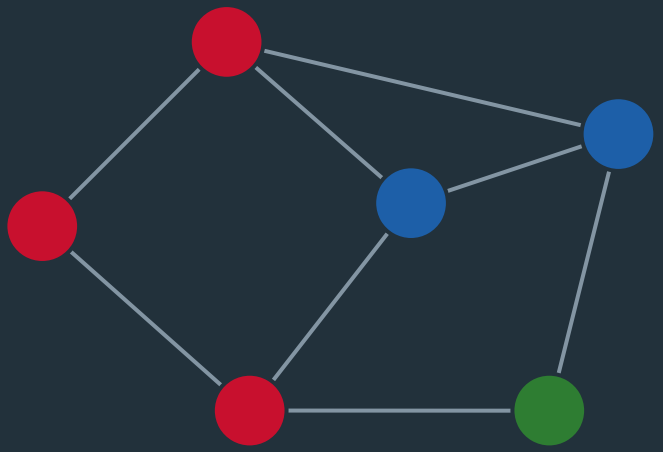
One complete analysis, and reporting it

Course A and Course B · Week 12 · one shared deck

Chapters 29 and 30 · one lecture and one lab

Instructors are free to use, adapt and share these slides.



Today: a lecture, a break and a lab

0:00	1	**One question, stated expectations**	20 min
0:20	2	**Describe, then regress: density, activity, QAP**	20 min
0:40	3	**What the ERGMs add (Course A: one slide)**	25 min
1:05	4	**Synthesis: what the network shows**	10 min
1:15	5	**Reporting and disclosure**	15 min
1:30		Break	10 min
1:40	6	**Lab: stored results and the exercises**	40 min
2:20	7	**Lab, Course B: ERGM exercises and a results script**	40 min

One deck, two courses: which slides are for whom

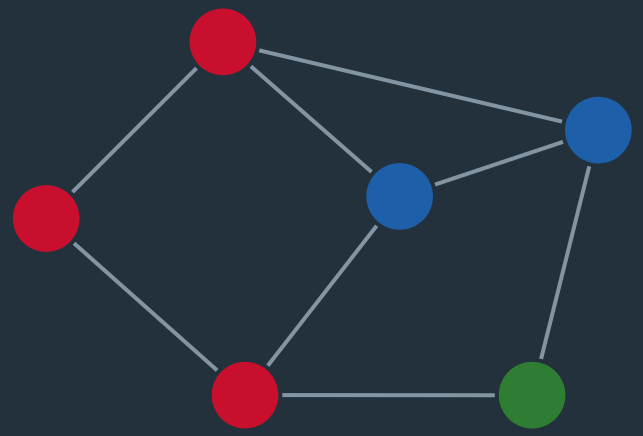
Block	Course A	Course B
1 One question, stated expectations	all slides	all slides
2 Describe, then regress	all slides	all slides
3 What the ERGMs add	the results slide only	all slides, with the code
4 Synthesis	all slides	all slides
5 Reporting and disclosure	all slides	all slides
6 Lab: stored results, exercises	Ch. 29 Ex. 1, 7; Ch. 30 Ex. 1, 4	run-along; Ch. 30 Ex. 1 if time
7 Lab, Course B	skip	Ch. 29 Ex. 2, 3, 6, 9; Ch. 30 Ex. 5

Slides for Course B only carry a red label in the top right corner. A Course A class can skip them without losing the argument.

1

One question, stated expectations

20 min · Chapter 29: research question and theory, data and measurement



One question, followed through the whole process

A collegial organization

A law partnership: the partners own the firm together, and formally no partner is another's superior. The associates are employees who hope to become partners.

Advice carries status

To ask a colleague for advice is to acknowledge his or her competence, so advice tends to go to colleagues of higher standing: a status order among formal equals (Lazega 2001).

A reanalysis, not a test

The account was developed from these same observations. Agreement shows consistency with the data it came from, not confirmation the way new data would.

Do the lawyers seek advice from those above them? Facts collected one chapter at a time do not yet make an argument.

A status order can be a hierarchy or a collegial exchange

Hierarchy

Advice runs up: associates defer to partners and take their questions to them.

Collegial order

The exchange that matters takes place among the partners, who consult one another as peers and compete for standing.

Partnership is a step

One promotion that changes a lawyer's title overnight.

Seniority is a slope

A rank that grows with every year in the firm: 1, the most senior, to 71.

Four expectations, each with what would count against it

Expectation	Against it
1 Sought for standing: partners are asked for advice more than associates, net of office, practice, friendship, reciprocity and closure	no receiver effect of partner status in that model
2 Up the hierarchy: associates take their requests to partners	associate-to-partner arcs no more likely than associate-to-associate arcs, once niches, reciprocity and closure are held fixed
3 Among partners: a partner's arc to another partner is more likely than a partner's arc to an associate	no difference between the two
4 A step, not a slope: partners are sought because they are partners, not only because they are senior	a partner receiver effect that vanishes once each lawyer's seniority rank is in the model

Data and measurement, and one check fixed in advance

Boundary and relation

71 lawyers in three offices; advice from outside the firm is invisible. Directed, close to a roster, one wave. Outdegrees run from 2 to 37.

