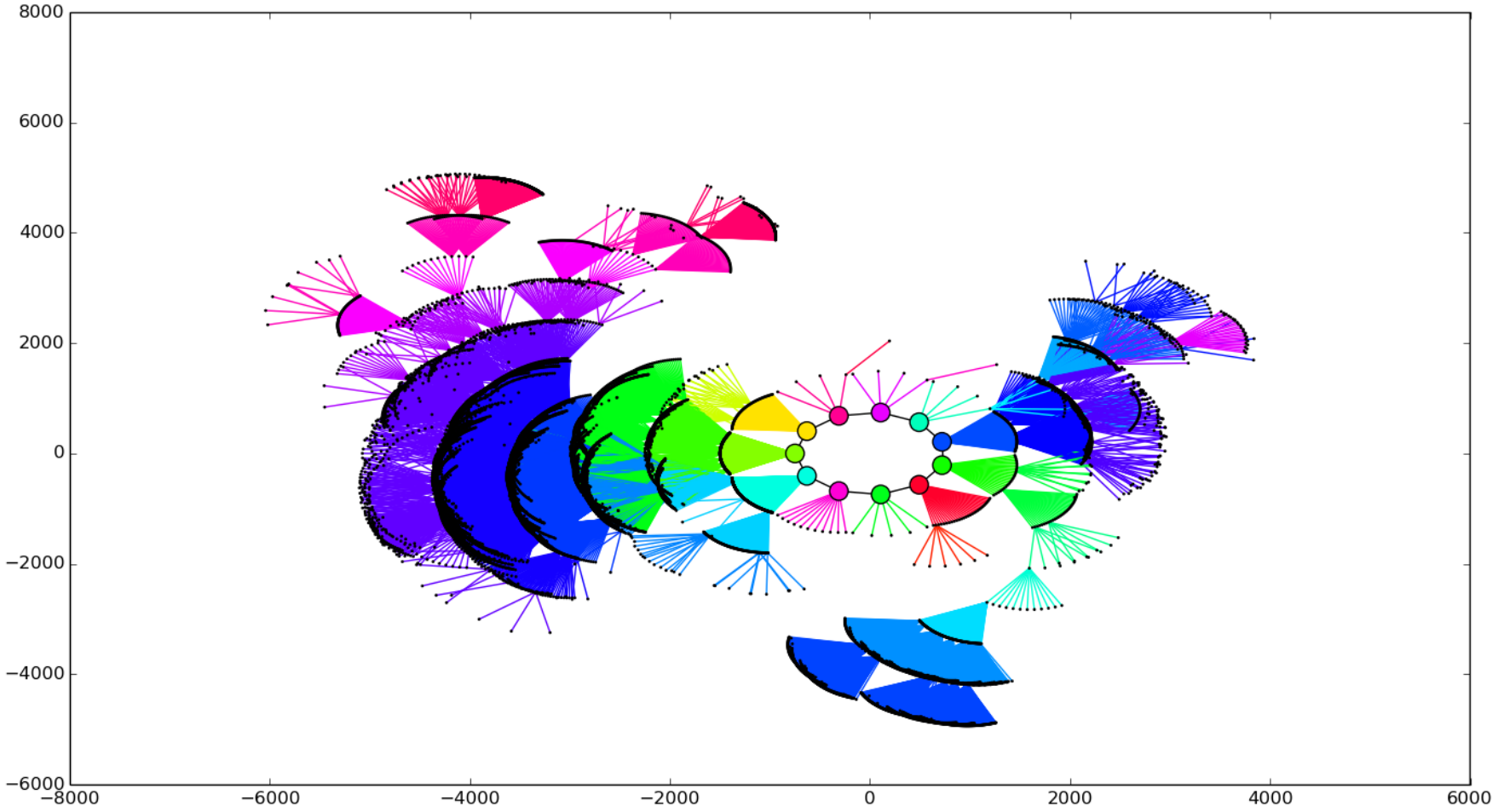

Child 2
Child 1
Mother Plutarch
Mme. Hucheloup
Courfeyrac
Feuilly
Prouvaire
Combeferre
Enjolras
Mabeuf
Marius
Gavroche
Bossuet
Joly
Grantaire
Bahorel
Mme. Burgon
Jondrette
Boulatruelle
Mlle. Vaubois
Woman 2
Toussaint
Cosette
Lt. Gillenormand
Gillenormand
Magnon
Mlle. Gillenormand
Mme. Pontmercy
Baroness T
Pontmercy
Babet
Gueulemer
Javert
Mme. Thenardier
Montparnasse
Claquesous
Brujon
Thenardier
Eponine
Anzelma
Listolier
Tholomyes
Fantine
Marguerite
Fameuil
Blacheville
Favourite
Perpetue
Dahlia
Zephine
Brevet
Chenildieu
Cochepaille
Mme. de R
Isabeau
Gervais
Labarre
Bamatabois
Valjean
Simplice
Scaufflaire
Woman 1
Judge
Champmathieu
Cravatte
Myriel
Napoleon
Mlle. Baptistine
Old Man
Count
Mme. Magloire
Champtercier
Geborand
Countess de Lo
Mother Innocent
Fauchelevent
Gribier

