

Representation of complex cognitive pattern stratification

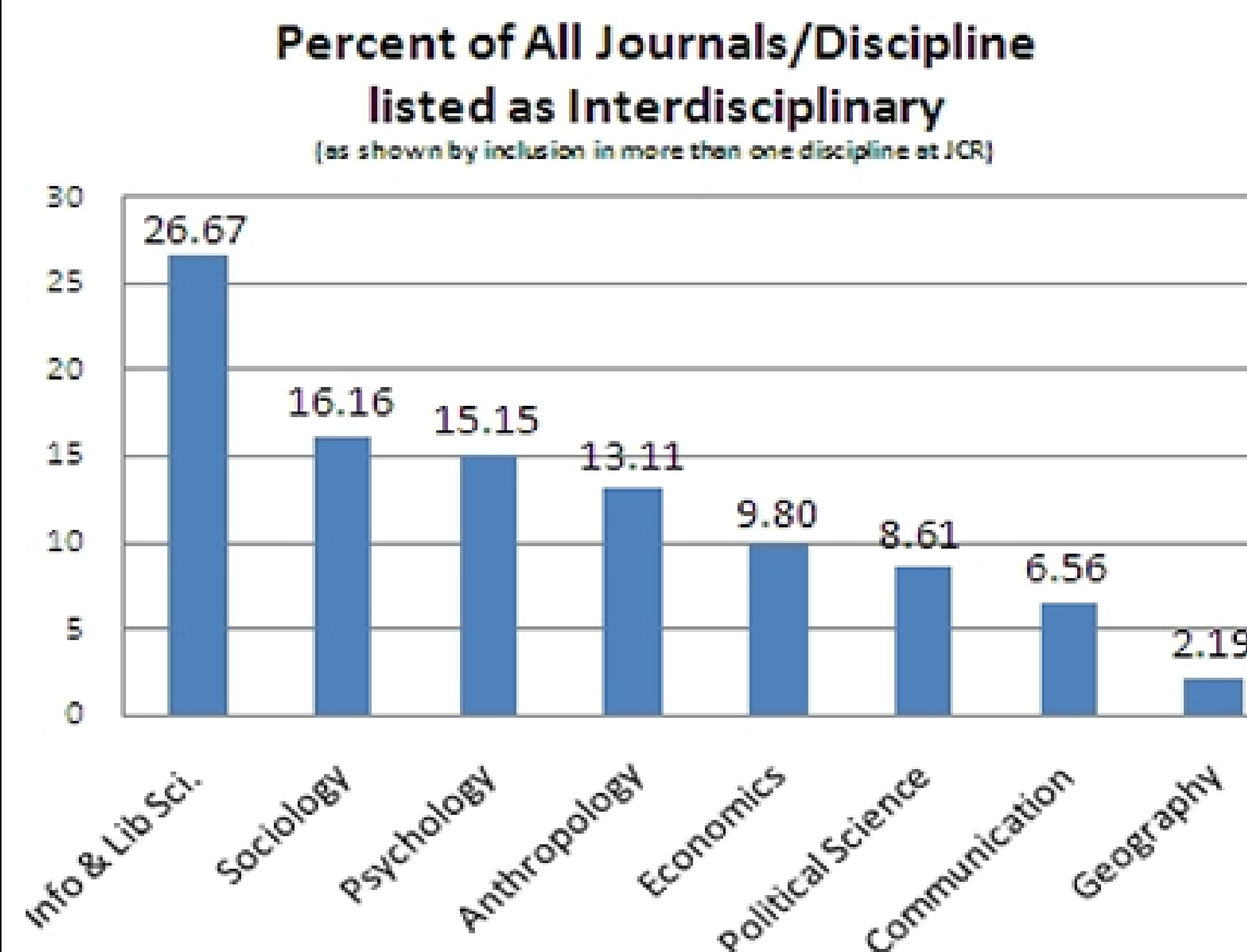
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The big picture...