Status and seniority

Status: partner or associate. Seniority: rank by years in the firm, 1 (most senior) to 71.

Friendship

Enters the models as a directed dyadic covariate: part of the niches that status is held against.

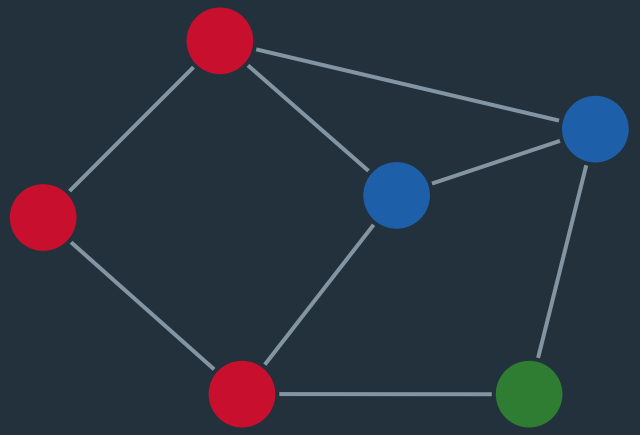
Sensitivity run, stated with the expectations

Every advice tie is reported by the lawyer who asks, and the fit check of Chapter 21 found two lawyers who name 33 and 37 colleagues. If both are partners, a partners-ask-more result could be a reporting style. The models that answer expectations 2, 3 and 4 are therefore refitted without the two most active advice-seekers.

2

Describe, then regress

20 min · Chapter 29: description by status, QAP regression



Advice density by the status of sender and receiver

```
. nwwebuse lazega, nwclear
. preserve
. quietly nwtoedge lazega_adv, egovars(status) ///
>     altervars(status)
. drop if _ego == _alter
. table status_ego status_alter, ///
>     statistic(mean lazega_adv) nformat(%5.3f)
. restore
```

Asks \ asked	associate	partner	Total
associate	0.096	**0.129**	0.113
partner	**0.171**	**0.317**	0.244
Total	0.135	0.223	0.179

Partners asking partners is the densest block by far: 0.317, more than three times the density among associates (0.096). Partners ask associates (0.171) more often than associates ask partners (0.129): advice does not simply run up the hierarchy.

Partners are more active, and partnership cuts the ranking

```
. quietly nwdegree lazega_adv, generate(adv_out adv_in)
. tabstat adv_in adv_out seniority, by(status) ///
>     statistics(mean min max) format(%5.1f)
```

Status	adv_in mean	adv_out mean	adv_out max	seniority range
associate	9.4	7.9	26	37 to 71
partner	15.6	17.1	37	1 to 36
Total	12.6	12.6	37	1 to 71

Whether advice follows the cut or the ranking can only be asked in a model that contains both.

Why a model is needed

On average a partner names 17.1 advisors and an associate 7.9, so partners are also asked back more: a raw count of advice received mixes being sought with reciprocity. The partners hold ranks 1 to 36 and the associates 37 to 71, so partnership is a cut through the seniority ranking.

QAP: status for the asker and for the lawyer asked

```
. generate byte partner_i = partner
. generate byte partner_j = partner_i
. set seed 12345
. nwqap lazega_adv lazega_fr office practice partner_i partner_j, ///
>     mode(same same sender receiver) permutations(1000)
            lazega_adv |      Coef.    P-value
-----------------------+------------------------
             lazega_fr |      2.296     .001
           same_office |      1.261     .001
         same_practice |       .848     .001
      sender_partner_i |      1.241     .001
    receiver_partner_j |       .803     .001
                 _cons |     -4.396
```

All five coefficients reach the smallest p-value that 1,000 permutations allow, 0.001. The status effect is larger on the sending than on the receiving side.

As odds ratios

A partner asks at 3.5 and is asked at 2.2 times the odds of an associate; friendship 9.9, shared office 3.5, shared practice 2.3.

No term for reciprocity or closure

Partners ask more, so they are asked back more.

Reading the QAP model: status counts, with what left open

Predictor	Coefficient	Odds ratio
lazega_fr (friendship)	2.296	9.9
same_office	1.261	3.5
same_practice	0.848	2.3
sender_partner_i	1.241	3.5
receiver_partner_j	0.803	2.2

Odds ratio is exp of the coefficient, arithmetic from the printed table. Each compares two arcs that differ only in that predictor.

It says

Partners ask for and receive advice more often than associates, and so do pairs who are friends or share an office or a practice. The p-values respect the dependence among dyads.