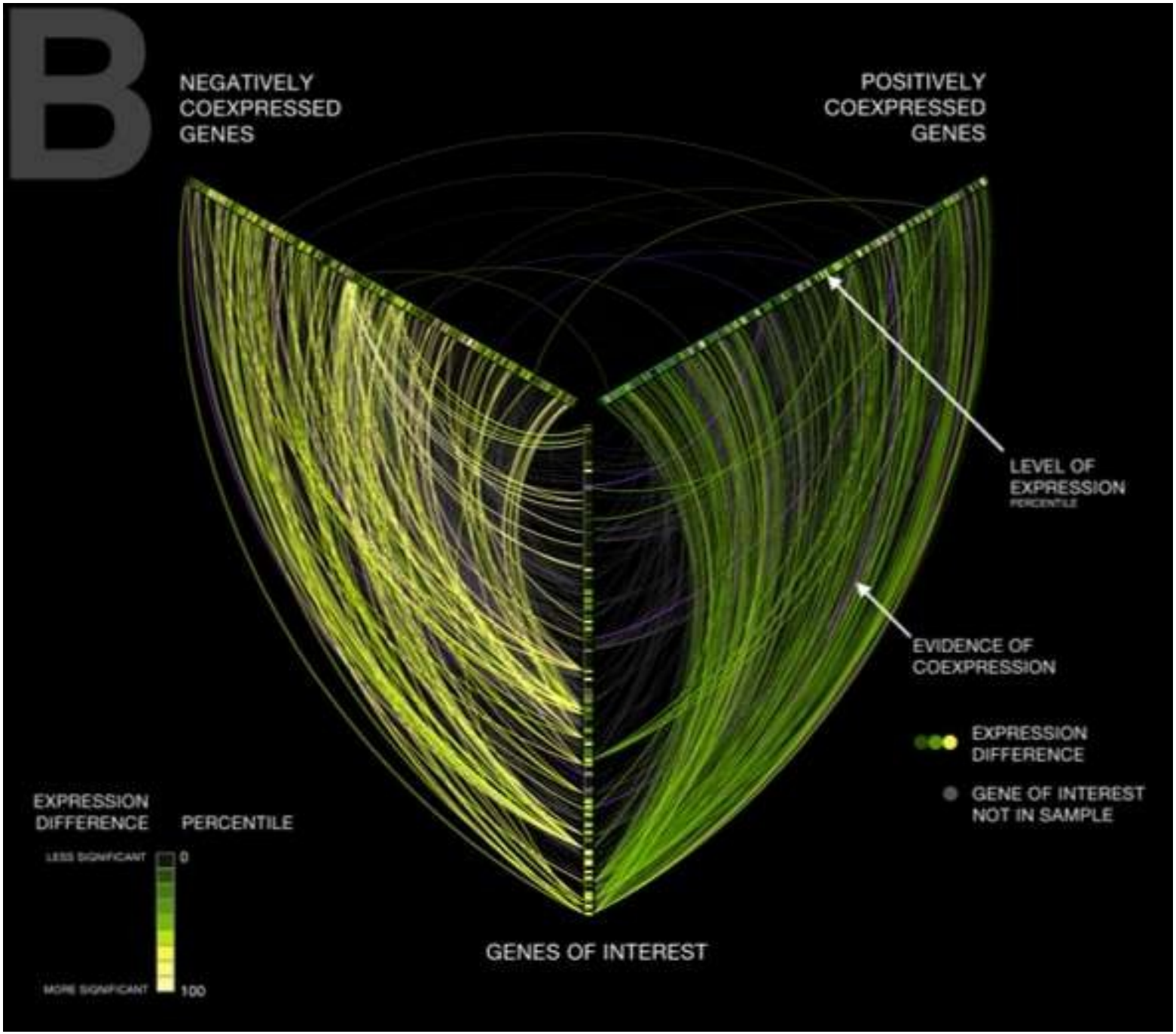

Valjean
Gavroche
Marius
Javert
Myriel
Joly

