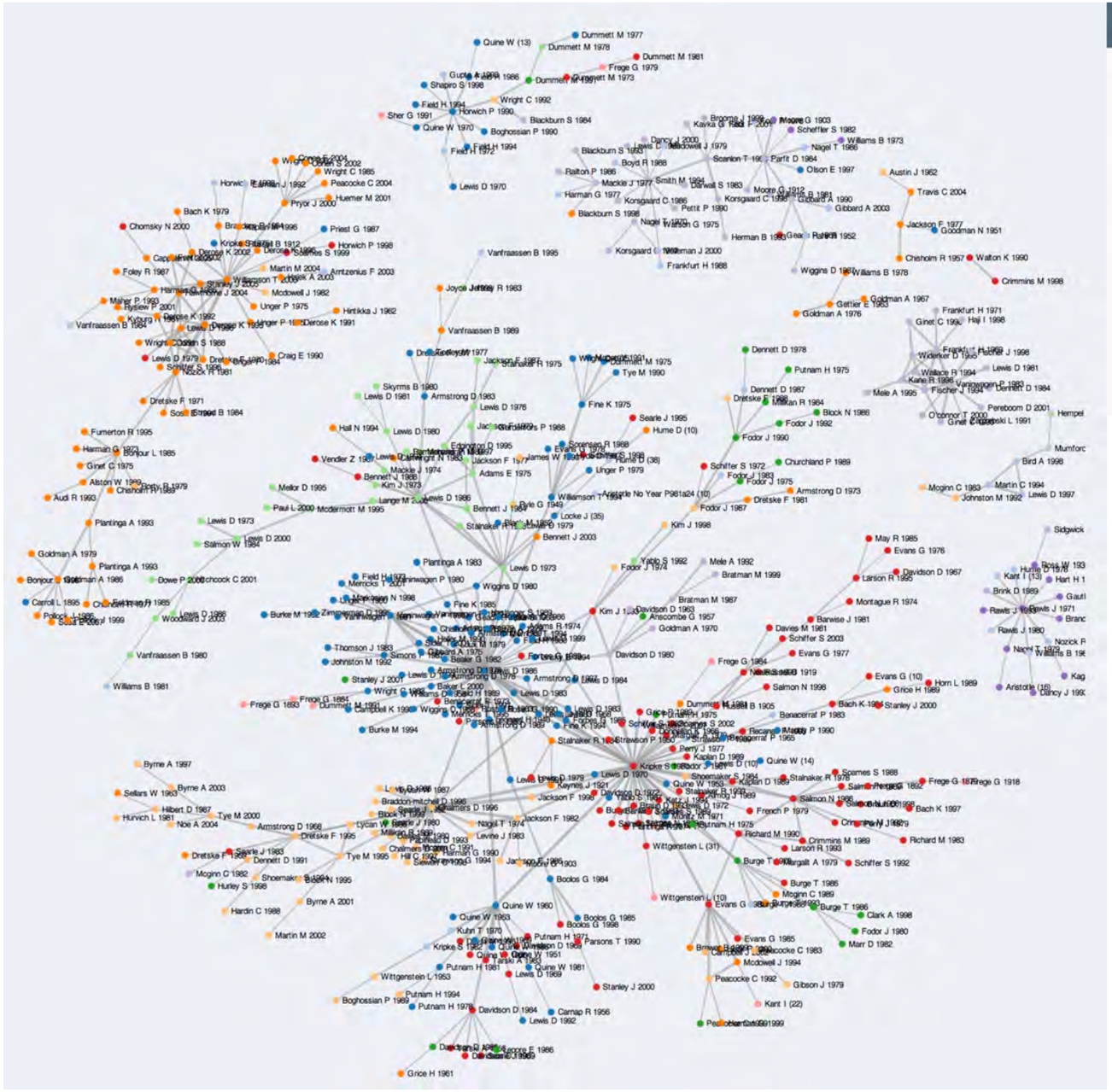
IP Law's Semantic Self-Portrait: A Co-Citation Analysis

Joe Miller – UGA



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A CO-CITATION NETWORK FOR PHILOSOPHY

June 18, 2013

• Philosophy • Sociology • Data • Visualization

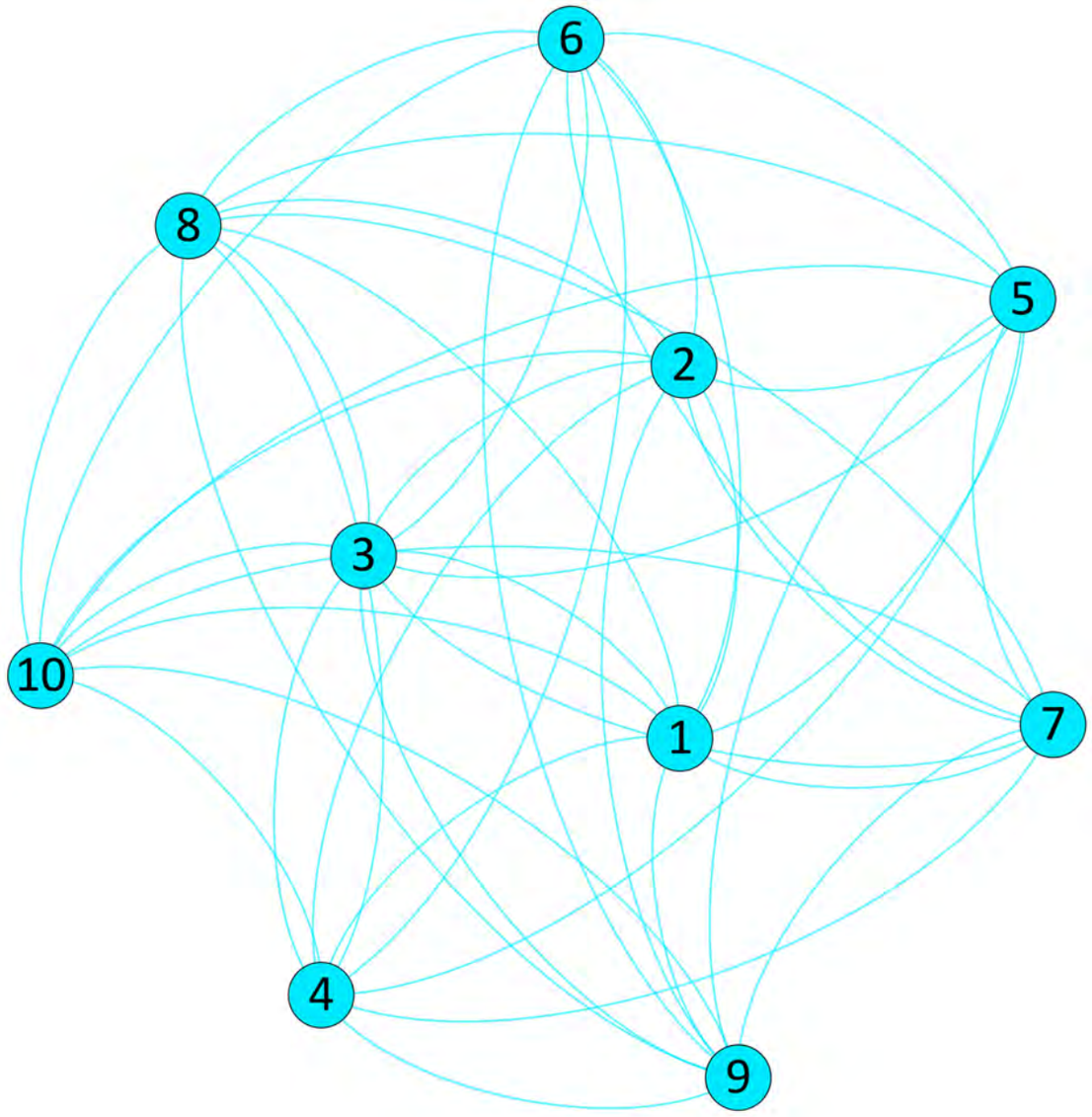
Corrections and Changes as of June 26th, 2013: See the end of the post for details on some changes and fixes to errors in the data.

What have English-speaking philosophers been talking about for the last two decades? I'm asking—and presenting an answer to—this question partly out of an ongoing research interest in philosophy, partly out of some recent "Does anyone know ...?" questions I've been asked, and partly to play with some new text-processing and visualization methods. There are of course many ways to make the general question specific. Here's the beginnings of an answer based on some work I did yesterday evening.

