



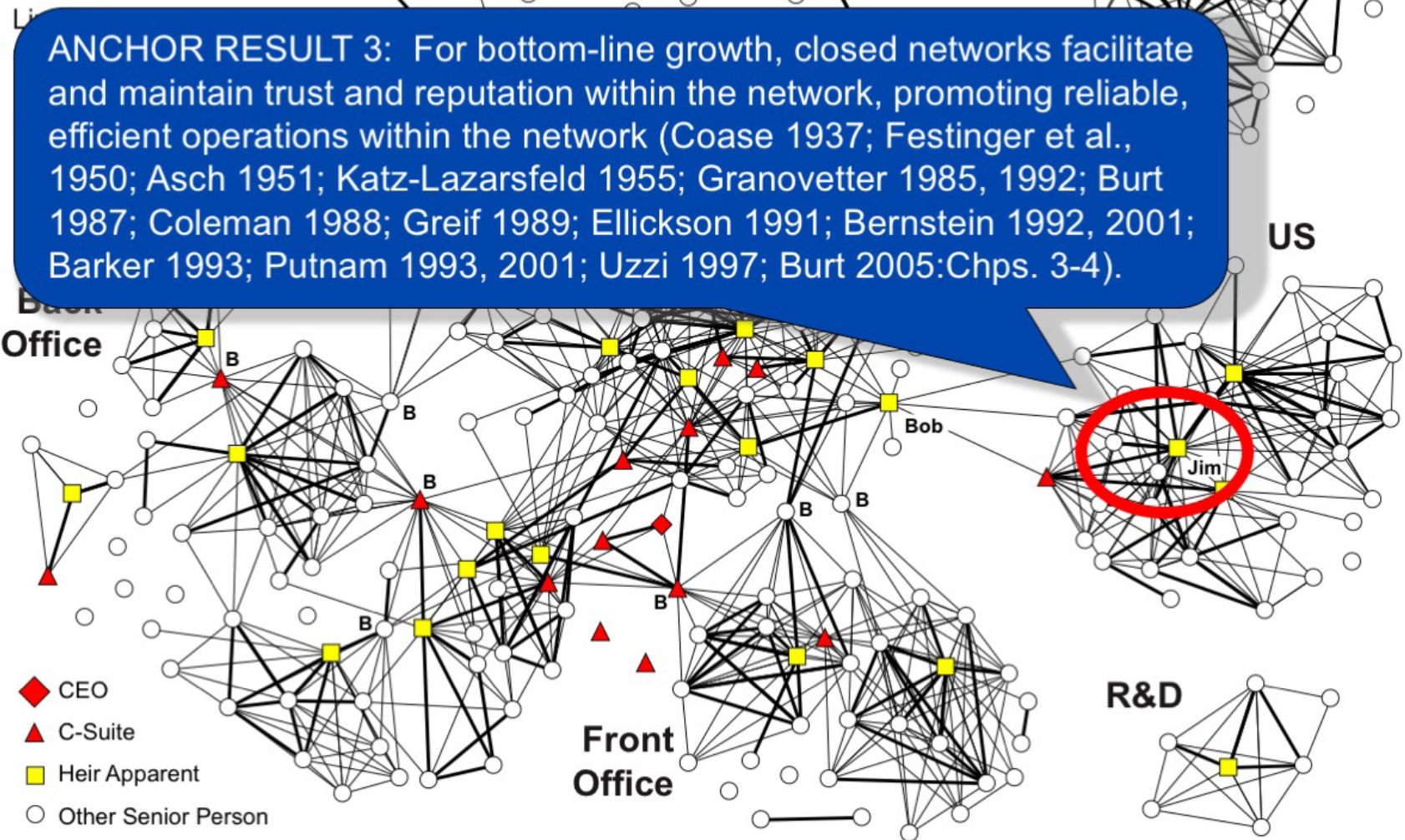
Closure: Trust, Reputation, *Guanxi*, and Ignorant Certainty

For text on this session, see Chapters 3 and 4 in *Brokerage and Closure*, and Chapter 7 in *Neighbor Networks*.