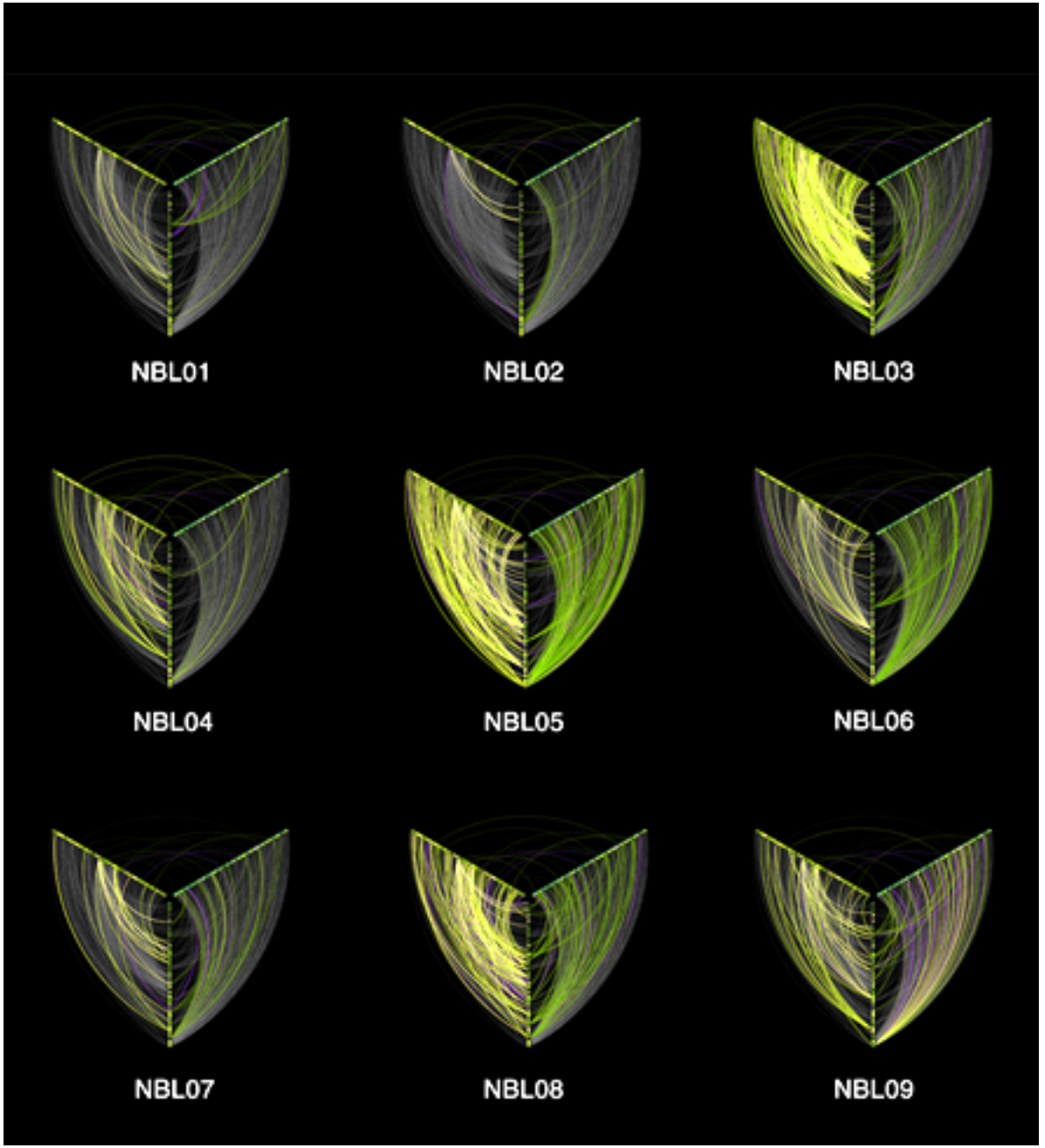
An idea is as good as the ability to communicate it