Studying An Apex Court's Outputs

		Is the vote/outcome important?	
		Yes	No
Is the doctrinal content important?	Yes	traditional doctrinal analysis	**co-citation analysis** ⇢ Digital Humanities
	No	attitudinal model	*The Brethren*

Id	InDegree	OutDegree	Degree	Authority	Hub
1	9	0	9	0.457	0.000
2	8	1	9	0.445	0.076
3	7	2	9	0.420	0.149
4	6	3	9	0.384	0.218
5	5	4	9	0.338	0.282
6	4	5	9	0.282	0.338
7	3	6	9	0.218	0.384
8	2	7	9	0.149	0.420
9	1	8	9	0.076	0.445
10	0	9	9	0.000	0.457



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5	3
5	2
5	1
6	5
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9	4
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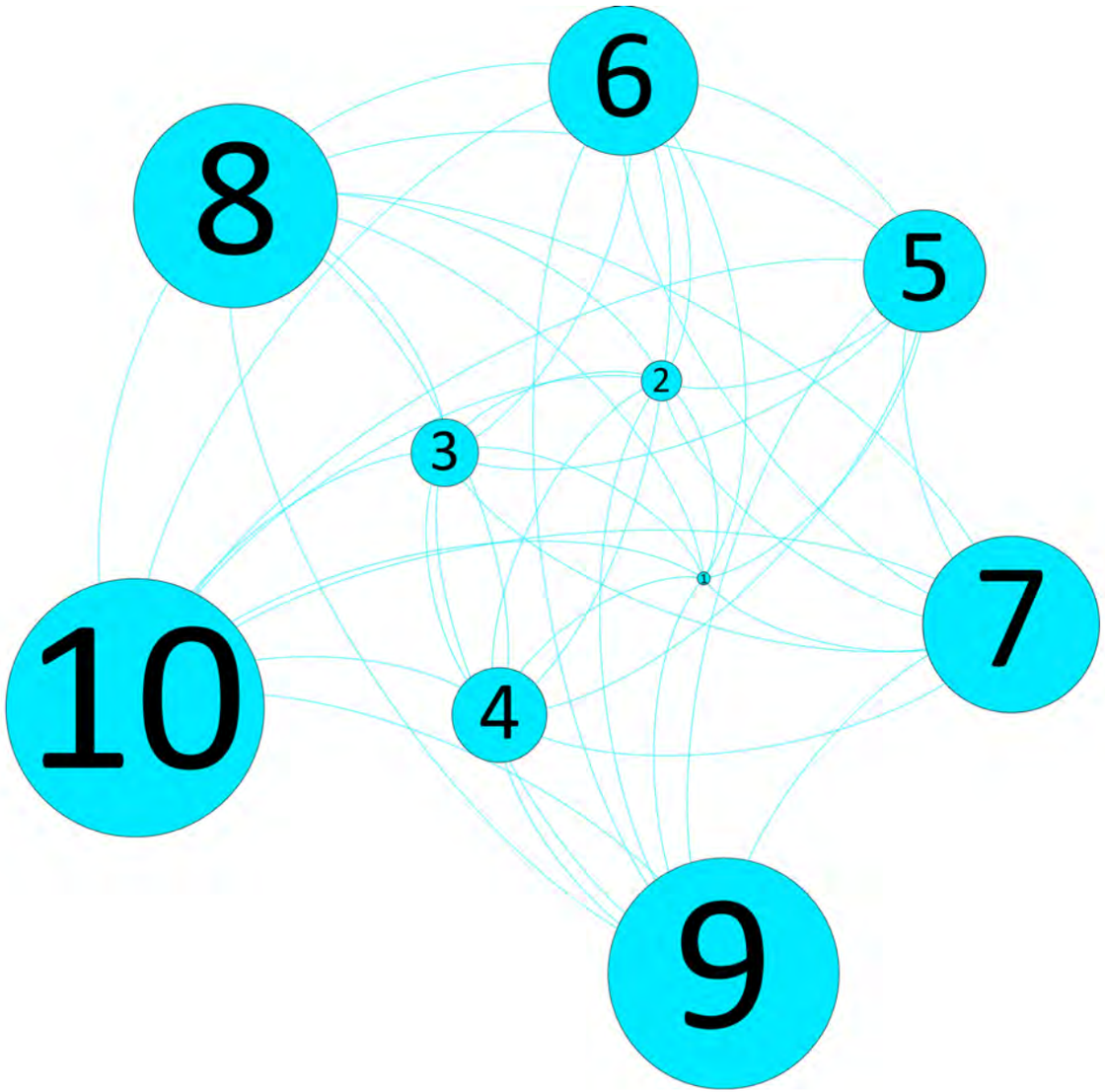
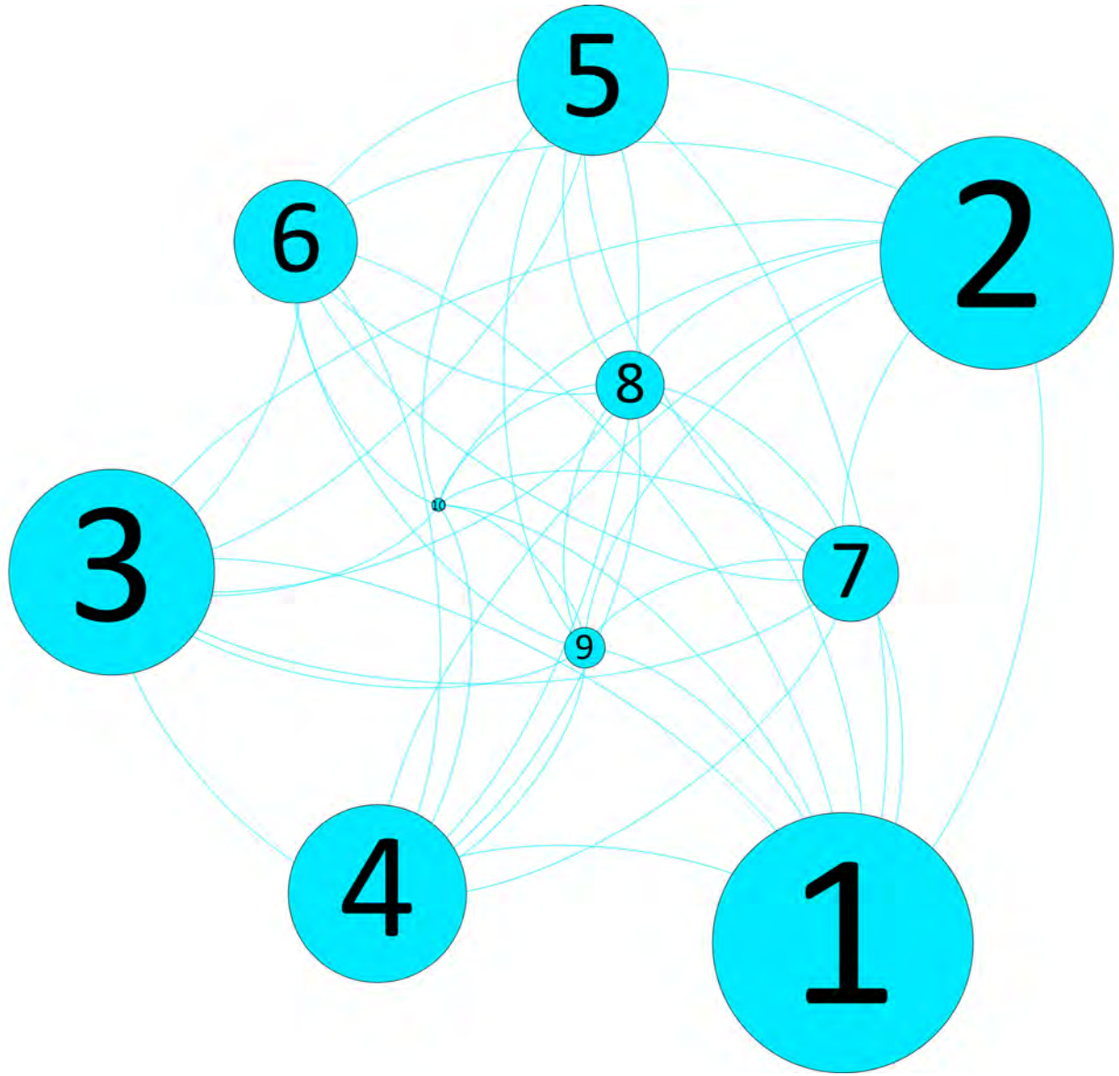
10	2
10	1


6
8
5
2
3
7
1
10
4
9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2
8
10
3
7
9
4
1