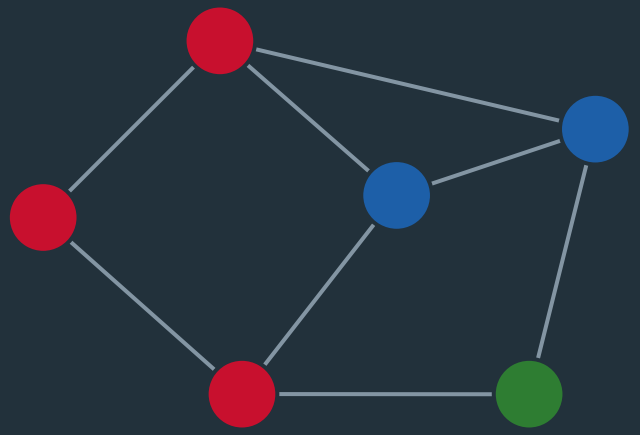
It does not say

That the status effect holds net of reciprocity and closure (the model has no such terms), or that it is deference. With correlated predictors, the plain p-values do not strictly test each effect net of the others.

3

What the ERGMs add

25 min for Course B (5 min for Course A) · Chapter 29: ERGMs, nodemix(), seniority, sensitivity



The ERGM results, without the code

Question	Term in the model	Result
Are partners sought, net of friendship, reciprocity and closure?	status receiver effect	Yes: 0.430 (std. err. 0.099), an odds ratio of 1.5
Whose choices carry the status effect?	nodemix(status)	Partners' choices: partner to partner 3.7, partner to associate 2.1, associate to partner 1.24 (1.4 std. err. from zero)
A step at partnership or a slope along the rank?	seniority rank next to status	The slope: partner receiver effect 0.095 (0.180), rank -0.010 per place
Does it depend on two very active lawyers?	refit without n16 and n24	No answer changes

Course A: this slide is the whole block. Course B: the next eight slides show how each number is obtained.

COURSE B ONLY (ERGM)

ERGM: status net of niches, reciprocity and closure

```
. nwergm lazega_adv, edges mutual nodematch(office practice) ///
>     nodeofactor(status) nodeifactor(status) gwesp(.5) ///
>     edgecov(lazega_fr) seed(12345)
                edges |  -4.936175   .1942816   -25.41   0.000
               mutual |   .9610379   .1330374     7.22   0.000
     nodematch_office |    .870444   .0918231     9.48   0.000
   nodematch_practice |    .587187   .0815955     7.20   0.000
nodeofactor_status_2 |   .9526282   .0972638     9.79   0.000
nodeifactor_status_2 |   .4298931   .0992834     4.33   0.000
    edgecov_lazega_fr |   2.232245   .1092394    20.43   0.000
             gwesp_.5 |   .5433037    .109251     4.97   0.000
```

240.6

smallest effective sample size of the final simulation: enough by the working rule of 200

Friendship enters as a dyadic covariate (edgecov), the term the niche argument calls for. The fit is stored with estimates store firm; MCMLE converged after 6 iterations.

COURSE B ONLY (ERGM)

Reading the ERGM: expectation 1 holds

Term	Coefficient	Odds ratio	Compares
`nodeofactor_status_2`	0.953	2.6	arc sent by a partner / by an associate
`nodeifactor_status_2`	0.430	1.5	arc received by a partner / by an associate
`edgecov_lazega_fr`	2.232	9.3	friendship named by the asker / not
`mutual`	0.961	2.6	reverse arc exists / does not
`nodematch_office`	0.870	2.4	same office / different
`nodematch_practice`	0.587	1.8	same practice / different

Fit. Model statistics reproduced (p of 0.82 or higher); shared partners not: 34 arcs with 10 shared partners against 7.5 simulated. State the effects as conditional associations.

It says

Given everything else in the model, including friendship, reciprocity and closure, an advice arc to a partner has about 1.5 times the odds of an arc to an associate.

It does not say

That the asker defers to the partner, or that the partner is more competent.

COURSE B ONLY (ERGM)

Whose choices carry the effect: nodemix(status)

```
. quietly nwergm lazega_adv, edges mutual nodematch(office practice) ///
>     nodemix(status) gwesp(.5) edgecov(lazega_fr) seed(12345)
. estimates store mix
. estimates table firm mix, b(%7.3f) se(%7.3f) stats(converged) ///
>     varwidth(22)
. lincom nodemix_status_2_2 - nodemix_status_2_1
 (1) |   .5704871   .1214654     4.70   0.000   .3324193   .8085548
```

Block (asks, asked)	Coefficient	Std. err.	Odds ratio
associate, partner (1_2)	0.215	0.151	1.24
partner, associate (2_1)	0.750	0.142	2.1
partner, partner (2_2)	1.321	0.138	3.7

The sender's level comes first

nodemix_status_1_2 is an associate asking a partner. Against an associate asking an associate, a partner asking a partner has 3.7 times the odds. lincom: partner to partner against partner to associate, 0.570 (std. err. 0.121), about 1.8 times the odds.