8000
6000
4000
2000
0
−2000
−4000
−6000
−8000
−6000
−4000
−2000
0
2000
4000
6000

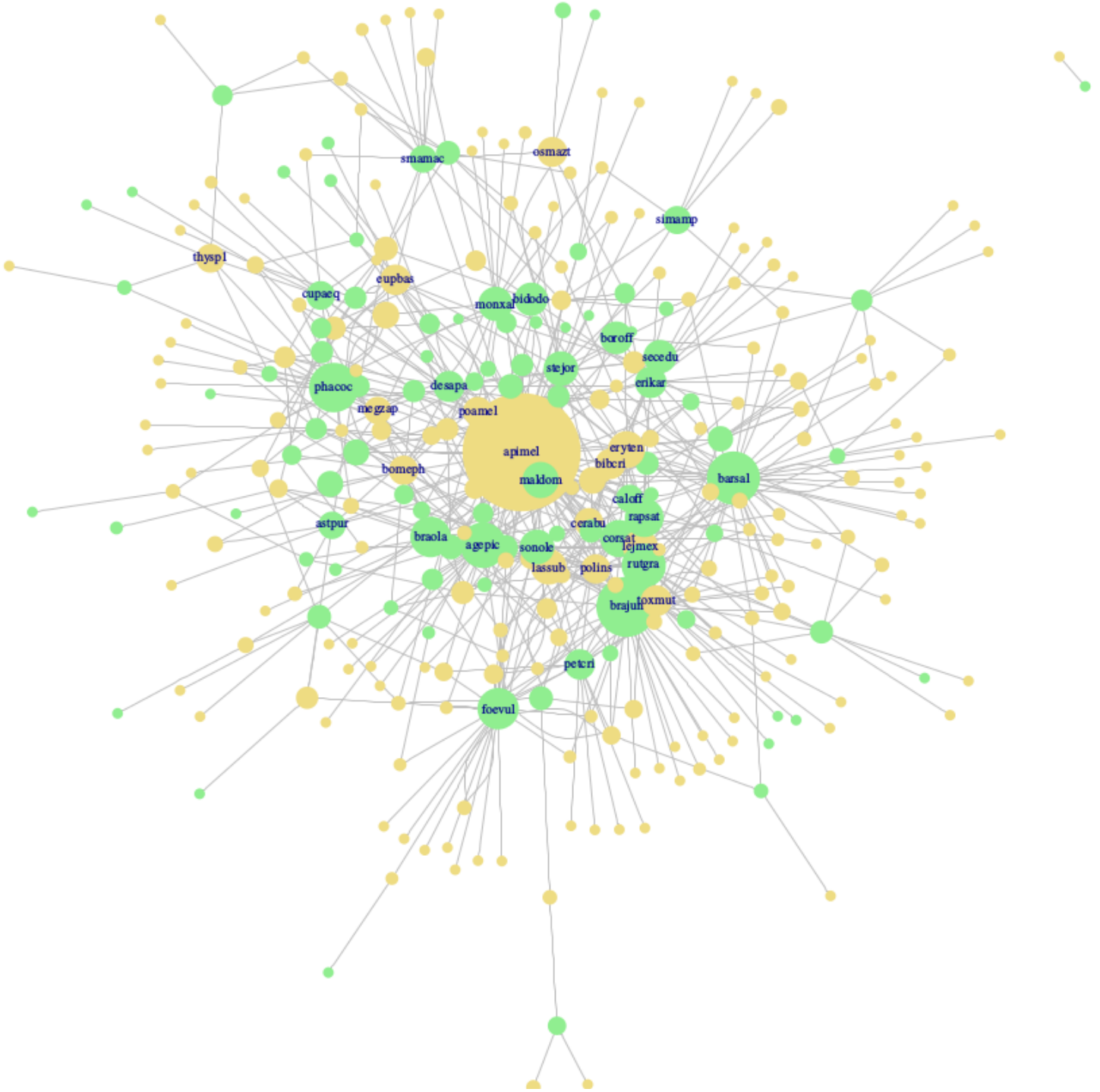

B
NEGATIVELY COEXPRESSED GENES
POSITIVELY COEXPRESSED GENES
LEVEL OF EXPRESSION
PERCENTILE
EVIDENCE OF COEXPRESSION
EXPRESSION DIFFERENCE
GENE OF INTEREST NOT IN SAMPLE
EXPRESSION DIFFERENCE
PERCENTILE
LESS SIGNIFICANT
MORE SIGNIFICANT
0
100
GENES OF INTEREST