CoCite A	CoCite B	Edge Weight
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3	2	7
4	1	6
4	2	6
4	3	6
5	1	5
5	2	5
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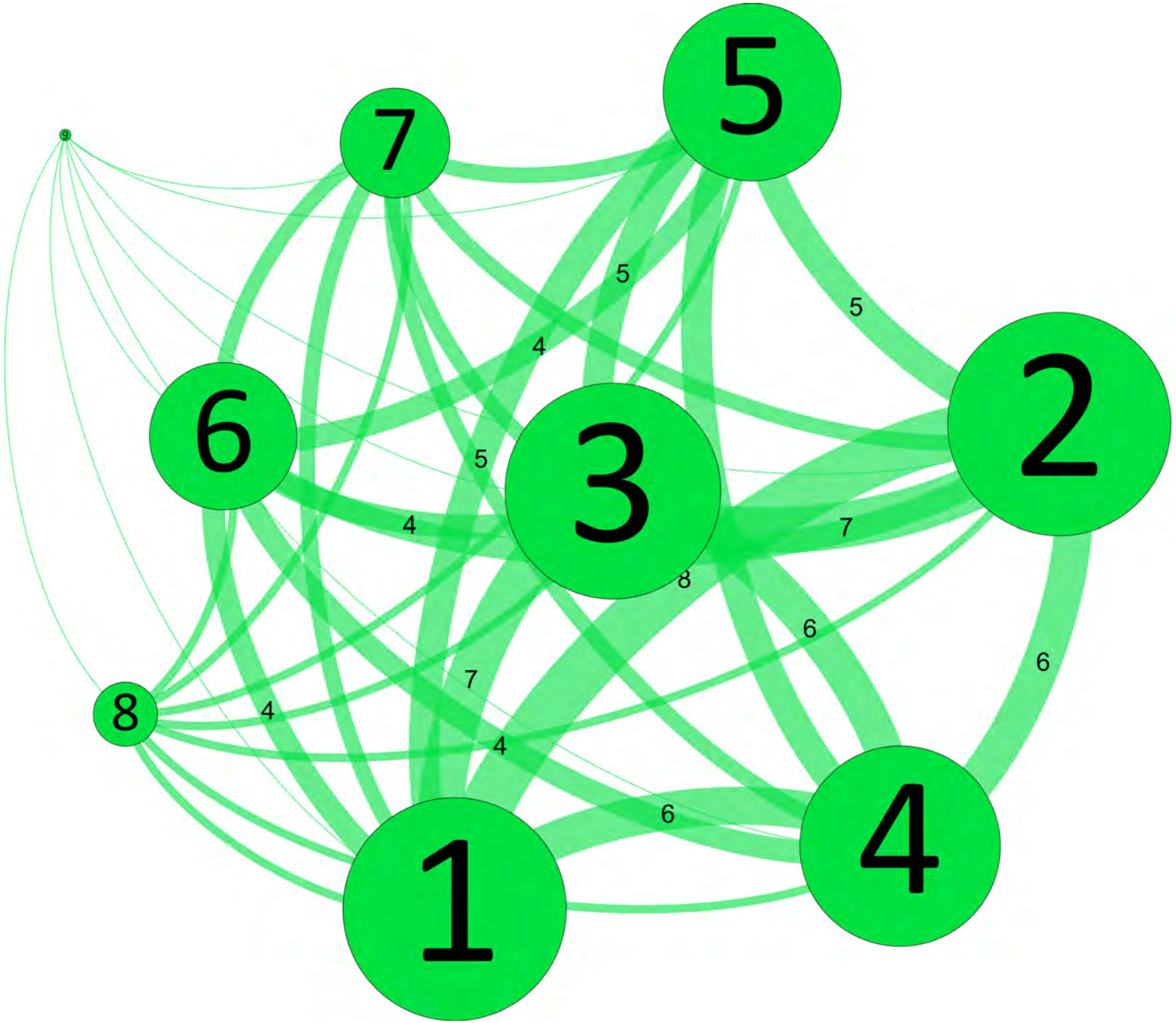
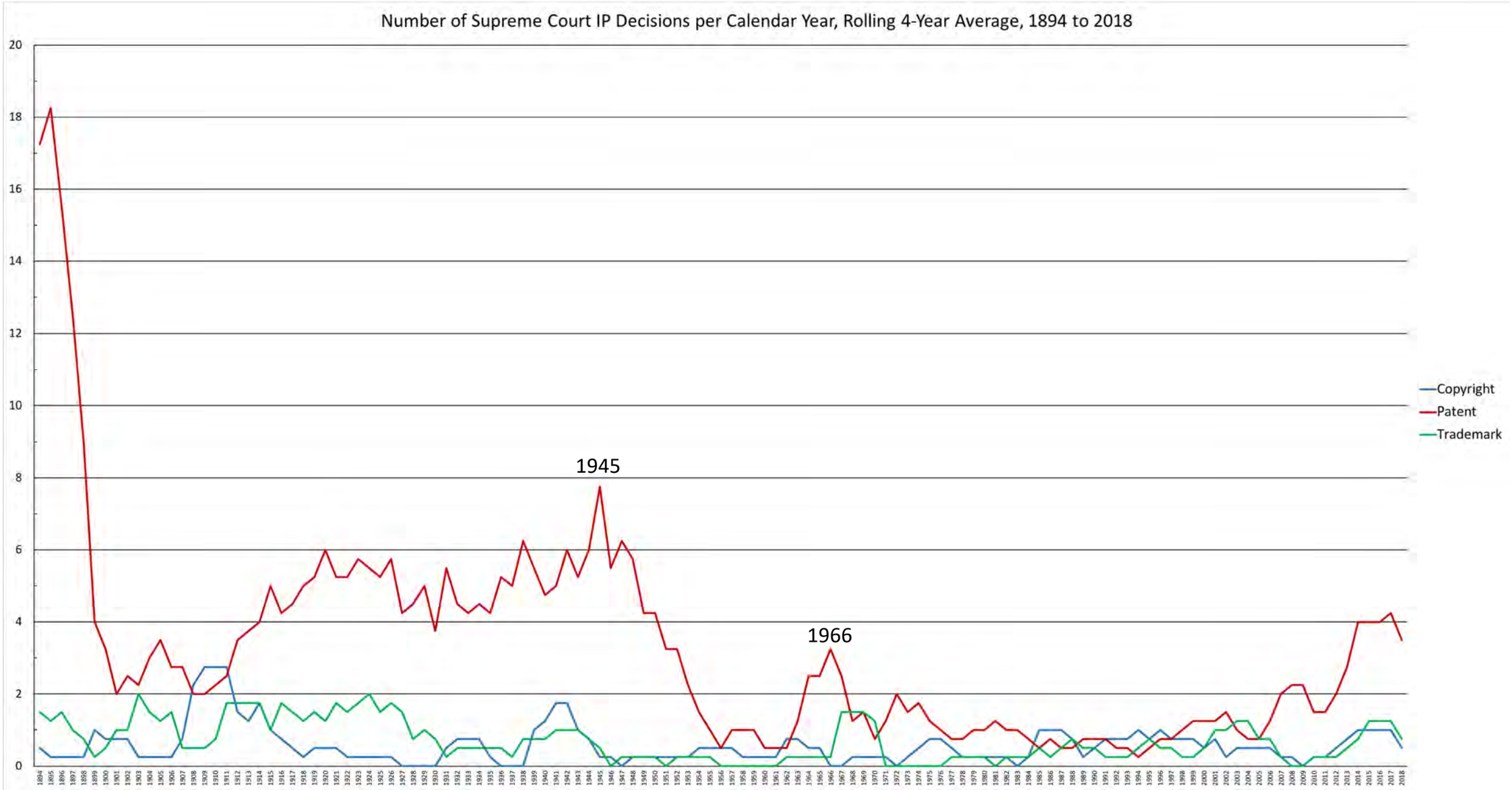
8	6	2
8	7	2
9	1	1
9	2	1
9	3	1
9	4	1
9	5	1
9	6	1
9	7	1
9	8	1

Node	Wghtd Dgr
1	36
2	36
3	35
4	33
5	30
6	26
7	21
8	15
9	8
[10]	[0]