COURSE B ONLY (ERGM)

Expectation 3 holds; expectation 2 fails

It says

Advice concentrates among the partners: a partner's arc to another partner has 1.8 times the odds of a partner's arc to an associate (4.7 standard errors).

It does not say

That associates defer to partners. An associate's arc to a partner has 1.24 times the odds of one to another associate, 1.4 standard errors from zero: not clearly more likely, once niches, reciprocity and closure are held fixed.

Associates do name partners

162 times in the data (Ex. 1), but no more often than they name other associates, once the rest is held fixed.

The collegial reading

The status effect of the firm's advice network lies in the partners' choices, not in the associates'.

Put partnership and seniority rank in one model

```
. quietly nwergm lazega_adv, edges mutual nodematch(office practice) ///
>     nodeofactor(status) nodeifactor(status) nodeocov(seniority) ///
>     nodeicov(seniority) gwesp(.5) edgecov(lazega_fr) seed(12345)
. estimates store senior
. estimates table firm senior, b(%7.3f) se(%7.3f) ///
>     stats(converged) varwidth(22)
```

Term	firm	senior
nodeofactor_status_2	0.953 (0.097)	0.900 (0.169)
nodeifactor_status_2	0.430 (0.099)	**0.095 (0.180)**
nodeocov_seniority		-0.001 (0.004)
nodeicov_seniority		**-0.010 (0.004)**

Both terms, one model

nodeicov(seniority) adds the receiver's rank to the log-odds of an arc, nodeocov(seniority) the sender's, next to the two status terms. Partnership is a cut through the ranking: the data can say whether the chance of being asked jumps at the cut or rises along the ranking.

COURSE B ONLY (ERGM)

On the receiving side the step gives way to the slope

0.095

partner receiver effect with seniority in the model, from 0.430 (standard error 0.180)

-0.010

per place of rank: about 1 percent higher odds of being asked per place more senior

1.4

over the 35.5 places between the average partner and associate: close to the 1.5 of the partner effect alone

Sending: nothing of the kind

The sender's rank has no effect (-0.001) and the partner sender effect stays at 0.900. Partners ask more because they are partners.

A step is not ruled out

The receiver standard error doubles when both are in the model; 0.43 lies 1.9 standard errors above 0.095. The data do not need a step; they do not rule one out. Expectation 4 fails.

Sensitivity: refit without the two most active advice-seekers

```
. list _nwnode office status seniority adv_out adv_in ///
>     if adv_out >= 30, clean
   8.       n16   Boston   partner         16        33       20
  17.       n24   Boston   partner         24        37       20
. nwdrop lazega_fr if adv_out >= 33
. nwdrop lazega_adv if adv_out >= 33, clean
. quietly nwergm lazega_adv, edges mutual nodematch(office practice) ///
>     nodemix(status) gwesp(.5) edgecov(lazega_fr) seed(12345)
. estimates store mix_d2
```

The same is done for the seniority model, stored as sen_d2. Both networks are cut to the remaining 69 lawyers, friendship first.

Both are Boston partners

n16 and n24 name 33 and 37 colleagues. If reporting style inflated the partners' choices, removing them should shrink the partner blocks.

COURSE B ONLY (ERGM)

Sensitivity: no answer changes

Term	mix	mix_d2	senior	sen_d2
nodemix_status_2_1	0.750	0.689		
nodemix_status_1_2	0.215	0.248		
nodemix_status_2_2	1.321	1.243		
nodeofactor_status_2			0.900	0.752
nodeifactor_status_2			0.095	0.083
nodeocov_seniority			-0.001	-0.003
nodeicov_seniority			-0.010	-0.010

The check changes no answer to the four expectations. It does not touch the misfit of the local clustering.

Partner blocks shrink only a little

Partner to partner 1.243 against 1.321, partner to associate 0.689 against 0.750; associate to partner stays small (0.248).

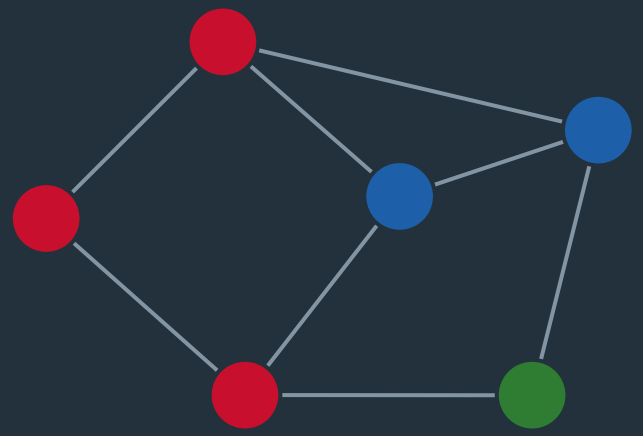
Seniority model

Receiver's rank stays at -0.010, the partner receiver effect near zero (0.083); the partner sender effect falls from 0.900 to 0.752, less than one standard error.