NBL01
NBL02
NBL03
NBL04
NBL05
NBL06
NBL07
NBL08
NBL09

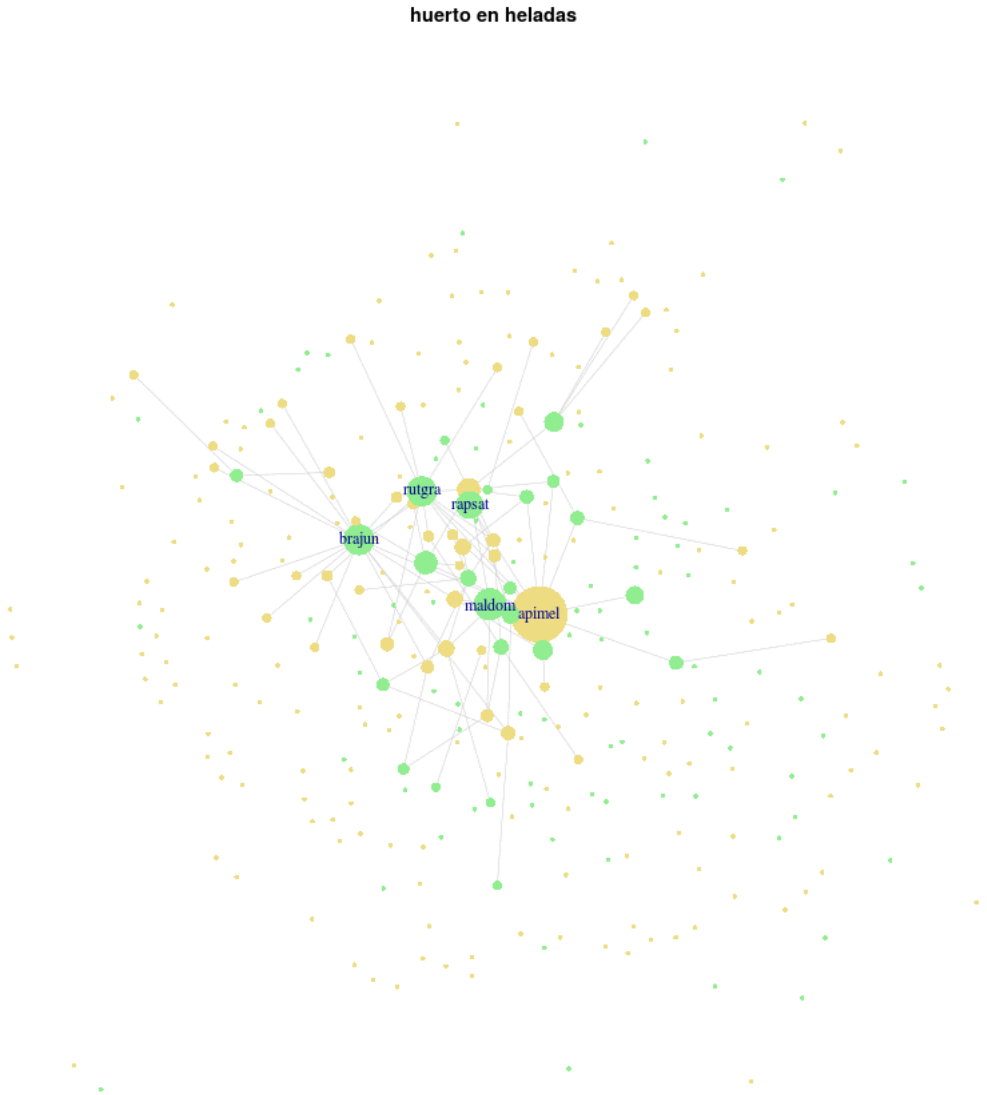
Network

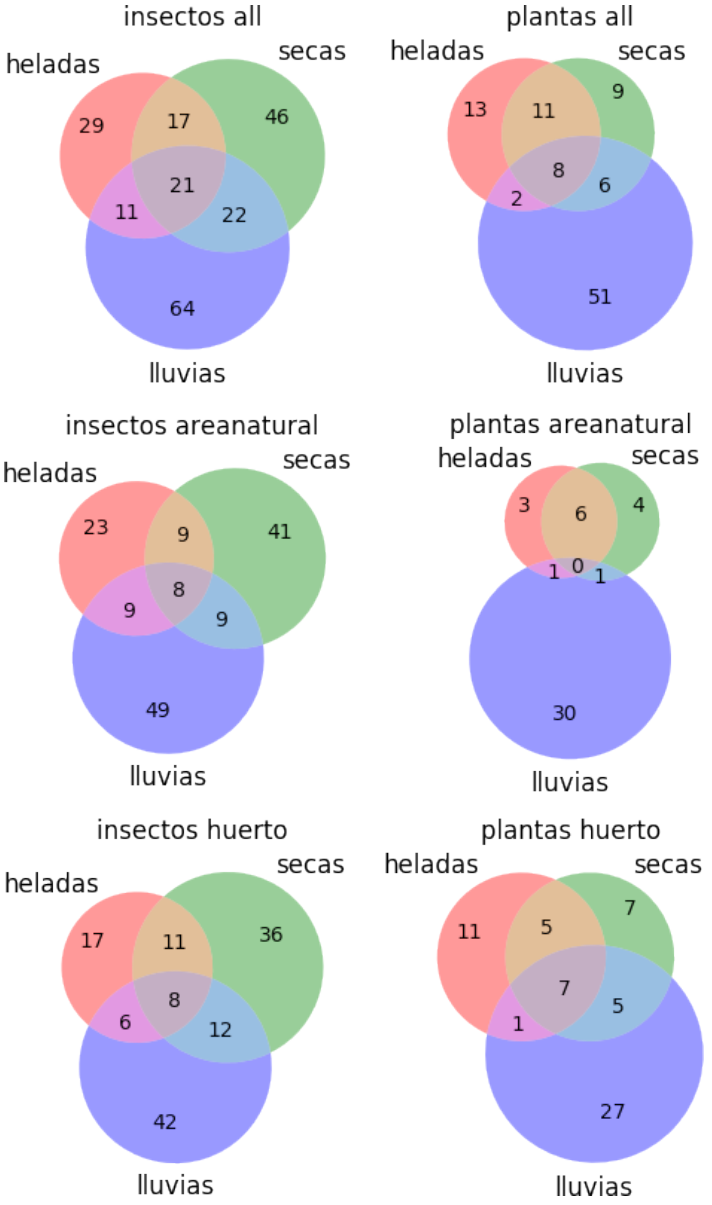
- Represent interactions
- Can have multiple types of nodes and edges

habitat	muestreot	guild	genero	especies_fir	abundancia	spvegabrev	nativa
huerto	secas	nectarivoro	Calliphoridae	callsp5	1	petcri	no
huerto	secas	nectarivoro	Calliphoridae	callsp5	1	petcri	no
huerto	secas	nectarivoro	Calliphoridae	callsp5	1	petcri	no
huerto	secas	nectarivoro	Calliphoridae	callsp4	1	brajun	no
huerto	secas	nectarivoro	Calliphoridae	callsp5	1	foevul	no
areanatural	secas	nectarivoro	Muscidae	musc1	1	barsal	si
areanatural	secas	nectarivoro	Muscidae	musc2	1	barsal	si
areanatural	secas	nectarivoro	Muscidae	musc2	1	barsal	si
areanatural	secas	nectarivoro	Muscidae	musc1	1	euppyc	si
huerto	secas	nectarivoro	Muscidae	musc1	1	petcri	no
huerto	secas	nectarivoro	Muscidae	musc4	1	rutgra	no