Appendices:

- I. Measuring Network Closure/Embedding (from 2007 "Closure & Stability")
- II. Closure/Embedding and the Theory of the Firm (from 1992 *Structural Holes*; 1924 *Legal Foundations of Capitalism*)
- III. Closure and Learning Curves (from 1919 *Psychological Monographs*, 1965 *Review of Economics and Statistics*, 1992 *Upside*, 1998 *Perspectives on Strategy*, 1999 *Organizational Learning*)
- IV. Snippets on Business Culture (1998 *Financial Times*, other)
- V. Why Don't People Discount Gossip? (from 2005 *Brokerage and Closure*)
- VI. Detail on Reputation & Echo vs Bandwidth (2008 "Gossip and reputation" in *Management et Réseaux Sociaux*)
- VII. Groupthink and Escape from It
- VIII. Sources of Variance in 360 Evaluations

Social Network at the Top of the Company



Trust Builds within Relationships

TRUST — committing to an exchange before you know how the other will behave.

REPUTATION — extent to which you are known as trustworthy.

"Differences in detail aside, most social scientists agree upon two aspects of reputation: first, knowing a business partner's past behavior mitigates uncertainty about his future performance; second, reputation demonstrates the person's credibility as an honest business partner and reduces the uncertainty associated with trusting him." (p. 485, "Networks and Entrepreneurship," Hillman & Aven, 2011, *AJS*)