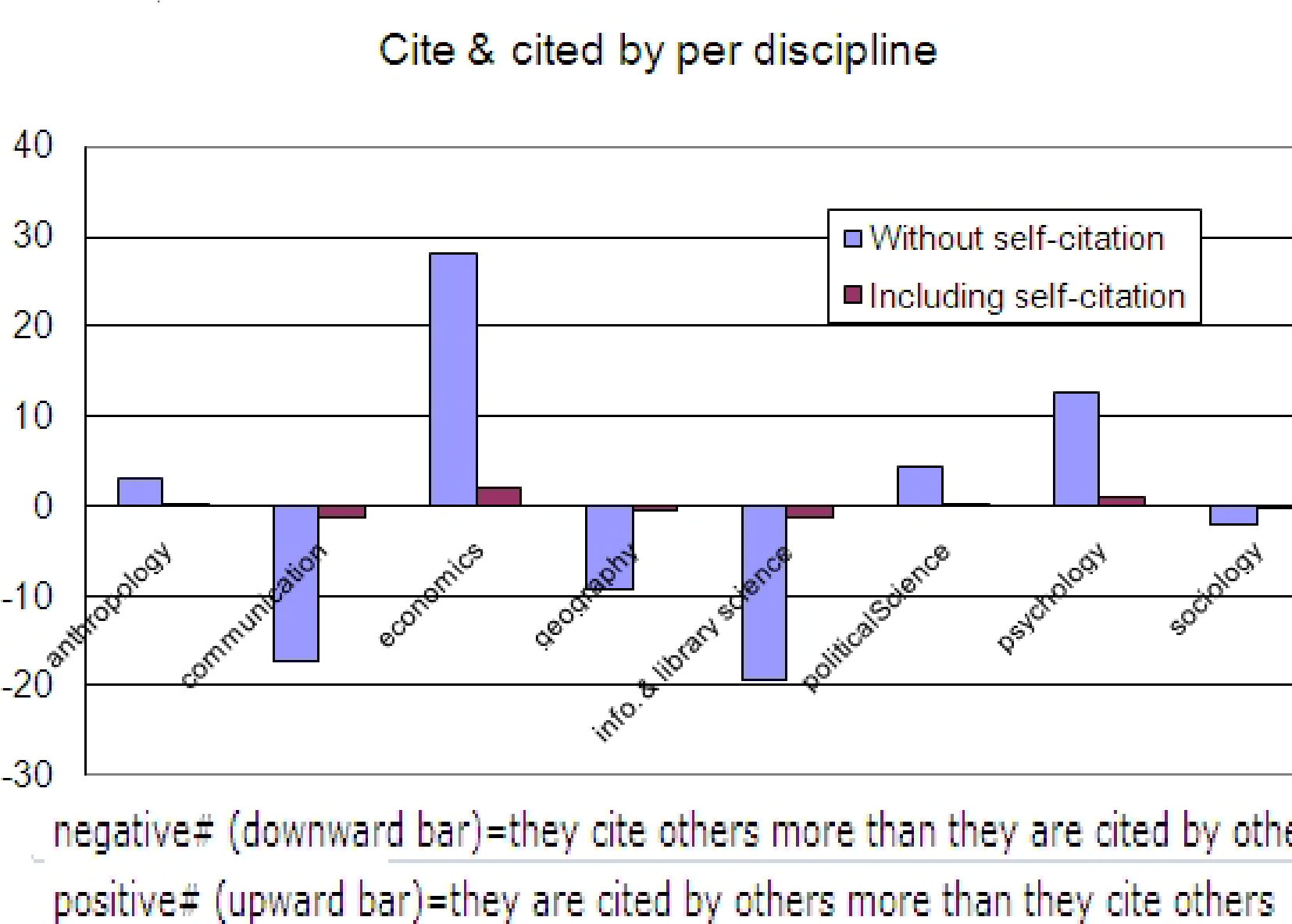