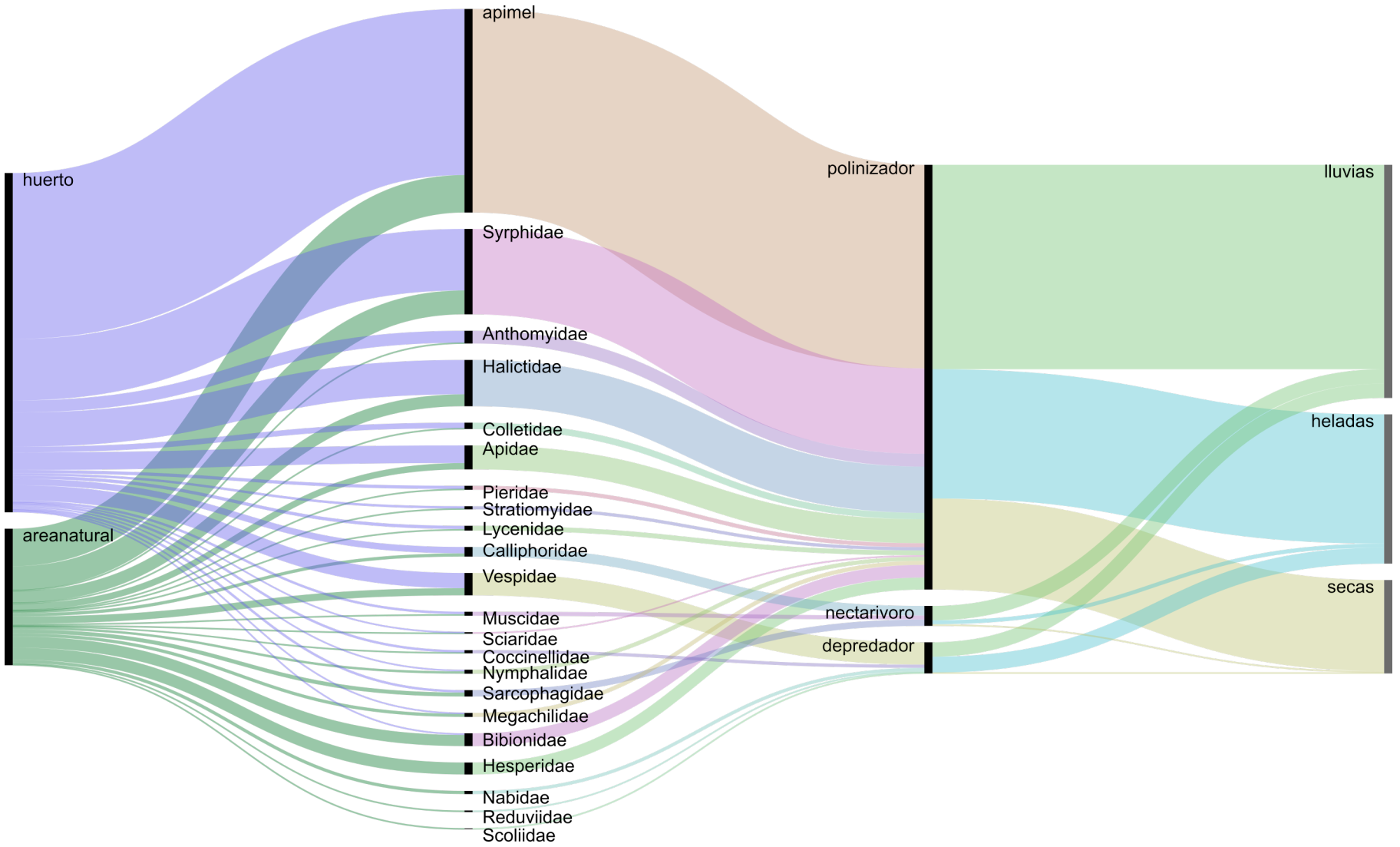

smamac
osmazt
simamp
thysp1
eupbas
cupaeq
monxal
bidodo
boroff
secedu
stejor
erikar
phacoc
desapa
megzap
poamel
apimel
eryten
bibcri
bomeph
maldom
barsal
caloff
rapsat
astpur
cerabu
braola
agepic
sonole
corsat
lejmex
lassub
polins
rutgra
loxmut
brajun
petcri
foevul