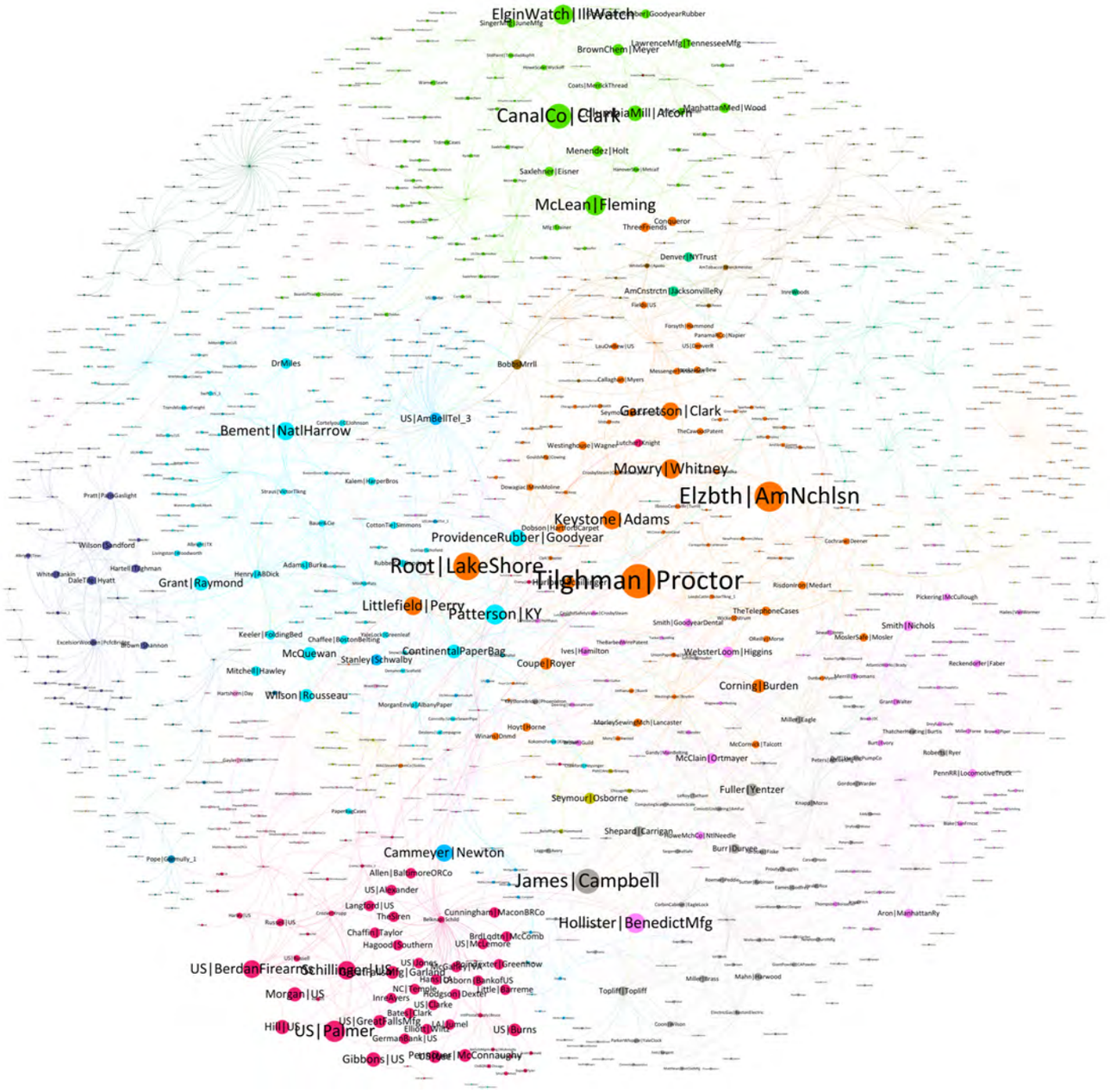


S. Ct. IP Cases, 1891–2018 (128 yrs)

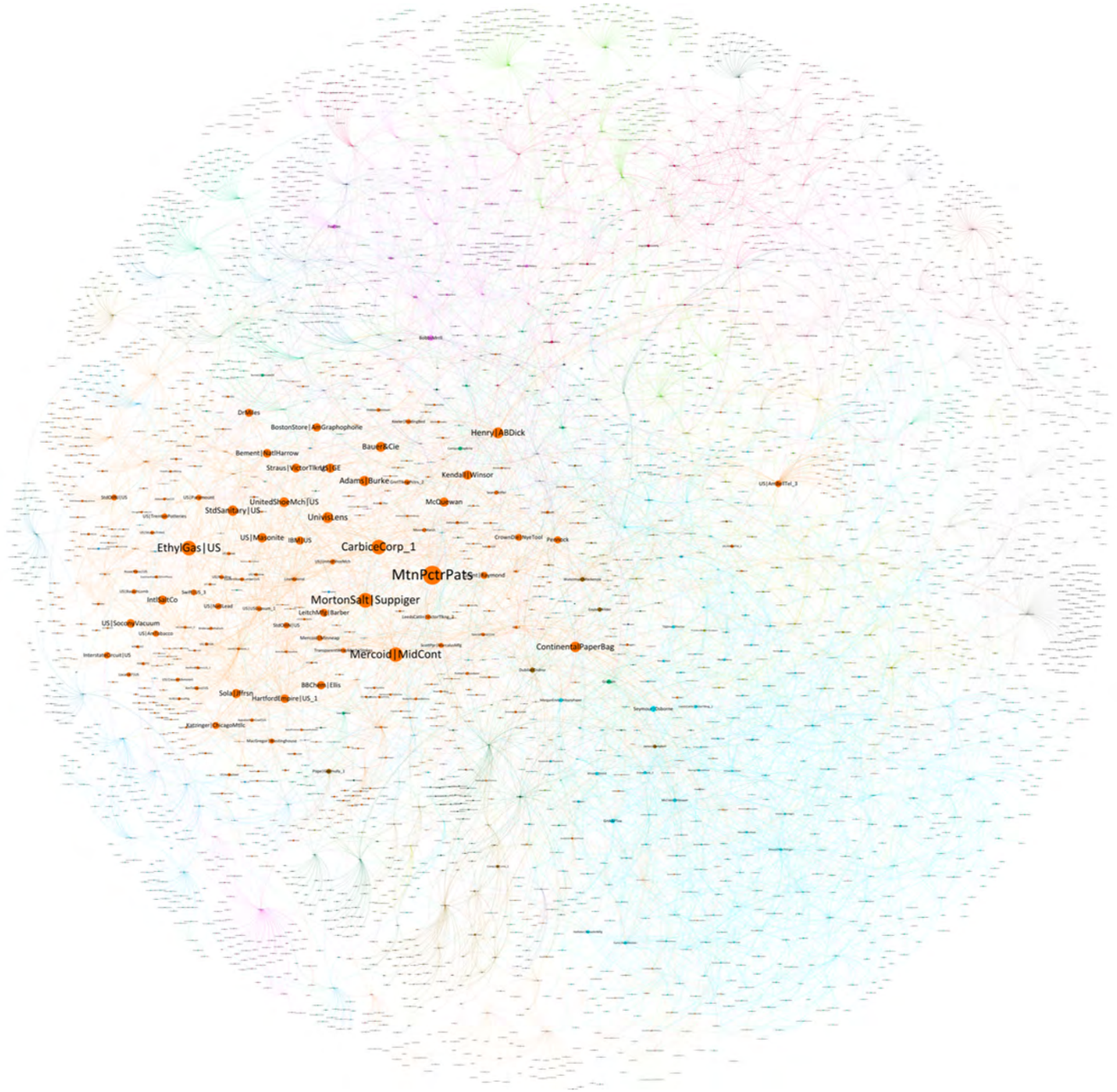
- Includes, e.g, *FTC v. Actavis*, *Zacchini*, *Walker Process*, *Kewanee*
- 608 — Patent: 73% | Trademark: 15% | Copyright: 12%
- Break down by …
  - four 32-year chunks – ’22 , ’54 , ’86 , ’18
  - ip type


Number of Supreme Court IP Decisions per Calendar Year, Rolling 4-Year Average, 1894 to 2018
20
18
16
14
12
10
8
6
4
2
0
1945
1966
Copyright
Patent
Trademark

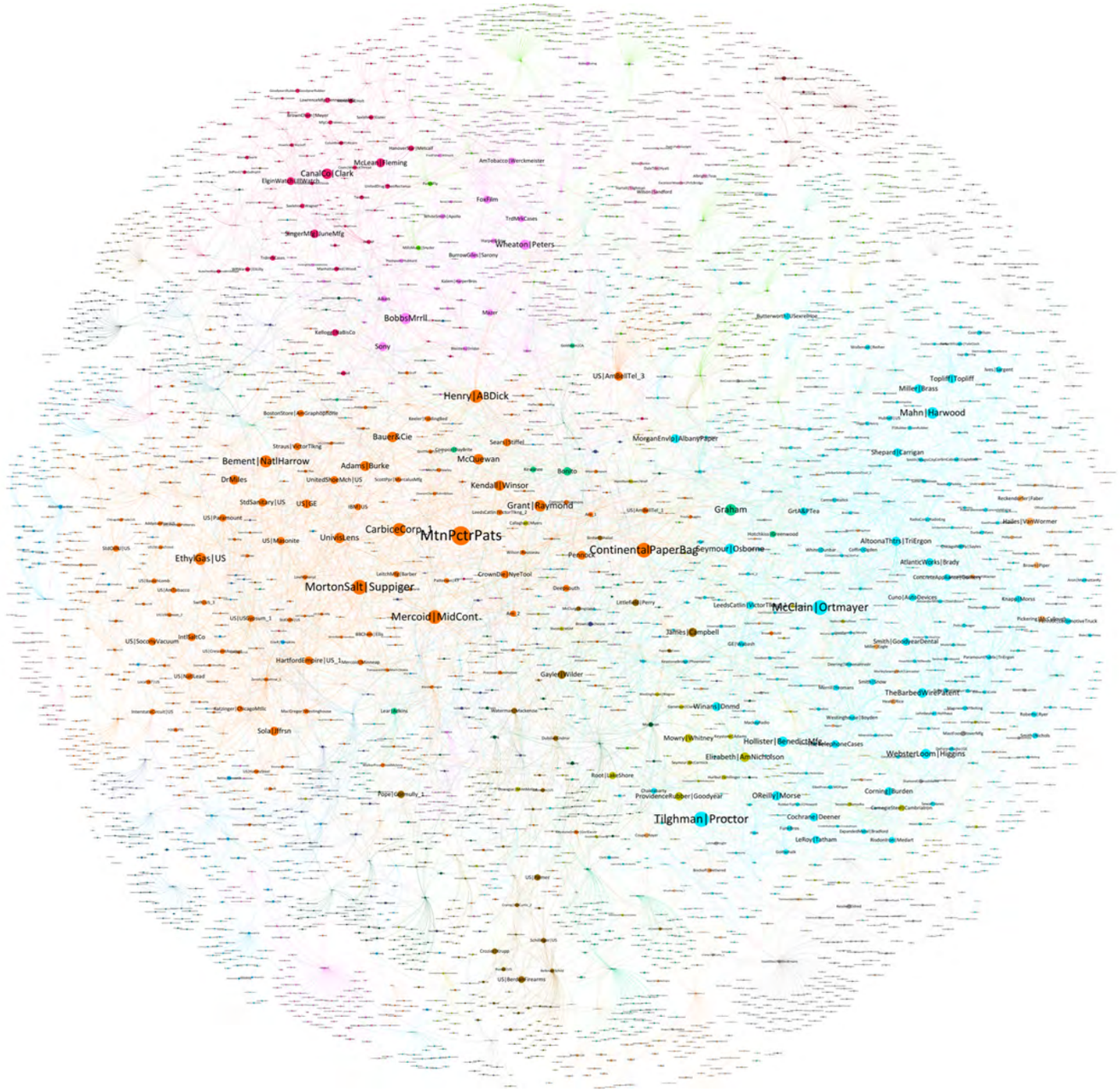
1891 to 1922 – simple
1,086 nodes
1,923 edges
size ∝ authority score