4

Synthesis: what the network shows

10 min · Chapter 29: the four expectations against the evidence



The four expectations against the evidence

Expectation	Evidence	Reading
Sought for standing	Arc to a partner: odds ratio 1.5, net of friendship, office, practice, reciprocity and closure	**Holds**
Up the hierarchy	Raw density: associates to partners 0.129, partners to associates 0.171. Net: associate to partner 1.24 times the odds of associate to associate, 1.4 standard errors	**Fails**
Among partners	Partner to partner 1.8 times the odds of partner to associate, 4.7 standard errors	**Holds**
A step, not a slope	With seniority rank in the model the partner receiver effect falls from 0.43 to 0.10 (standard error 0.18); rank -0.010 per place	**Fails for being asked**

What the network shows, is consistent with, and leaves open

Shows

The status order runs through the partners' choices: partners ask more and ask one another most; associates, once niches and returned advice are accounted for, do not favor partners. Being asked follows seniority: about 1 percent higher odds per place. The rivals are real: friendship, office and practice each go with advice net of the others (9.3, 2.4, 1.8).

Consistent with

Lazega's account of a status competition among formal equals. Both status competition and deference, and also competence and work assigned by the firm, would produce a receiver effect. A slope is what accumulated experience would produce, and also standing that grows with tenure.

Stays open

The mechanism (data on what lawyers ask about and why). The direction: one wave cannot say whether partners attract advice because they are partners or became partners because they were sought. The boundary: advice from outside the firm and from clients is not in the data.

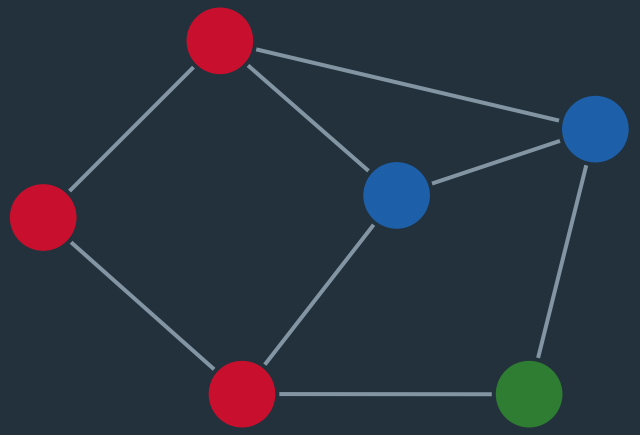
What can go wrong

Mistake	Instead
Reading a receiver effect of status as deference	It shows only that partners are sought more
Stopping at sender and receiver effects	They add up by construction; nodemix() gives each pair of groups its own coefficient
Reading a status effect as an effect of the title when status and rank overlap	A model with both says whether the data need a step at the boundary, not why lawyers choose
Counting the same finding three times	The density table, the QAP model and the ERGM use the same 892 arcs: one piece of evidence under three sets of assumptions
Choosing the sensitivity runs after seeing the results	State them with the expectations

5

Reporting and disclosure

15 min · Chapter 30: construction decisions, disclosure risk, figures and versions



A reader needs more than the do-file

The ordinary discipline

A do-file from raw data to final result; a seed wherever a command draws randomness; recorded software versions; an archived copy of the release the result used.

Heading (Chapter 3)	What the report must say
Boundary	Who counts as a member, and who is outside?
Tie definition	What is a tie, in which direction, measured how, reconciled by which rule?
Missing data	How much of the network could have been missed, and does the conclusion survive plausible losses?

The code does not show how the network was built. A do-file with a seed still leaves open what the network was in the first place. If no sensitivity check was run, the report should say that too.

Removing names does not anonymize a network

An ordinary data set

Remove direct identifiers (names, addresses); aggregate or suppress quasi-identifiers until no record can be re-identified.

A network

A node's position, its degree or its combination of ties to identifiable people can re-identify it after every attribute has been stripped away.

A tie involves two people

Only one of them may have agreed to take part. Someone who names a friend or an advisor reveals something about the named person too.

Where the obligations conflict, put the people in the data first: share code, seeds and aggregate results instead of ties. A numeric ID is not an anonymous one.