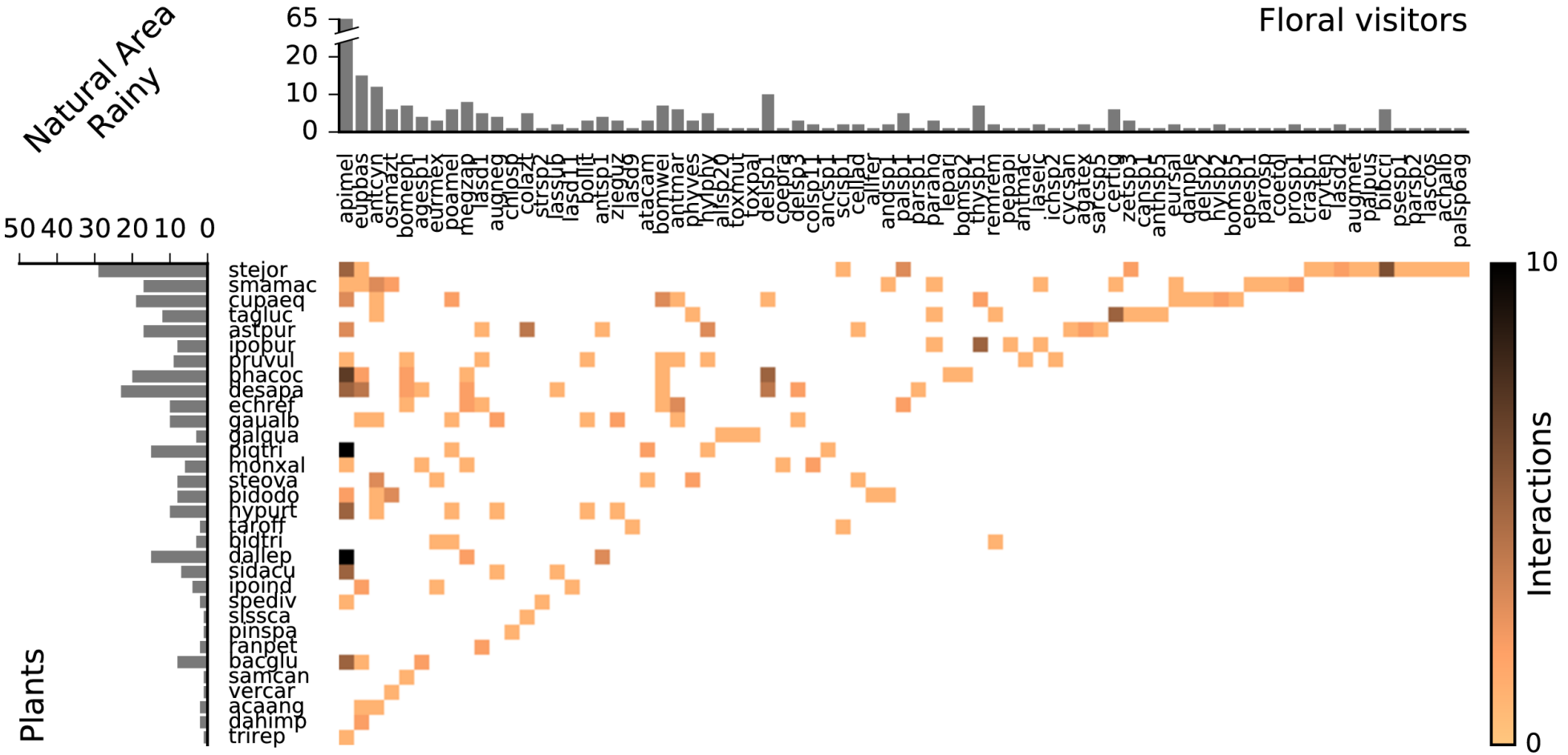
Visualizing larger networks as giant hairballs is less helpful than providing charts that show key characteristics of the graph