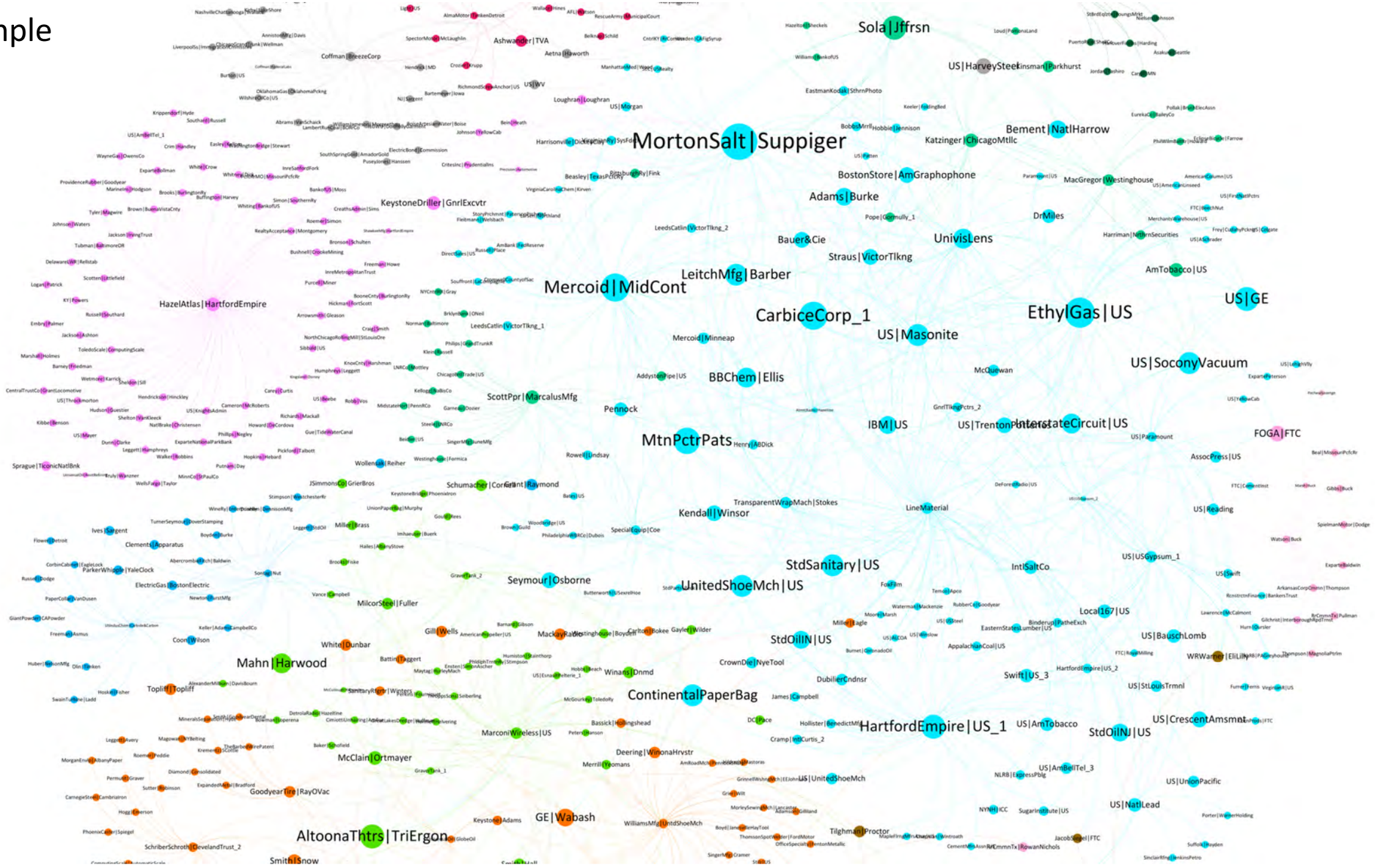
1891 to 2018 – simple
3,148 nodes
6,732 edges
size ∝ authority score