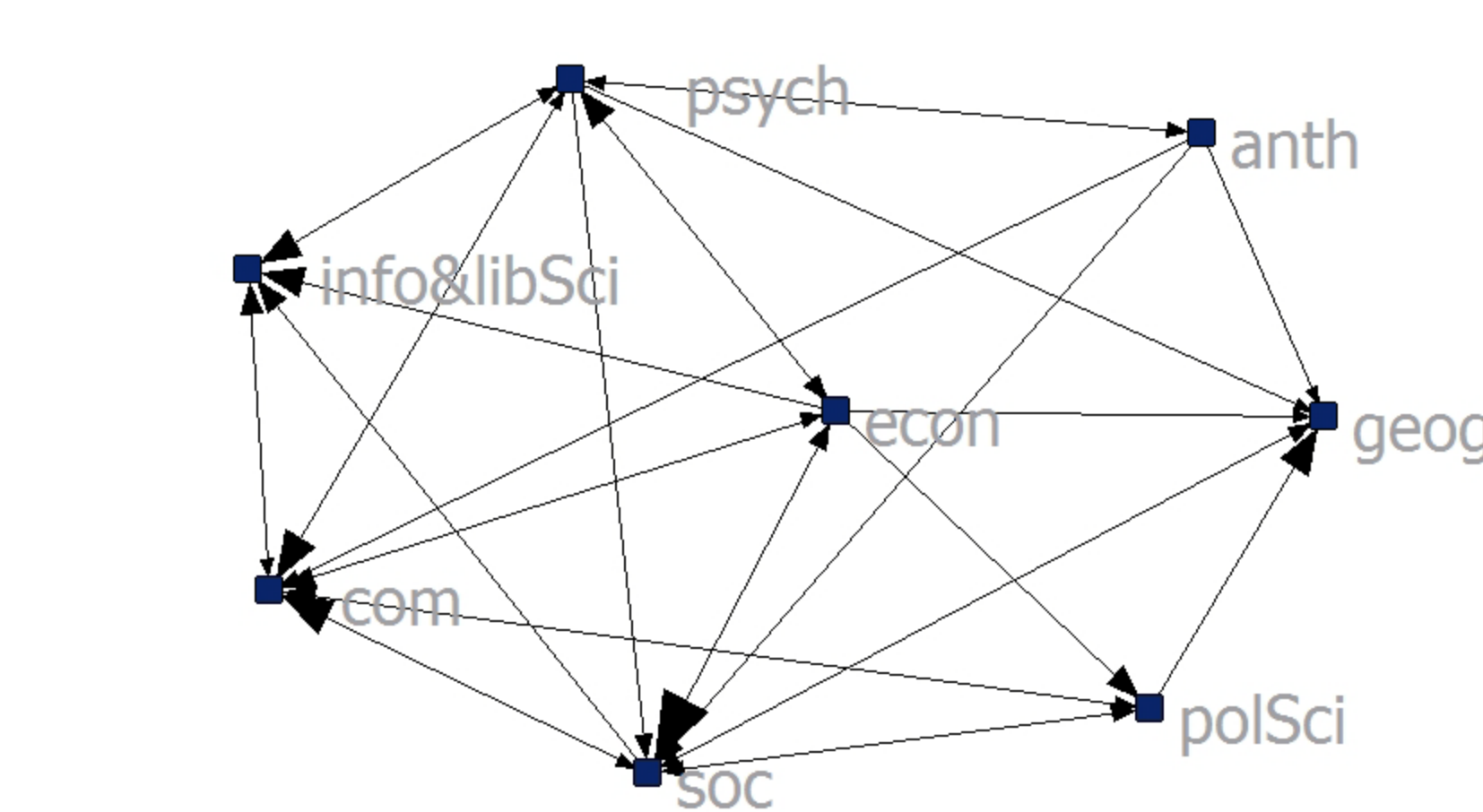
Journals by Discipline