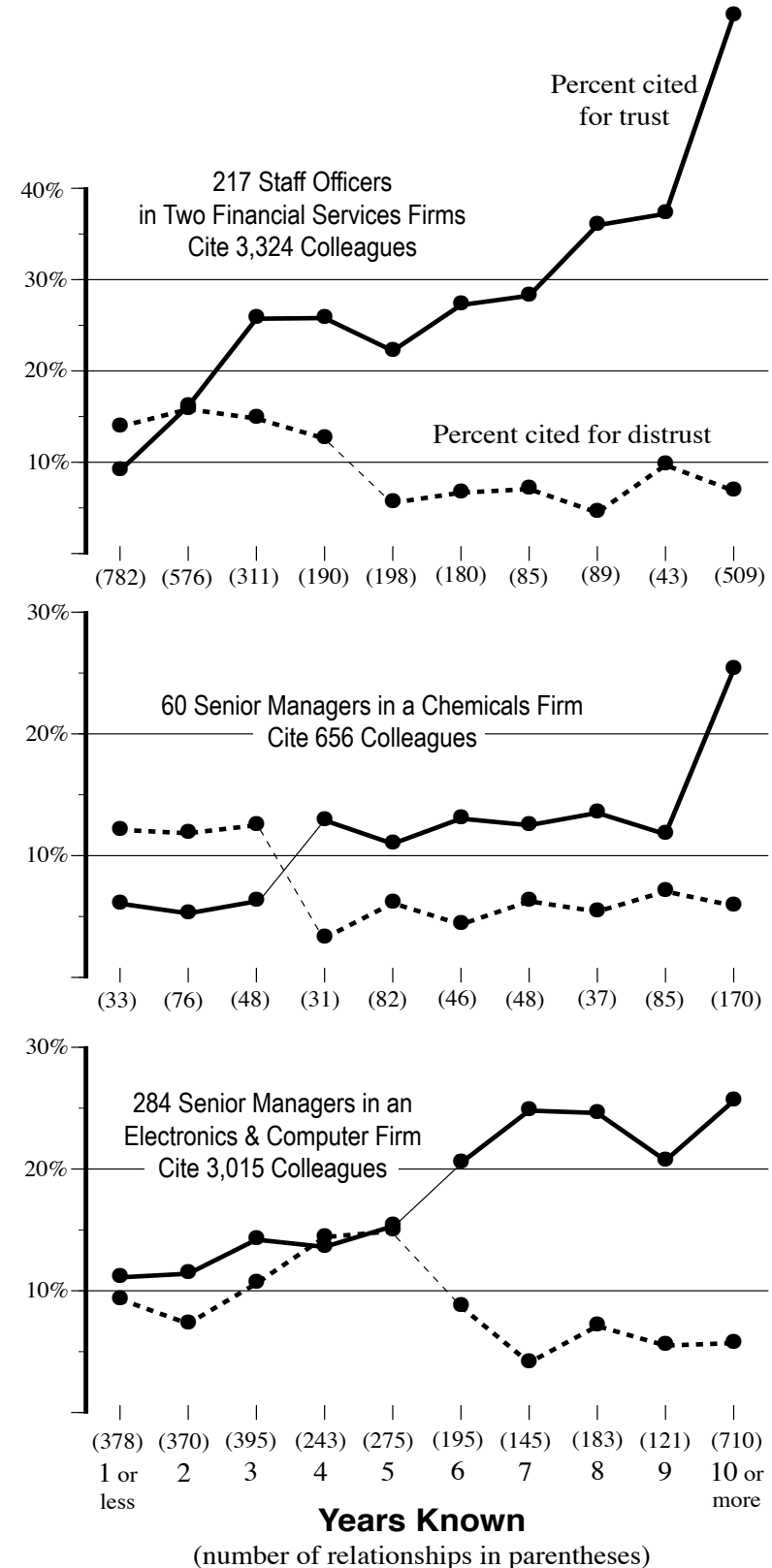
I. Good Behavior as the Source of Trust

Third parties irrelevant to trust & distrust
too slow (graph to right), too dangerous
(Burt, 1999, "Private games are too dangerous")

II. Network Closure & Embedding as the Source

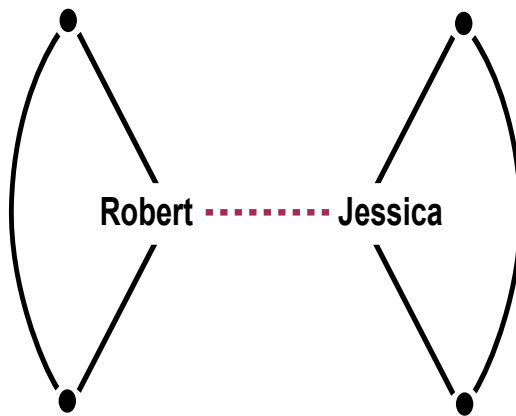
Third parties enhance information and enforcement, and so facilitate trust (next page)

from Figure 3.2 in *Brokerage and Closure*

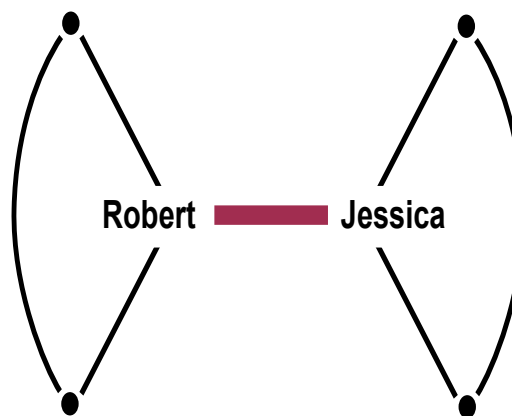


Closed Networks Facilitate Trust by Creating and Maintaining Reputations

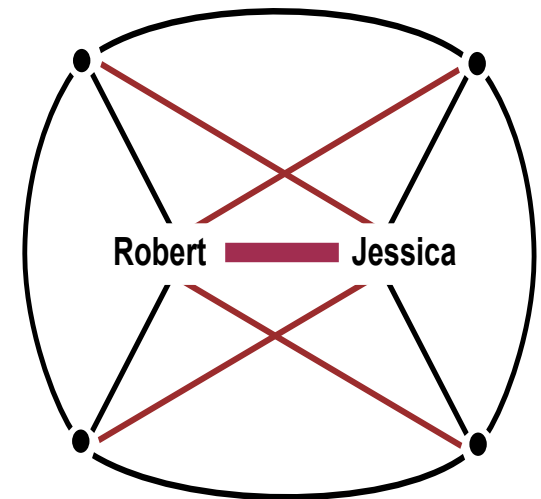
(**TRUST** — committing to an exchange before you know how the other will behave. Figure 3.1 in *Brokerage and Closure*.)



Situation A
Robert New Acquaintance
(no embedding)



Situation B
Robert Long-Time Colleague
("relational" embedding)



Situation C
Robert Co-Member Group
("structural" embedding)

More connections allow more communication, whereupon poor behavior can be more readily detected, eroding reputation. In essence, reputation is the governance mechanism in social networks. This is foundation for public rating systems (# likes, dislikes), with rich history in social science: **Economics** (Coase 1937 through Williamson, Greif 1989), **Psychology** (Heider 1958, Festinger et al 1950), **Sociology** (Granovetter 1985, Coleman 1988), **Law** (Ellickson 1991, Bernstein 1992), **Political Science** (Putnam 1993, 2000).