1891 to 2018 – simple
3,148 nodes
6,732 edges
size ∝ in-degree



1940 to 1950 – simple
609 nodes
1,023 edges
size ∝ in-degree



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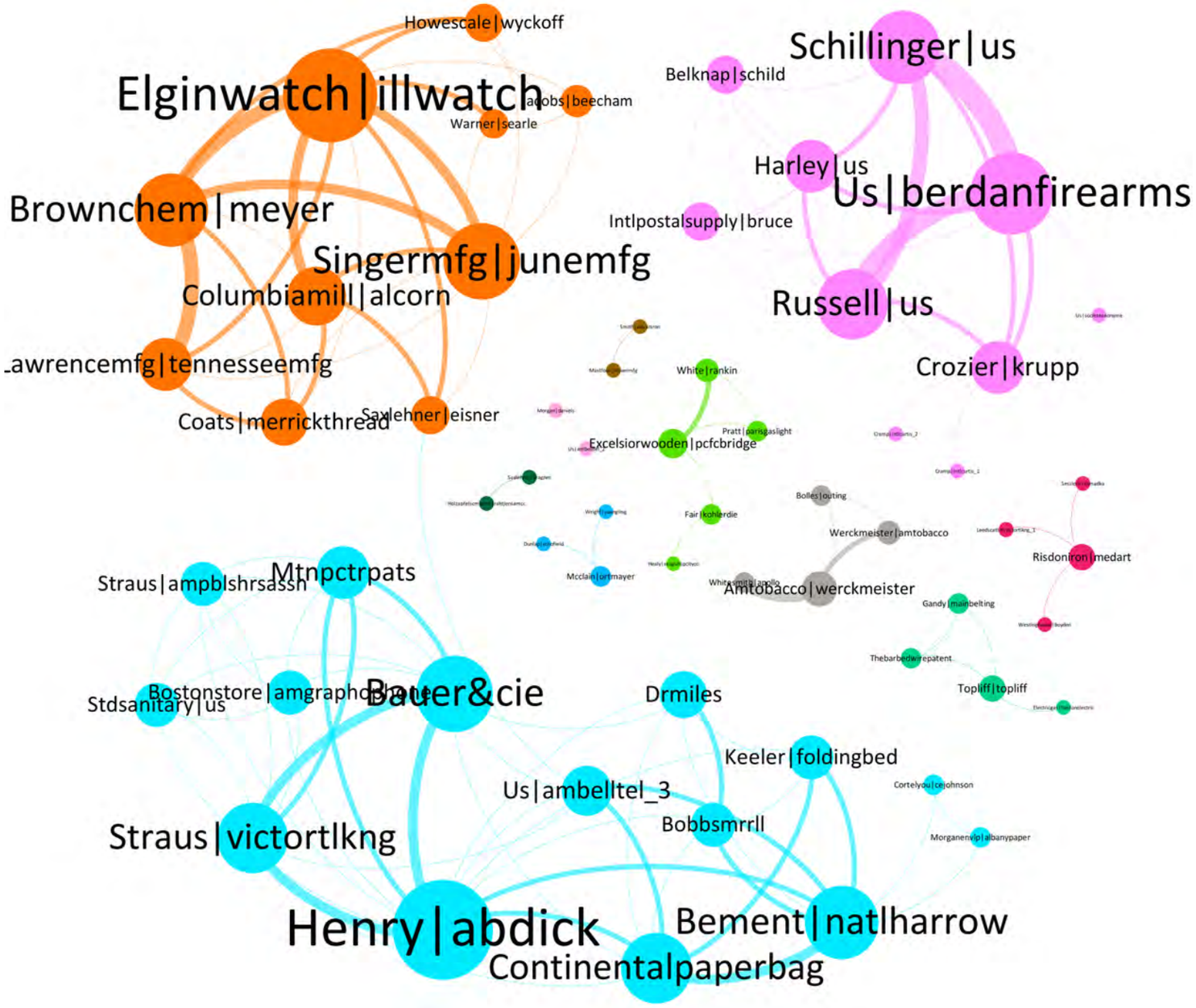
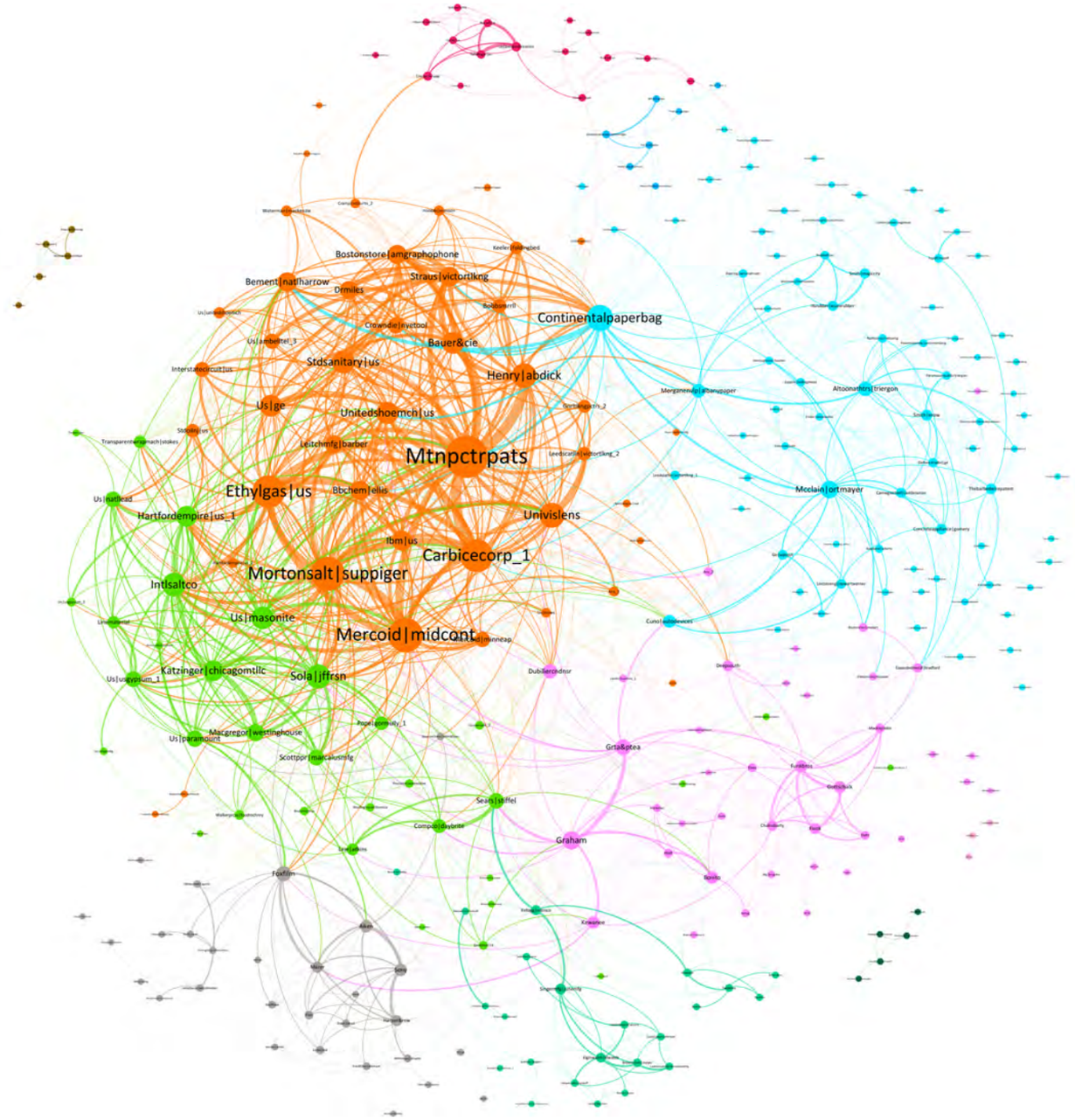
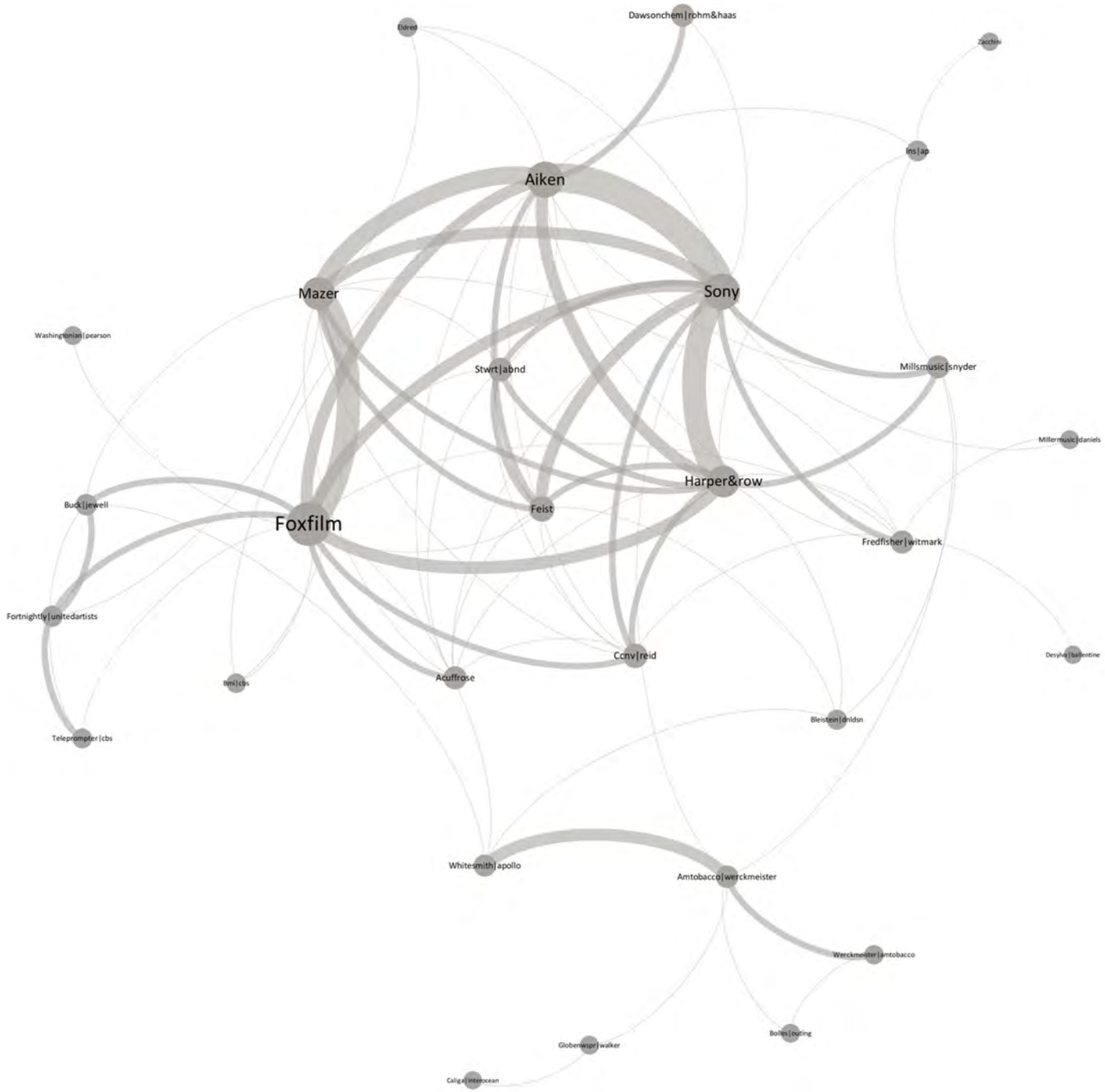
1891 to 1922 – co-citation
(limit simple to in-dgr ≥ 2)
61 nodes, 118 edges
11 clusters, all > 3%
node size ∝ wghtd degree
edge size ∝ edge weight



1891 to 2018 – co-citation
(limit simple to in-dgr ≥ 2)
292 nodes, 1,587 edges
11 clusters > 1%
(98% nodes, 99% edges)
node size ∝ wghtd degree
edge size ∝ edge weight