Lists of all 2008 journal information from the Journal Citation Report (JCR) database for eight social science disciplines was downloaded; for psychology all subject categories available were chosen. Forty-one of the 1082 journals located were associated with two disciplines and two journals were associated with three disciplines.

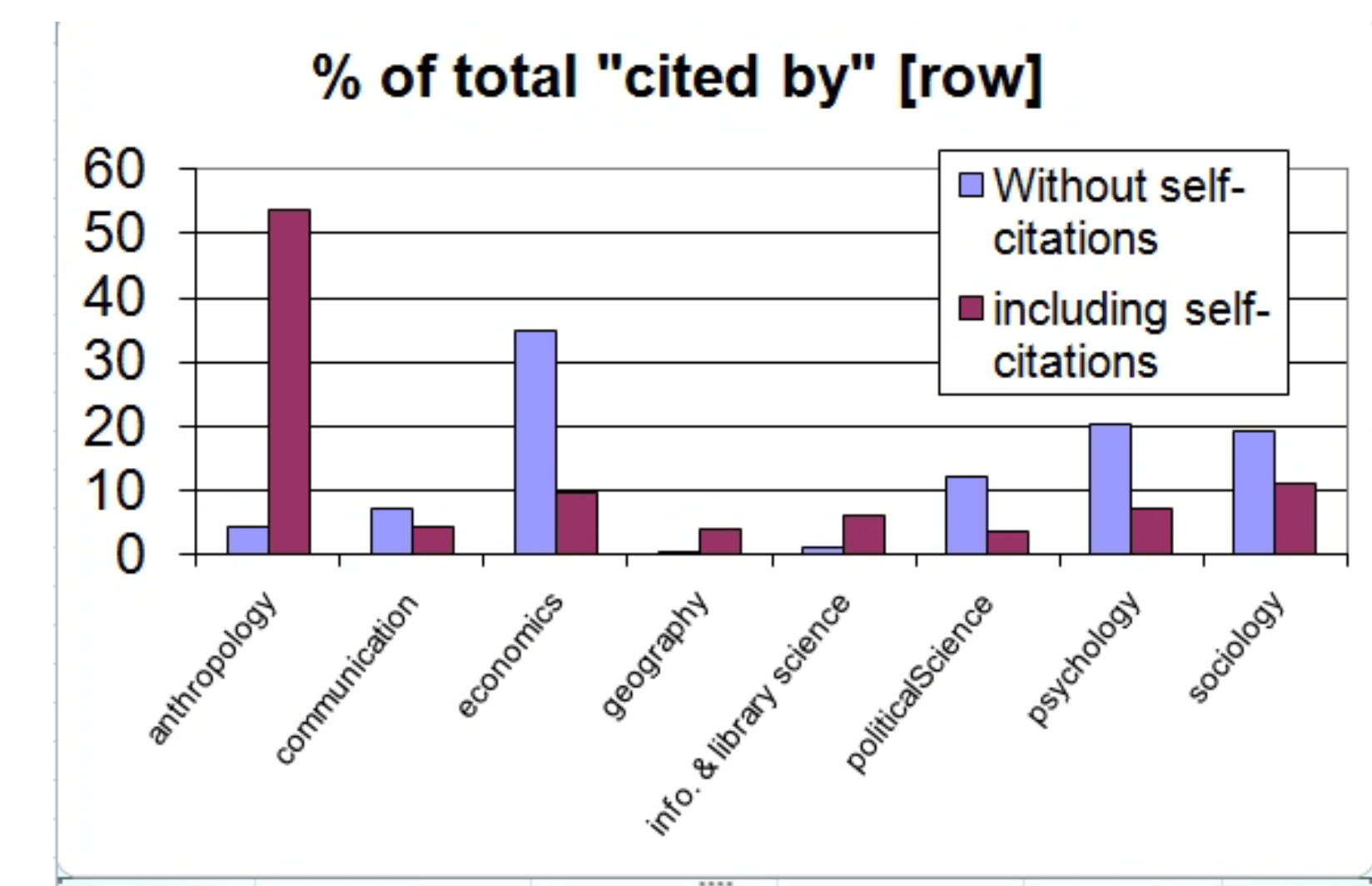


Between Disciplines

2008 citations from the highest impact factor journal in each discipline were downloaded from the ISI Web of Knowledge database using the Social Sciences Citation Index. Each time a journal with an impact factor in the top five for any of the 8 disciplines being examined was cited it was counted and entered into a weighted asymmetric matrix [columns=cites, rows=cited]; transpose (asymmetric), means and difference (using upper & lower triangles, symmetric), A^*A^t (post-multiplied, symmetric), A^*A (pre-multiplied, symmetric) matrices were also prepared (both with and without self-citations).