For discussion, see pages 105-111 in *Brokerage and Closure*. Widower selling used car. Appendix II on network embedding in the theory of the firm - Commons (1924), Coase (1937), family through history.

Closure creates "bandwidth:" more channels of communication allow more accurate and rapid communication, so poor behavior is more readily detected and managed.

CLOSURE — the lack of structural holes within a network

Third Parties Are an Early-Warning System that Protects Nice from Nasty in the Initial Games of a Relationship. Third parties enhance communication and enforcement, and so create reputation costs which facilitate trust.

For discussion, see pages 127-130 in *Brokerage and Closure*, and for detailed discussion with respect to specific markets, see Lisa Bernstein on diamonds, cotton, and supplier relations (respectively 1992 *Journal of Legal Studies*, 2001 *Michigan Law Review*, and 2016 *Journal of Legal Analysis*).

1985: Granovetter (1985 AJS) on the risk of trust reduced by third-party enforcement (discussed as structural embeddedness, 1992:44): "My mortification at cheating a friend of long standing may be substantial even when undiscovered. It may increase when the friend becomes aware of it. But it may become even more unbearable when our mutual friends uncover the deceit and tell one another." (also Tullock, 1985 QJE, pp. 1076, 1080-1081)

1988: Coleman (1988:S107-108 AJS, 1990 book) on the risk of trust reduced by third-party enforcement (discussed as network closure) with respect to rotating-credit associations: "The consequence of closure is, as in the case of the wholesale diamond market or in other similar communities, a set of effective sanctions that can monitor and guide behavior. Reputation cannot arise in an open structure, and collective sanctions that would ensure trustworthiness cannot be applied." E.g., Putnam's (1993 book) explanation of higher institutional performance in regional Italy attributed to the trust, norms, and dense networks that facilitate coordinated action.

1989: Maghribi traders in North Africa during the 1000s, respond to strong incentives for opportunism in their trade between cities by maintaining a dense network of communication links which encouraged them to protect their positive reputations and facilitated their coordination in ostracizing merchants with negative reputations (Greif, 1989 JEH; and for other applications, such as guilds, see Greif, 2006, *Institutions and the Path to the Modern Economy*).



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Overall profile makeup


222 positives. 203 are from unique users and count toward the final rating.

3 neutrals. 3 are from users [no longer registered](#).

3 negatives. 3 are from unique users and count toward the final rating.


ID card
[dan \(200\)](#)

Member since Thursday, May 07, 1998

 [me](#)

Summary of Most Recent Comments

	Past 7 days	Past month	Past 6 mo.
Positive	0	5	84
Neutral	0	0	0
Negative	0	0	1
Total	0	5	85
Bid Retractions	0	0	0

[Auctions](#) by [dan](#)

Note: There are 3 comments that were converted to neutral because the commenting users are [no longer registered](#).

You can [leave feedback](#) for this user. Visit the [Feedback Forum](#) for more info on feedback profiles.

If you are [dan \(200\)](#)  [me](#), you can [respond to comments](#) in this Feedback Profile.

Items 1-25 of 228 total

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User: [chache@fyi.net \(4\)](#) Date: Jan-04-01 09:36:46 PST

Item: [508790896](#)



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Thanks for Your Interest in DontDateHimGirl.com, an online community of powerful women from around the world who choose to exercise their rights to free speech on the Internet by boldly sharing their bad dating experiences with other women. This site has been the subject of international media attention from publications like the Sunday Times of London, The New York Times, the Wall Street Journal and the New York Post; major television networks such as CNN, MSNBC, Fox News and television shows like the Today Show, Dr. Phil and Montell Williams, not to mention a hot topic in the blogosphere, Take a look at what all the buzz in about by becoming a member today! You will find informative articles about dating and relationships; advice to help you make better decisions in finding a man you love; a live chat area where members can exchange experiences in real-time and of course, the postings of hundreds of thousands of women who are banding together to protect each other from having one more bad date! Men, in the spirit of fairness, you can participate in the forum as well by becoming a member. Join Now!

EXCELLENT RESOURCES FOR WOMEN

The links provided by below offer a wealth of information on many aspects of women's rights. These web sites are associated with organizations that, along with www.DontDateHimGirl.com, are part of a worldwide movement to advocate for and defend the rights of women around the world.