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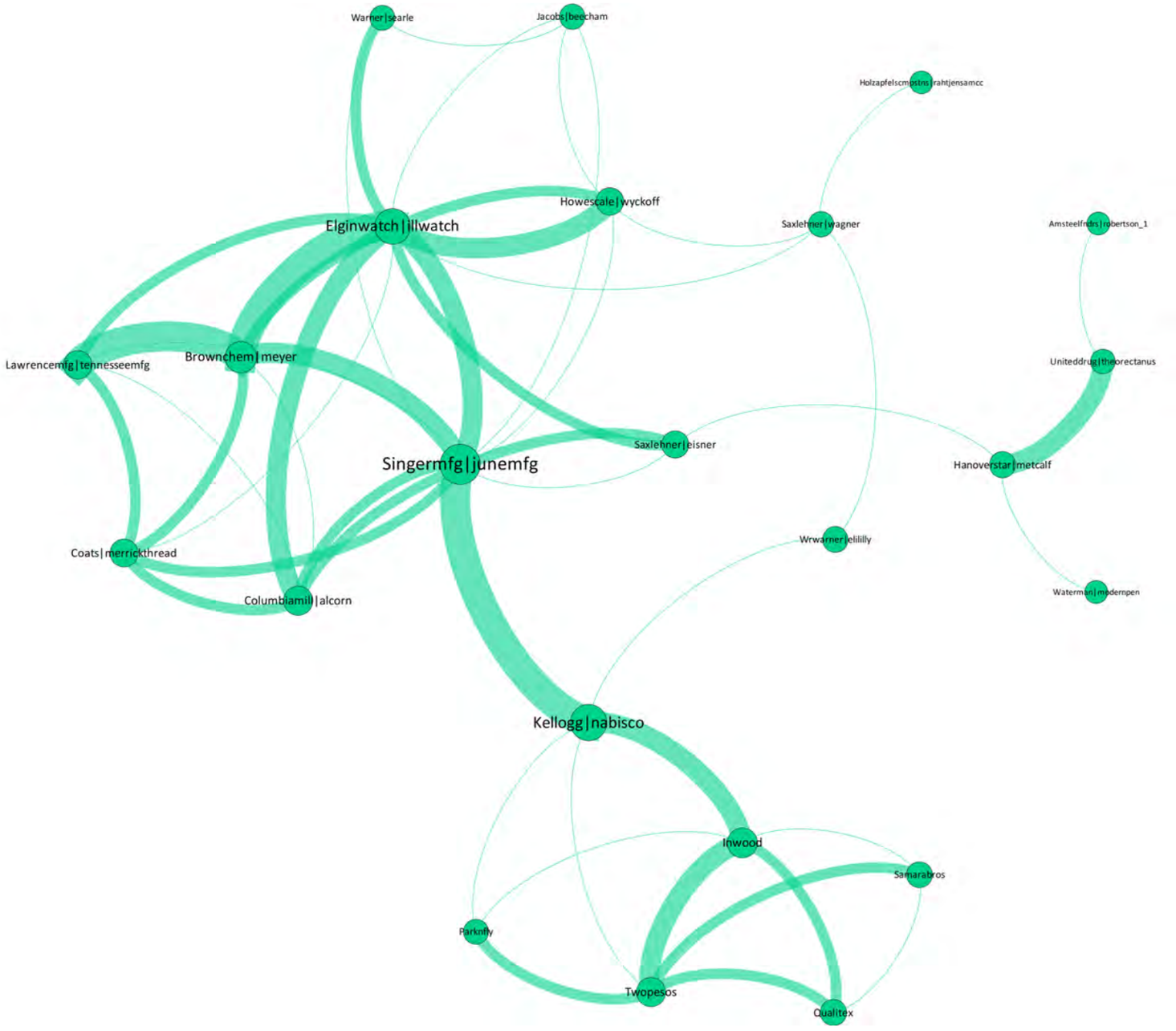
Eldred
Zacchin
Ins|ap
Aiken
Mazer
Sony
Washingtonlab|pearson
Stwrt|abnd
Millsmusic|snyder
Millermusic|daniels
Harper&row
Buck|jewell
Feist
Foxfilm
Fredfisher|witmark
Fortnightly|unitedartists
Ccnv|reid
Desylva|ballentine
Acuffrose
Bmi|cbs
Bleistein|dnldsn
Teleprompter|cbs
Whitesmith|apollo
Amtobacco|werckmeister
Werckmeister|amtobacco
Bolles|outing
Globenewspr|walker
Caliga|interocean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Elginwatch|illwatch
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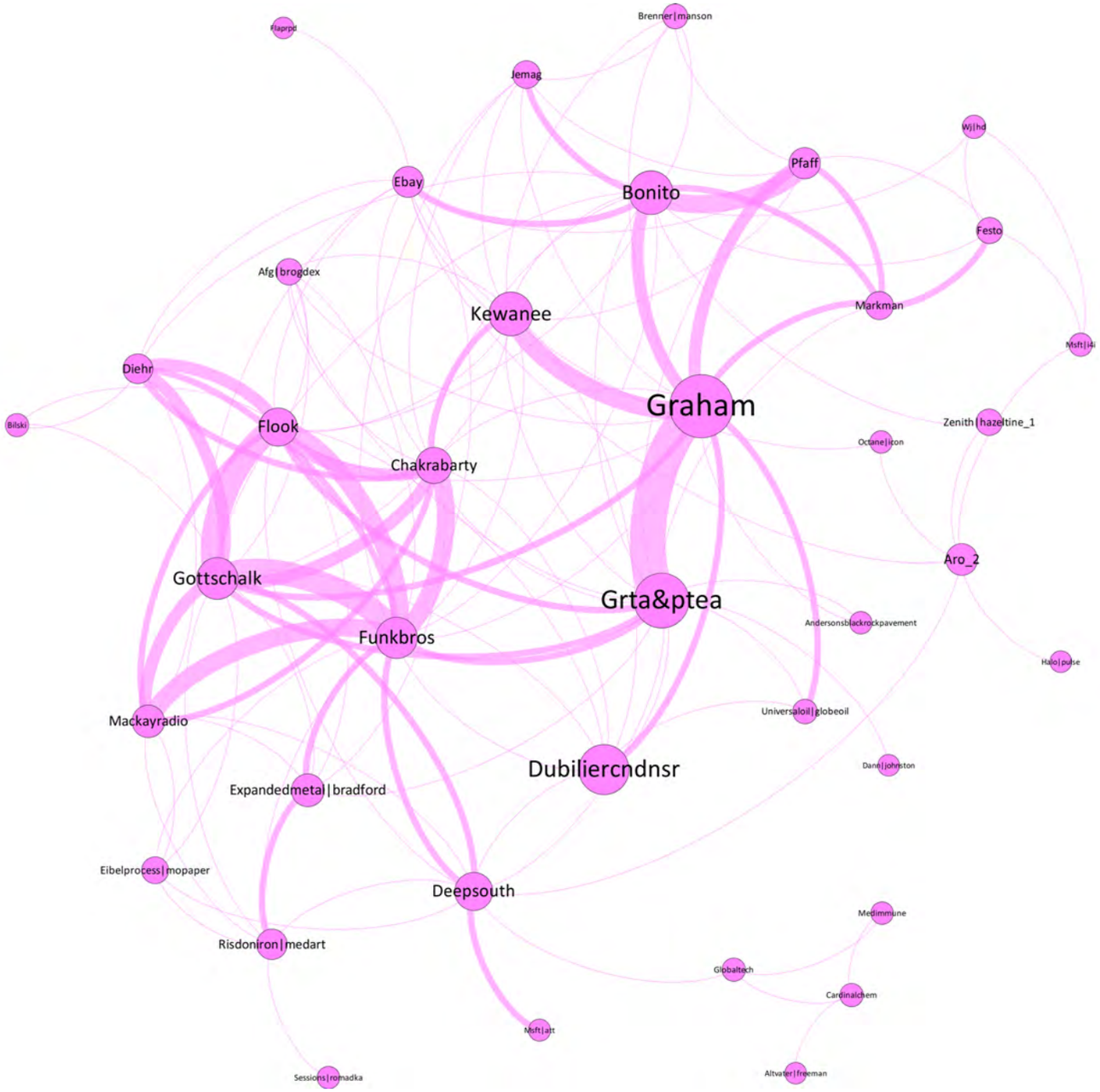
Amsteelfndrs|robertson_1
Lawrencemfg|tennesseemfg
Brownchem|meyer
Uniteddrug|theorectanus
Saxlehner|eisner
Singermfg|junemfg
Hanoverstar|metcalf
Wrwarner|elililly
Coats|merrickthread
Columbiamill|alcorn
Waterman|modernpen
Kellogg|nabisco
Inwood
Samarabros
Parknfly
Twopesos
Qualitex