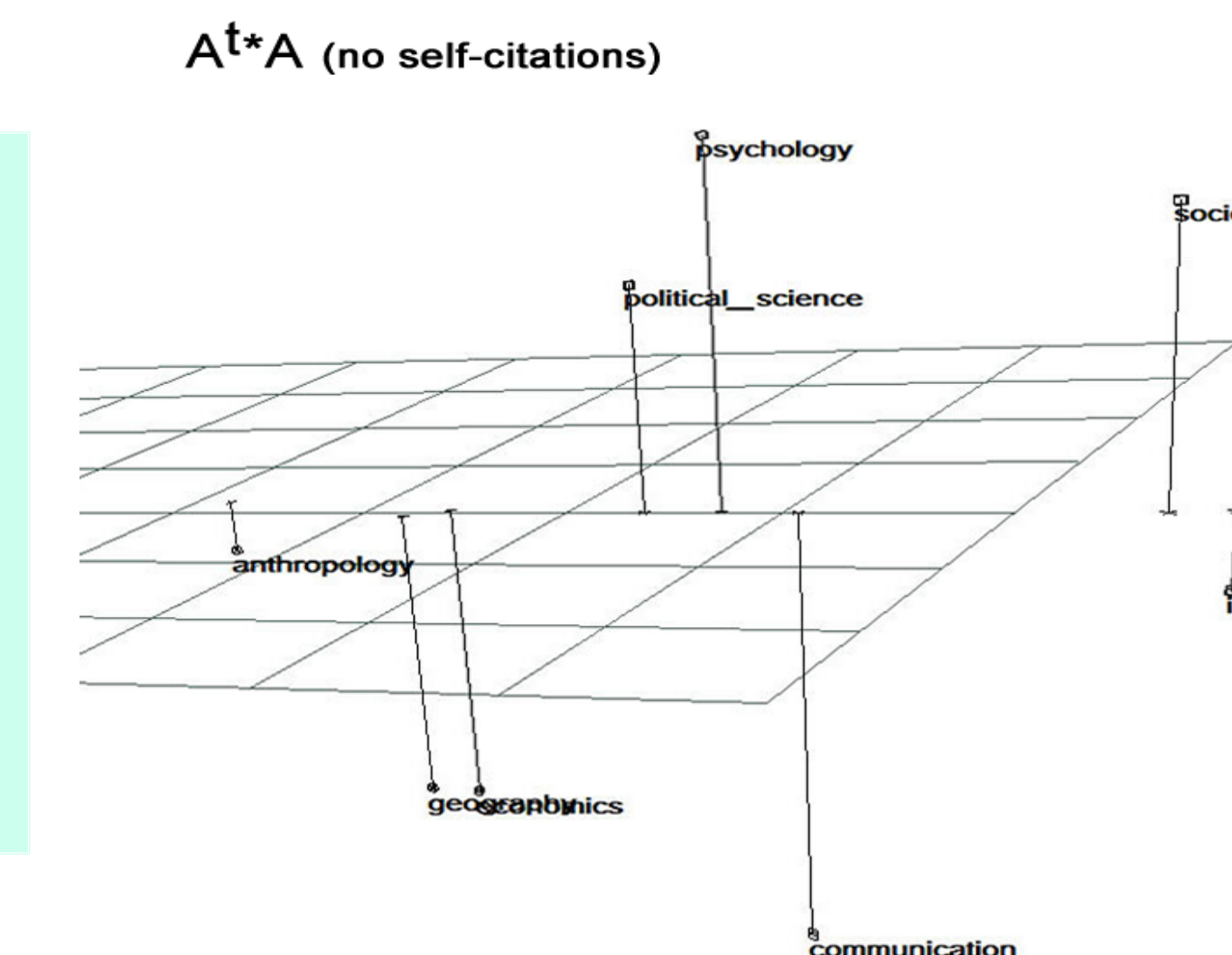