Seeds, saved coordinates and named versions

```
. nwplot lazega_adv, generate(px py)
. nwplot lazega_adv, nodexy(px py)
. nwversion
nwcommands 3.26.0 (16nov2026), core package
  nwergm  1.8.0  (17nov2026)
```

- Save the coordinates: generate() once, nodexy() on every redraw
- Cite a tagged release, not a moving branch
- Paste the command into the do-file: clicks leave no record
- Still do not publish labels on a small network

Reproducible figure

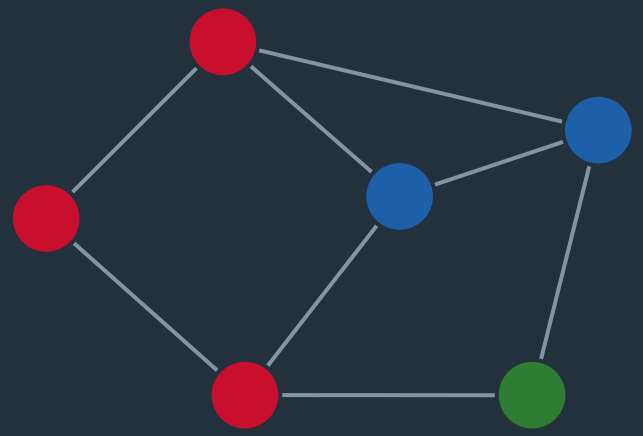
Unless the coordinates were saved, rerunning the plotting code will not reproduce the same picture, however identical the code looks.

Seeds in this week's chapters

Every permutation and ERGM run of Chapters 29 and 30 sets seed(12345) or set seed 12345, so the printed numbers repeat.

Break

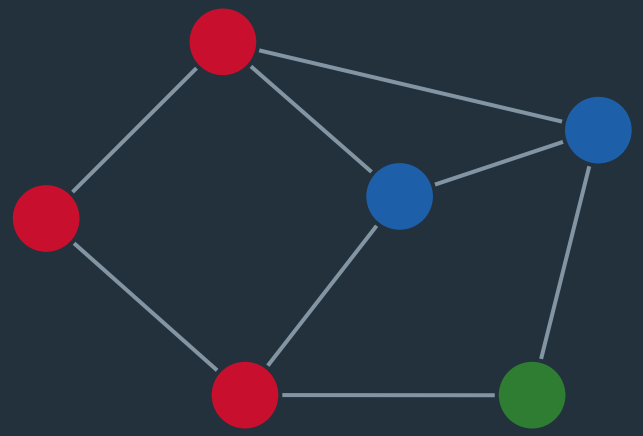
10 minutes



6

Lab: stored results and exercises

40 min · Chapter 30: return list and ereturn list; Ch. 29, Ex. 1 and 7; Ch. 30, Ex. 1 and 4



Run along 1: stored results after nwcug

```
. nwwebuse lazega, nwclear
. quietly nwcug lazega_adv, stat(nwdyads) rname(reciprocity) ///
>     reps(1000) seed(12345)
. return list

scalars:
                  r(p) =  .001998001998002
             r(p_less) =  1
          r(p_greater) =  .000999000999001
            r(sd_null) =  .0101065229494646
          r(mean_null) =  .0990426492910704
               r(reps) =  1000
                r(obs) =  .2742857142857143
```

One value, many results

The observed reciprocity r(obs) is .274 against a null mean of .099: store both next to r(p).

Not retyped

A script that keeps r(obs), r(mean_null) and r(p) in locals can repeat the test on many networks and collect every result.

Run along 2: stored results after nwqap

```
. set seed 12345
. quietly nwqap lazega_adv lazega_fr office practice status, ///
>     permutations(500)
. ereturn list
scalars:
                  e(N) =  4970
       e(permutations) =  500
macros:
         e(qap_regcmd) : "logit"
             e(depvar) : "lazega_adv"
               e(cmd) : "nwqap"
matrices:  e(b) 1 x 5   e(V) 5 x 5   e(pvalues) 1 x 5
. test same_practice same_status
           chi2(  2) =   98.22
         Prob > chi2 =    0.0000
```

It says

The practice and status coefficients together are far from zero, and test worked on the stored results without special support.

It does not say

That chi2(2) is a classical test: e(V) comes from the permutation distribution, so report the permutation p-values with the number of permutations.

Hands-on (15 min)

Ch. 29, Ex. 1

From the table of advice density by the status of sender and receiver, compute (a) how many times denser advice is among partners than among associates, and (b) the ratio of the density from partners to associates to the density from associates to partners. (c) Using the group sizes (36 partners, 35 associates), convert the four densities back into numbers of arcs, check that they add up to the 892 advice arcs, and compare the two between-group counts with those of the status mixing table of Chapter 6 (216 and 162).

Hint A block of n_r senders and n_c receivers in different groups has n_r n_c possible arcs; within one group of n lawyers there are n(n-1). Multiply each density by the number of possible arcs of its block.