Flaprpd
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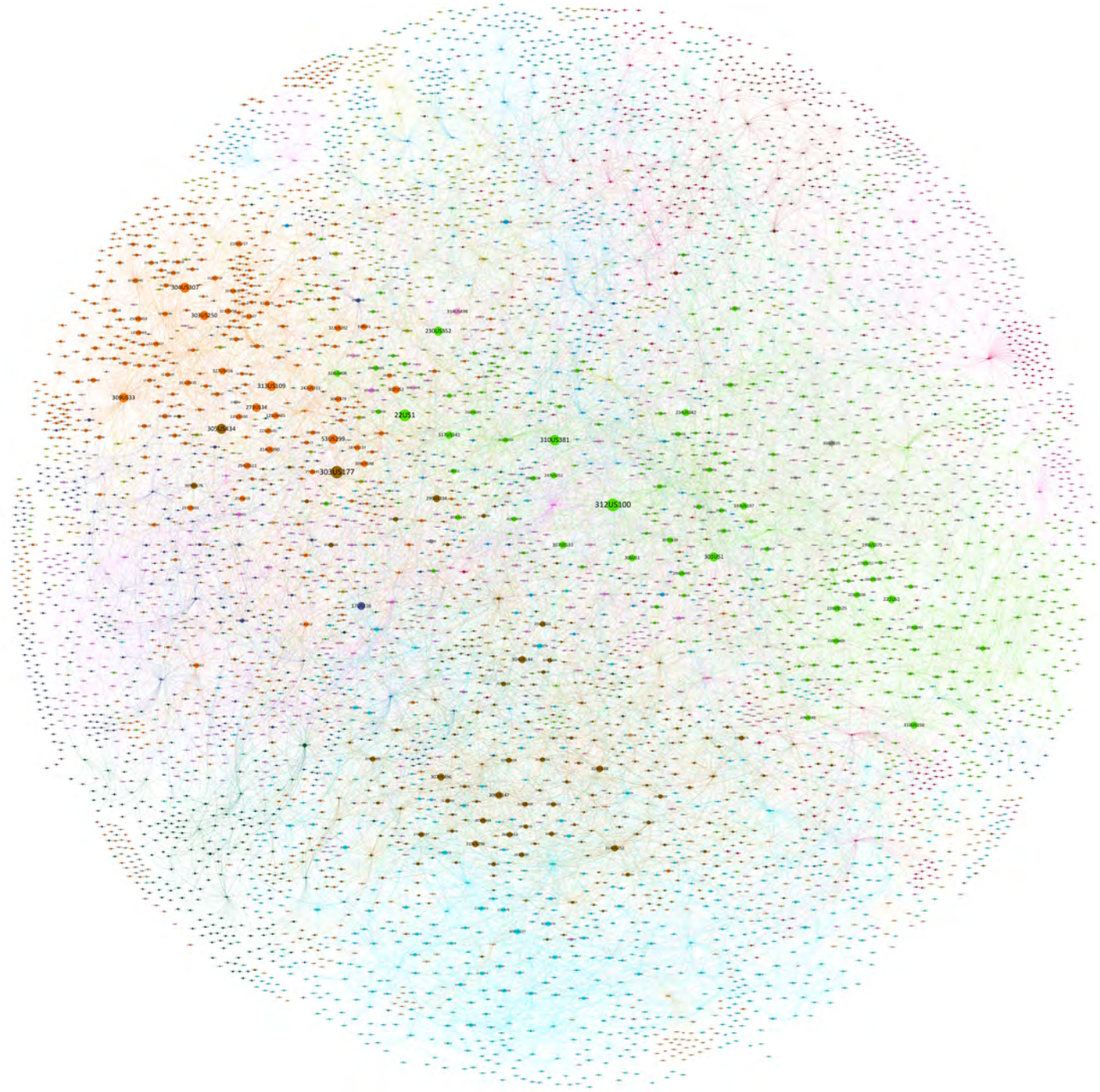
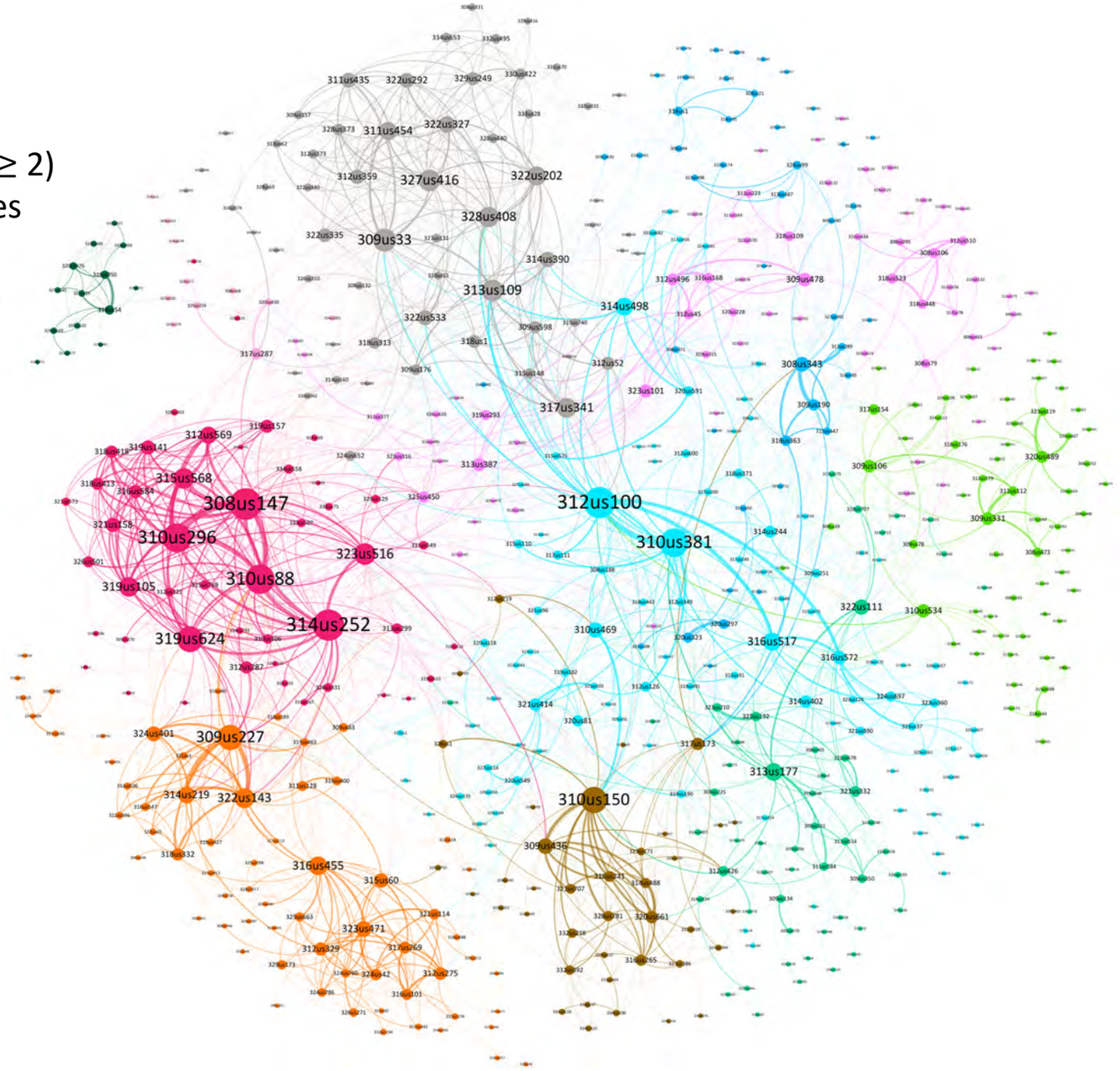
Jemag
Wj|hd
Pfaff
Ebay
Bonito
Festo
Afg|brogdex
Markman
Kewanee
Msft|i4i
Diehr
Graham
Bilski
Flook
Zenith|hazeltine_1
Octane|iron
Chakrabarty
Aro_2
Gottschalk
Grta&ptea
Andersonsblackrockpavement
Funkbros
Halo|pulse
Universaloil|globeoil
Mackayradio
Dubiliercndnsr
Dane|johnston
Expandedmetal|bradford
Eibelprocess|mopaper
Deepsouth
Medimmune
Risdoniron|medart
Globaltech
Cardinalchem
Msft|att
Altvater|freeman
Sessions|romadka

The 1940s
308 U.S. – 338 U.S.
in degree > 0
5,393 nodes (77%)
14,665 edges (74%)



The 1940s
308 U.S. – 338 U.S.
(limit simple to in-dgr ≥ 2)
556 nodes, 2,502 edges
11 clusters > 1%
93% nodes, 98% edges



The 1930s & 40s
280 U.S. – 338 U.S.
(limit simple to in-dgr ≥ 2)
1,429 nodes, 9,692 edges
11 clusters > 2%
93% nodes, 98% edges