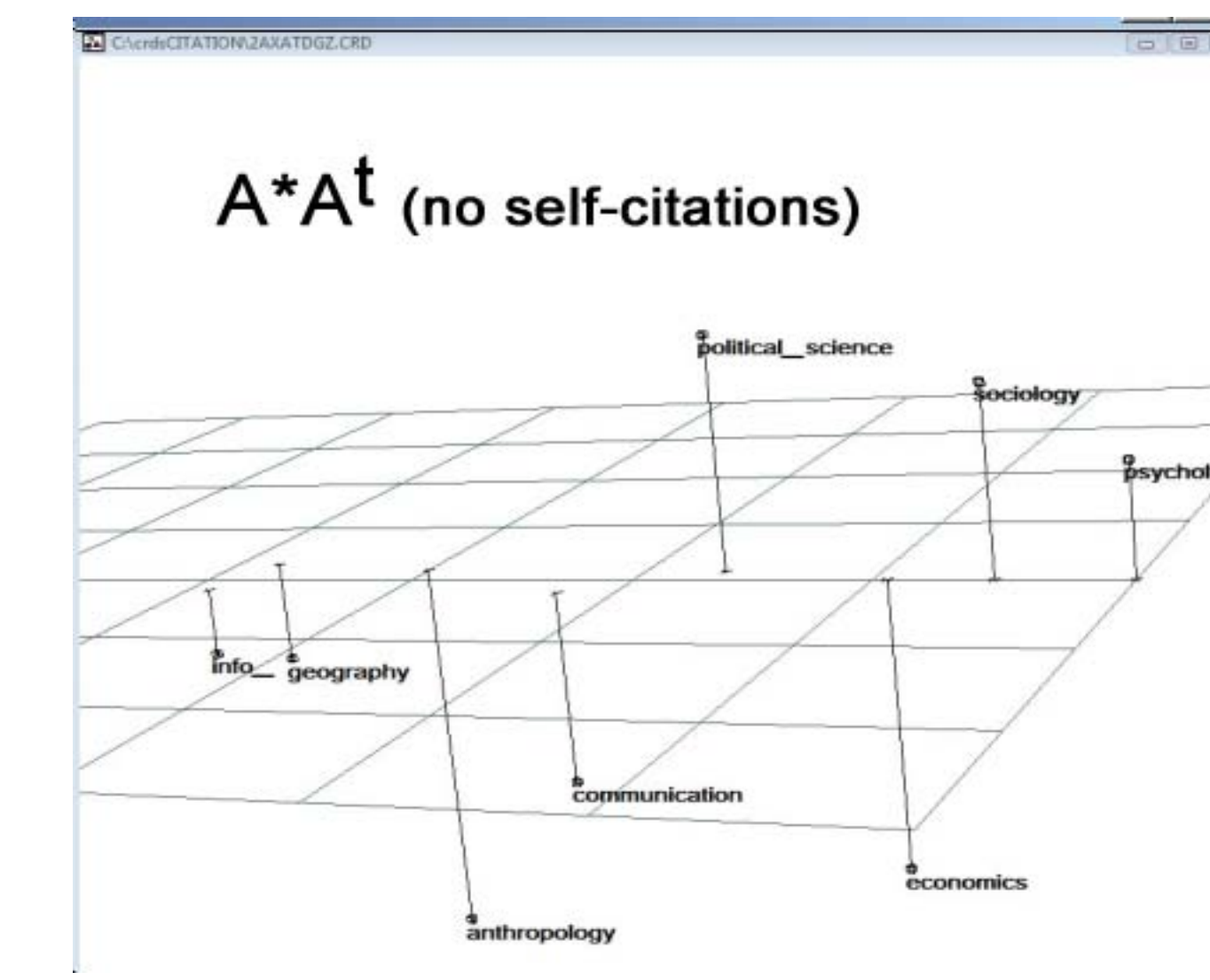