Ch. 29, Ex. 7

Chapter 9 found that the 5-core of reciprocated advice consists of eleven partners. Compute the probability that eleven lawyers drawn at random from the 71, with 36 partners among them, are all partners. Then explain, using the chapter's table of in- and out-degrees by status, why this baseline is too weak for a k-core, and describe a baseline that would hold the lawyers' activity fixed.

Hint display comb(36,11)/comb(71,11). A lawyer can only be in a k-core with at least k reciprocated ties, and partners have more ties of every kind. nwergm simulate with constraints(degrees) (Chapter 22) draws networks in which every lawyer keeps his or her in- and out-degree.

Debrief: densities back into arcs, a weak baseline

Block (asks, asked)	Density	Possible arcs	Arcs
associate, associate	0.096	35 x 34	114
associate, partner	0.129	35 x 36	162
partner, associate	0.171	36 x 35	216
partner, partner	0.317	36 x 35	400

(a) 3.30 times denser among partners. **(b)** 1.33. **(c)** The four blocks add to 892; the printed densities give 891.7 because they are rounded.

0.00023

chance that eleven random lawyers are all partners: about 1 in 4,300

Too weak as a baseline

Partners name 17.1 advisors on average, associates 7.9; a lawyer needs five reciprocated ties for the 5-core. Hold each lawyer's degrees fixed instead.

Hands-on (15 min)

Ch. 30, Ex. 1

Take the analysis of the law firm in Chapter 29. Under the three headings of Chapter 3, boundary, tie definition and missing data, write down each construction decision a reader needs in order to interpret its results. For each decision, mark whether Chapter 29 states it, only implies it, or leaves it out, and name the section where it is stated.

Hint Start with the section on data and measurement of Chapter 29: who counts as a member of the firm, which direction an advice arc has, which rule turns friendship reports into ties, and what is said about lawyers who report unusually many ties.

Ch. 30, Ex. 4

Suppose the law firm's advice network were released with the lawyers' names replaced by numbers and every attribute removed. Compute each lawyer's in-degree and out-degree with nwdegree lazega_adv, generate(adv_out adv_in), and count the lawyers whose combination of the two numbers no other lawyer shares. Repeat the count with the in- and out-degrees of the friendship network added. What does the result say about a colleague who knows roughly how many people a lawyer advises and is advised by?

Hint bysort adv_out adv_in: generate n = _N gives the number of lawyers with the same pair of degrees, and count if n == 1 counts the unique ones. For the second count, generate the friendship degrees with another nwdegree and add them to the bysort list.

Debrief: what Chapter 29 states; unique lawyers

Decision	In Chapter 29?
Boundary: the firm, 71 lawyers, three offices; outside advice invisible	stated (Data and measurement)
Tie: directed advice from the asker; roster of the other 70; friendship directed	stated (Data and measurement)
Tie: question wording and reference period	left out (Chapter 3, Lazega 2001)
Missing: no empty rows, outdegrees 2 to 37, two lawyers name 33 and 37	stated (Data, sensitivity)
Missing: response rate	left out (not given with the data)

56 of 71

lawyers have an (out, in) pair of advice degrees that no one else shares

71 of 71

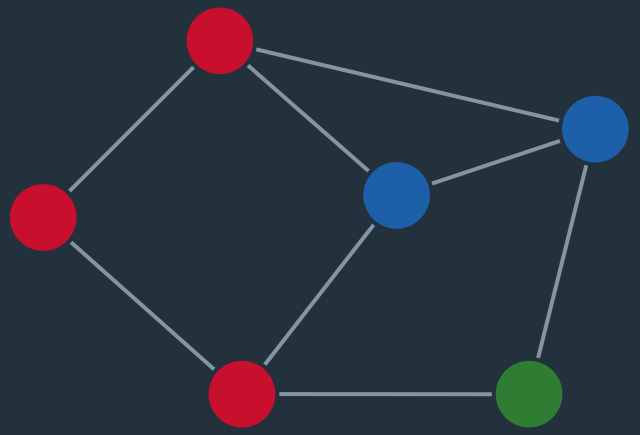
once the friendship degrees are added to the list

One possible answer for Ex. 1: compare with the students' own tables.

7

Lab, Course B: ERGM exercises and a results script

40 min · Ch. 29, Ex. 2, 3, 6, 9; Ch. 30, Ex. 5. Course A: skip to the closing slide



COURSE B ONLY (ERGM)

Hands-on (15 min)

Ch. 29, Ex. 2

For the ERGM with friendship (firm), convert the coefficients of mutual, the office and practice nodematch terms and the two status terms into odds ratios, and check them against the values quoted below the output. Write one sentence for each saying which two advice arcs it compares. Then say why the friendship odds ratios of the QAP regression (9.9) and of the ERGM (9.3) are not two confirmations of one effect.