huerto en heladas
rutgra
rapsat
brajun
maldom
apimel

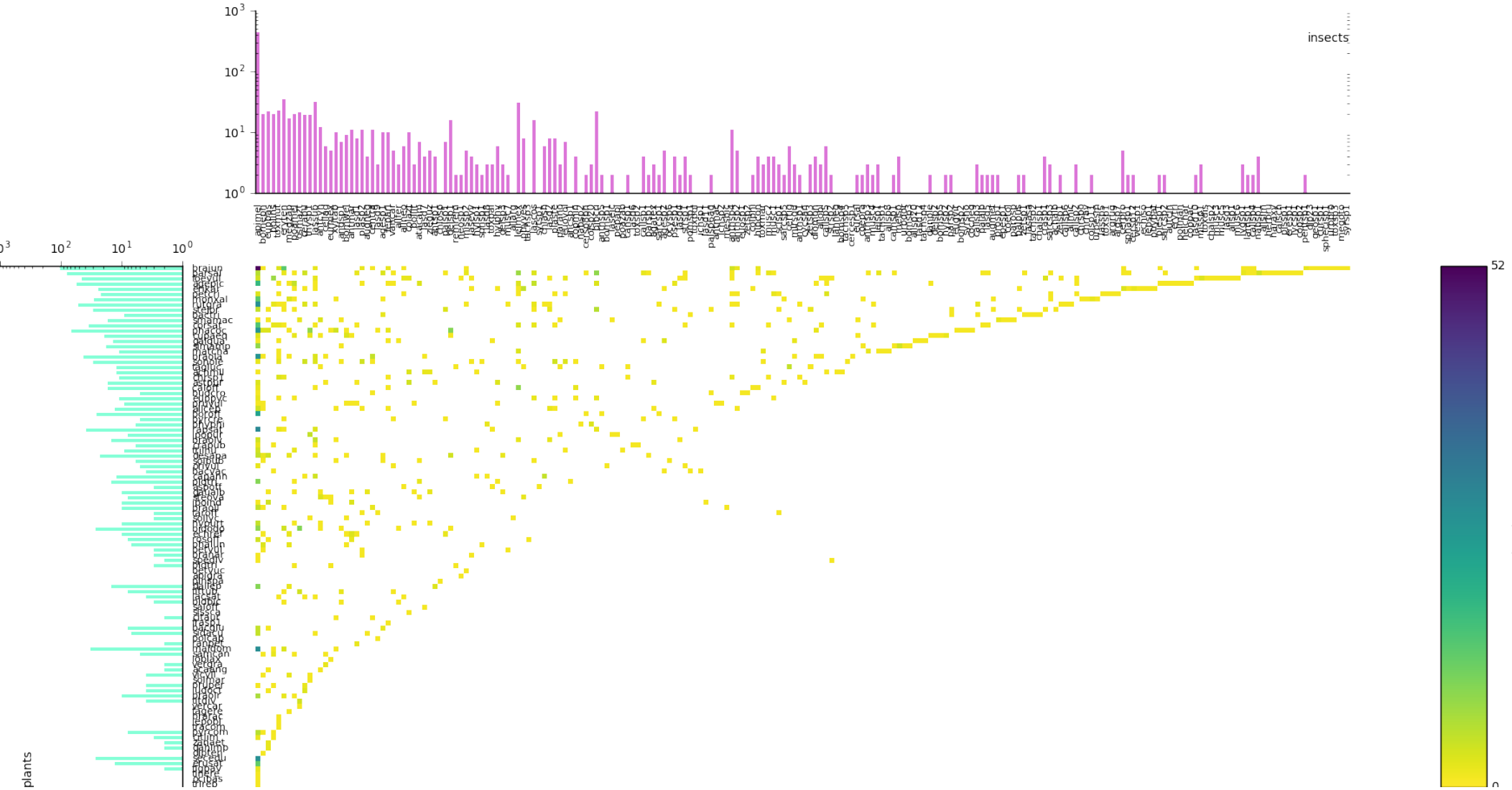

insectos all
heladas
secas
lluvias
29
17
46
21
11
22
64
plantas all
heladas
secas
lluvias
13
11
9
8
2
6
51
insectos areanatural
heladas
secas
lluvias
23
9
41
8
9
9
49
plantas areanatural
heladas
secas
lluvias
3
6
4
1
0
1
30
insectos huerto
heladas
secas
lluvias
17
11
36
8
6
12
42
plantas huerto
heladas
secas
lluvias
11
5
7
7
1
5
27

Metadata


huerto
areanatural
apimel
Syrphidae
Anthomyidae
Halictidae
Colletidae
Apidae
Pieridae
Stratiomyidae
Lycenidae
Calliphoridae
Vespidae
Muscidae
Sciaridae
Coccinellidae
Nymphalidae
Sarcophagidae
Megachilidae
Bibionidae
Hesperidae
Nabidae
Reduviidae
Scoliidae
polinizador
nectarivoro
depredador
lluvias
heladas
secas



Natural Area
Rainy
Floral visitors
65
20
10
0
apimel
eupbas
antcyn
osmazt
bomeph
agesp1
eurmex
poamel
megzap
lasd1
augneg
chlosp
colazt
strsp2
lassup
lasd11
bollit
antsp1
zieguz
lasd9
atacam
bomwei
antmar
phyves
hylphy
allsp20
toxmut
toxpal
delsp1
coepra
delsp3
colsp11
ancsp1
scisp1
cellad
allfer
andsp1
palsp1
parsp1
parano
lepari
bomsp2
thysp1
remrem
pepapi
antmac
laseic
ichsp2
cycsan
agatex
sarcsp5
certig
zetsp3
cansp1
anthsp5
eursal
danple
delsp2
hylsp2
bomsp5
epesp1
parosp
coetol
prosp1
crasp1
eryten
lasd2
augmet
palpus
bibcri
psesp1
parsp2
lascos
achalb
palspbag
50 40 30 20 10 0
stejor
smamac
cupaeq
tagluc
astpur
ipopur
pruvul
phacoc
desapa
echref
gaualb
galqua
piqtri
monxal
steova
bidodo
hypurt
taroff
bidtri
dallep
sidacu
ipoind
spediv
slssca
pinspa
ranpet
bacglu
samcan
vercar
acaang
dahimp
trirep
Plants
10
0
Interactions


insects
plants
abundance
52
0

What if I really need to plot my network?

- Determine key properties
- Divide in groups
- Select symbols and color scales
- First order nodes, then edges

Recursos

- Visualización:

  https://classroom.udacity.com/courses/ud507/
- Redes

  http://kateto.net/network-visualization
- Recursos

  http://app.rawgraphs.io

  http://www.hiveplot.com/

  http://colorbrewer2.org/

  http://www.cytoscape.org/

  https://www.yworks.com/products/yed