negative# (downward bar)=they cite others more than they are cited by others
positive# (upward bar)=they are cited by others more than they cite others



anthropology, geography, and library science cite themselves more than others cite them
economics, psychology, and sociology are cited the most by others
note that the particular anthropology journal examined was unusual in that they had nearly 4 times more citations than other disciplines...but nearly all were to themselves (anthropology). So comparatively, even the small percent of others citing them was higher than who they cited.

Collective representations interact with each other, influencing and being influenced, and it is these asymmetric patterns of influence that were examined as indicators of stratification.



Conclusions

Asymmetries in information flow between pairs of gradients. "Higher" disciplines exert greater influence over "lower" disciplines. Disciplines are considered indicators.

CiteCited ToFrom Links:

← = target is cited by another discipline
→ = target cites another discipline
↔ = both to and from other disciplines

Four Links:
toFromAnth: 1 Anth→psych, 2 Anth→soc, 3 Anth→com, 4 Anth→geog (0→, 1→, 3→)
toFromInfoLib: 1 InfoLib→psych, 2 InfoLib→soc, 3 InfoLib→com, 4 InfoLib→econ (1→, 3→, 0→)
toFromPolSci: 1 PolSci→soc, 2 PolSci→com, 3 PolSci→econ, 4 PolSci→geog (2→, 1→, 1→)
Five Links:
toFromGeog: 1 Geog→psych, 2 Geog→soc, 3 Geog→anth, 4 Geog→econ, 5 Geog→polSci (2→, 1→, 2→)

Six Links:
toFromCom: 1 Com→psych, 2 Com→soc, 3 Com→anth, 4 Com→econ, 5 Com→infoLib, 6 Com→polSci (4→, 1→, 1→)
toFromEcon: 1 Econ→psych, 2 Econ→soc, 3 Econ→com, 4 Econ→geog, 5 Econ→infoLib, 6 Econ→polSci (3→, 1→, 2→)
toFromPsych: 1 Psych→soc, 2 Psych→anth, 3 Psych→com, 4 Psych→econ, 5 Psych→geog, 6 Psych→infoLib, 7 Psych→polSci (5→, 1→, 0→)
Seven Links:
toFromSoc: 1 Soc→anth, 2 Soc→com, 3 Soc→econ, 4 Soc→geog, 5 Soc→infoLib, 6 Soc→polSci, 7 Soc→psych (4→, 2→, 1→)

Example of binomial 2 mode matrix used for within disciplines graphs:

Abbreviated Journal Title	(2008) Total Cites	Impact Factor	5-Year Impact Factor	Immediacy Index	(2008) Article #	Cited Half-Life	Eigenfactor Score	Article Influence Score
PUBLIC OPIN QUART	0	0	0	0	0	0	0	0
J COMMUN	0	0	0	0	0	0	0	0
COMMUN RES	1	0	0	0	0	0	0	0
J HEALTH COMMUN	0	0	0	0	0	0	0	0
HUM COMMUN RES	0	0	0	0	0	0	0	0
J ADVERTISING	1	0	0	0	0	0	0	0
J ADVERTISING RES	0	0	0	0	0	0	0	0
J COMPUT-MEDIAT COMM	0	0	0	0	0	0	0	0
CYBERPSYCHOL BEHAV	0	0	0	0	0	0	0	0
COMMUN THEOR	0	0	0	0	0	0	0	0
INTERACT STUD	0	0	0	0	0	0	0	0
J MEDIA ECON	0	0	0	0	0	0	0	0
J SOC PERS RELAT	0	0	0	0	0	0	0	0
POLIT COMMUN	0	0	0	0	0	0	0	0
PUBLIC UNDERST SCI	0	0	0	0	0	0	0	0
PUBLIC RELAT REV	0	0	0	0	0	0	0	0
TELECOMMUN POLICY	0	0	0	0	0	0	0	0
HEALTH COMMUN	0	0	0	0	0	0	0	0