Hint After the model, display exp(_b[mutual]), or e to the beta by hand from the printed coefficient. Each odds ratio compares two arcs that differ only in that term, with all other terms of the model held fixed. For the last part, ask which data the two models are fitted to.

Ch. 29, Ex. 3

Fit the final model with nodematch(office practice status) next to nodeofactor(status) and nodeifactor(status), all other terms and seed(12345) as in the chapter. Write the log-odds of each of the four blocks in terms of the sender (s), receiver (r) and status-match (m) coefficients, and show that s-m, r-m and s+r reproduce the three nodemix coefficients. What does the status-match coefficient measure that the sender and receiver effects do not?

Hint Start from all 71 lawyers (nwwebuse lazega, nwclear). Associates asking associates get the match term only, an associate asking a partner gets r, a partner asking an associate s, and a partner asking a partner s+r+m. The nodemix coefficients are differences from the first block.

COURSE B ONLY (ERGM)

Debrief: odds ratios; the mixing model rewritten

Ex. 2: term	Odds ratio	Ex. 3: block	log-odds
mutual	2.6	associate asks partner: r - m	0.215
nodematch_office	2.4	partner asks associate: s - m	0.750
nodematch_practice	1.8	partner asks partner: s + r	1.321
partner sends	2.6	status match m	0.178 (0.091)
partner is asked	1.5		
friendship	9.3		

QAP (9.9) and ERGM (9.3) use the same 892 arcs: one piece of evidence under two sets of assumptions.

Same model, written two ways

s-m, r-m and s+r are 0.750, 0.215 and 1.321: the three nodemix coefficients of the chapter. The match term m, 0.178, is what both within-status blocks share.

COURSE B ONLY (ERGM)

Hands-on (15 min)

Ch. 29, Ex. 6

Run a second sensitivity check of your own choice on the mixing model: friendship under the AND rule (mutual friendships only) or the OR rule, the firm without the four Providence lawyers, or co-work (lazega_cow) as a second dyadic covariate next to friendship. Before running it, write down which change in which coefficient would alter an answer of the synthesis. Then report the three nodemix coefficients of the new model next to those of mix.

Hint The AND version comes from nwsym lazega_fr, mode(min) generate(fr_and), the OR version from mode(max); use the new network in edgecov(). To drop Providence, use nwdrop on both networks with if office == "Providence". Two dyadic covariates go into one option, edgecov(lazega_fr lazega_cow).

Ch. 29, Ex. 9

Design a study that could tell deference from competence as the reason partners and senior lawyers are asked for advice. Say which data you would collect, over what period, and which model of Part IV you would fit, and state the result that would favor deference.

Hint When an associate is made partner, the status changes overnight but the competence does not. Ask what repeated observations of advice around such a change would show under each reading, and which model of Part IV takes repeated observations of one network.

COURSE B ONLY (ERGM)

Hands-on (10 min)

Ch. 30, Ex. 5

Write a do-file that runs the reciprocity test of this chapter (nwcug with stat(nwdyads) rname(reciprocity) reps(1000) seed(12345)) on each of the three Glasgow waves (nwwebuse glasgow, nwclear) and collects, for each wave, the network's name, r(obs), r(mean_null) and r(p) in a small results data set, without retyping any number. List the results data set and say whether reciprocity is above chance in every wave.

Hint Open the results file with postfile handle str12 net obs mean_null p using results, replace, write one row per wave with post inside a foreach loop over glasgow1 glasgow2 glasgow3, and close it with postclose before use results.

COURSE B ONLY (ERGM)

Debrief: collect results without retyping a number

```
. postfile handle str12 net obs mean_null p using results, replace
. foreach g in glasgow1 glasgow2 glasgow3 {
>     quietly nwcug `g', stat(nwdyads) rname(reciprocity) ///
>         reps(1000) seed(12345)
>     post handle ("`g'") (r(obs)) (r(mean_null)) (r(p))
> }
. postclose handle
. use results, clear
. list, noobs
```

net	obs	mean_null	p
glasgow1	0.527	0.024	0.002
glasgow2	0.432	0.025	0.002
glasgow3	0.584	0.025	0.002

Not a number typed by hand: obs, mean_null and p come from r() after each nwcug.

Above chance in every wave

Observed reciprocity .43 to .58 against a null mean of about .025; p is the smallest 1,000 permutations allow, .002 two-sided.

To read after the session

Last week of the course: Chapters 29 and 30 in full

Course A, left over: Ch. 29 Ex. 2 to 6, 8 and 9; Ch. 30 Ex. 2, 3, 5 to 7

Course B, left over: Ch. 29 Ex. 1, 4, 5, 7, 8; Ch. 30 Ex. 1 to 4, 6, 7

Final project: Ch. 29 Ex. 8, the same sequence on the gang network

Do-files and teaching material: nwcommands.org/book

Instructors are free to use, adapt and share these slides.