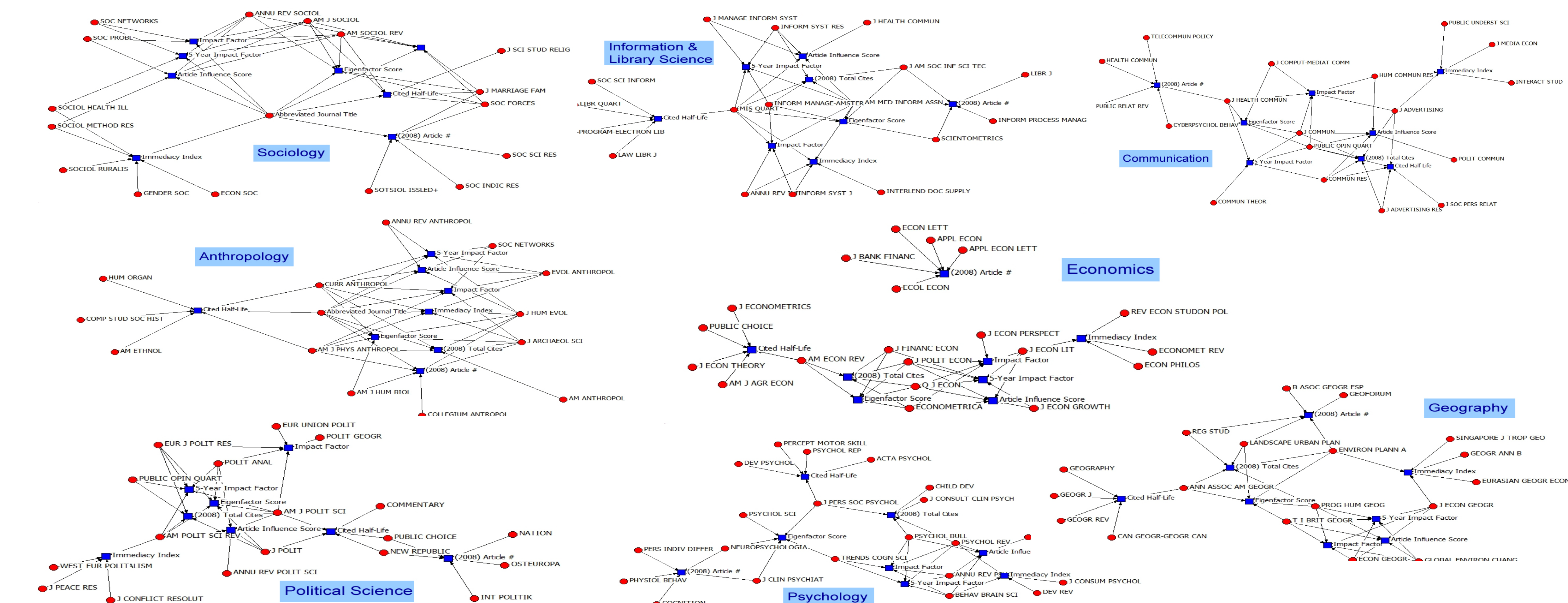
Asymmetric weighted matrix without self-citations

	anth	com	econ	geog	info	libsci	polsci	psych	soc	total	2008 % of total
anthropology	0	1	0	0	0	0	0	2	9	13	4.3
communication	0	0	4	0	12	3	1	2	21	21	7.3
economics	0	11	0	1	20	15	17	41	105	105	35
geography	0	0	0	0	0	0	0	2	2	2	0.7
info & lib sci	0	3	0	0	0	0	0	3	0	4	1.3
political sci	0	11	0	22	0	0	0	4	37	37	12
psychology	4	24	9	1	15	0	0	6	64	64	20
sociology	0	26	9	5	13	6	0	0	59	59	19
total	4	74	20	3	34	21	13	24	200	200	100
column total/cite	1.3	15	6.25	6.25	21	7.25	7.25	21	200		

"cites" = column labeled disciplines cite row labeled disciplines (for example anthropology cites psychology four times)
"cited" = row labeled disciplines are cited by column labeled disciplines (for example anthropology is cited by psychology twice)

Within Disciplines

Networks were developed from 2 mode binomial data for the 13-21 journals (depending on discipline) that appeared as a top 5 journal in at least one of the 8 ranking methods available in the Journal Citation Report (JCR) database. Relationships between journals within disciplines was not studied at this time.



References

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More information

Please contact Ms. Evans at c5a@buffalo.edu or see <http://www.acsu.buffalo.edu/~woelfel/literature.asp> for more information about this and related projects.