We update these links periodically. Although we check these links often, sometimes links are outdated or no longer functioning. We apologize for

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Password:

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[CHECK OUT OUR NEW E-STORE](#)

Proceeds benefit The Women's Alliance and the National Coalition Against Censorship!



Measures of trust vary from abstract attitudes to concrete behaviors. Inconsistent measures have been a barrier to progress.

Beyond your network, would you say that people can be trusted or that you can't be too careful in dealing with people?

- ☐ Most people can be trusted
- ☐ Need to be very careful
- ☐ Don't know

Click on your choice.

GAME 2: This second investment game asks for more commitment. Either you INVEST your 200 points, or you KEEP it.

If you KEEP your initial 200 points, this game ends, and you're ready to move on to the next question.

If you INVEST, we double your 200 points to 400 so the other person has 600 (when the 400 is combined with the other person's initial 200). We then give the other person a choice between SHARE or KEEP. If the other person chooses SHARE, you split the 600 between you. That means you and the other person each earn 100 to add to your initial 200. If the other person chooses KEEP, you lose your 200 and the other person keeps all 600.

Possible earnings to you:

0, if you KEEP your initial 200

100, if you INVEST and the other person SHARES

-200, if you INVEST and the other person KEEPs all 600

What is your choice, INVEST or KEEP?

CLICK YOUR CHOICE: ☐ INVEST ☐ KEEP

GAME 2 and discussing important matters. Now that you know how the investment game is played, what choices would you make if you knew the other person in the game was one of the individuals you named earlier as someone with whom you often discuss important matters?

For each name listed to the right, please click whether you would choose to KEEP or INVEST if you were playing the game with the row person.

- | | | |
|----------------------------|------------------------------|-------|
| <input type="radio"/> KEEP | <input type="radio"/> INVEST | name1 |
| <input type="radio"/> KEEP | <input type="radio"/> INVEST | name2 |
| <input type="radio"/> KEEP | <input type="radio"/> INVEST | name3 |
| <input type="radio"/> KEEP | <input type="radio"/> INVEST | name4 |
| <input type="radio"/> KEEP | <input type="radio"/> INVEST | name5 |

As before, the row person would not know your game choice.

An intermediate strategy is to ask about trust specific to individual people you know . . .

What about trust? Consider the extent to which you trust each of the listed people. [Respondent reads the below text.]

For example, suppose one of the people asked for your help. The help is not extreme, but it is substantial. It is a level of help you cannot offer to many people. To what extent would you trust each person to give you all the information you need to decide on the help? For example, if the person was asking for a loan, would they fully inform you about the risks of them being able to repay the loan? If the person was asking to you give a job to one of their relatives, would they fully inform you about their relative's poor work attitude or weak abilities, or other qualities that would make you prefer not to hire the relative?

For each person, circle the option that best describes your view.

Circle a 5 if you have no question that the person would give to you all the information they have.

At the other extreme, circle a 1 if you believe that the person might wish to inform you, but in the past has often misled people from whom he asked favors.

Or, circle 4, 3, or 2 if your opinion is somewhere between the extremes.

14. Trust (circle best approximation)

	high trust				low trust
1.	5	4	3	2	1
2.	5	4	3	2	1
3.	5	4	3	2	1
4.	5	4	3	2	1
5.	5	4	3	2	1
6.	5	4	3	2	1
7.	5	4	3	2	1
8.	5	4	3	2	1
9.	5	4	3	2	1
10.	5	4	3	2	1
11.	5	4	3	2	1
12.	5	4	3	2	1
13.	5	4	3	2	1
14.	5	4	3	2	1

cut away grey
section of page

1. _____

2. _____

3. _____

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5. _____

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7. _____

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9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

Predicting effects of bandwidth across structural “balance” in triads.



NOTE — This is another development from the 1950s "Golden Age" of social psychology (Heider, 1958, *The Psychology of Interpersonal Relations*; see Malle, "Fritz Heider's legacy," 2008, *Social Psychology*). In contrast to the psychology focus on consistency within person, economic sociology focus is on reputation cost of appearing inconsistent with opinions of others.

Closure-Trust Association

Note: Regression lines go through plotted average values of Y.

Two top lines are based on 7166 evaluations by Chinese CEOs of core business contacts.

Bottom line is based on 674 evaluations by American managers of discussion with corporate boss.

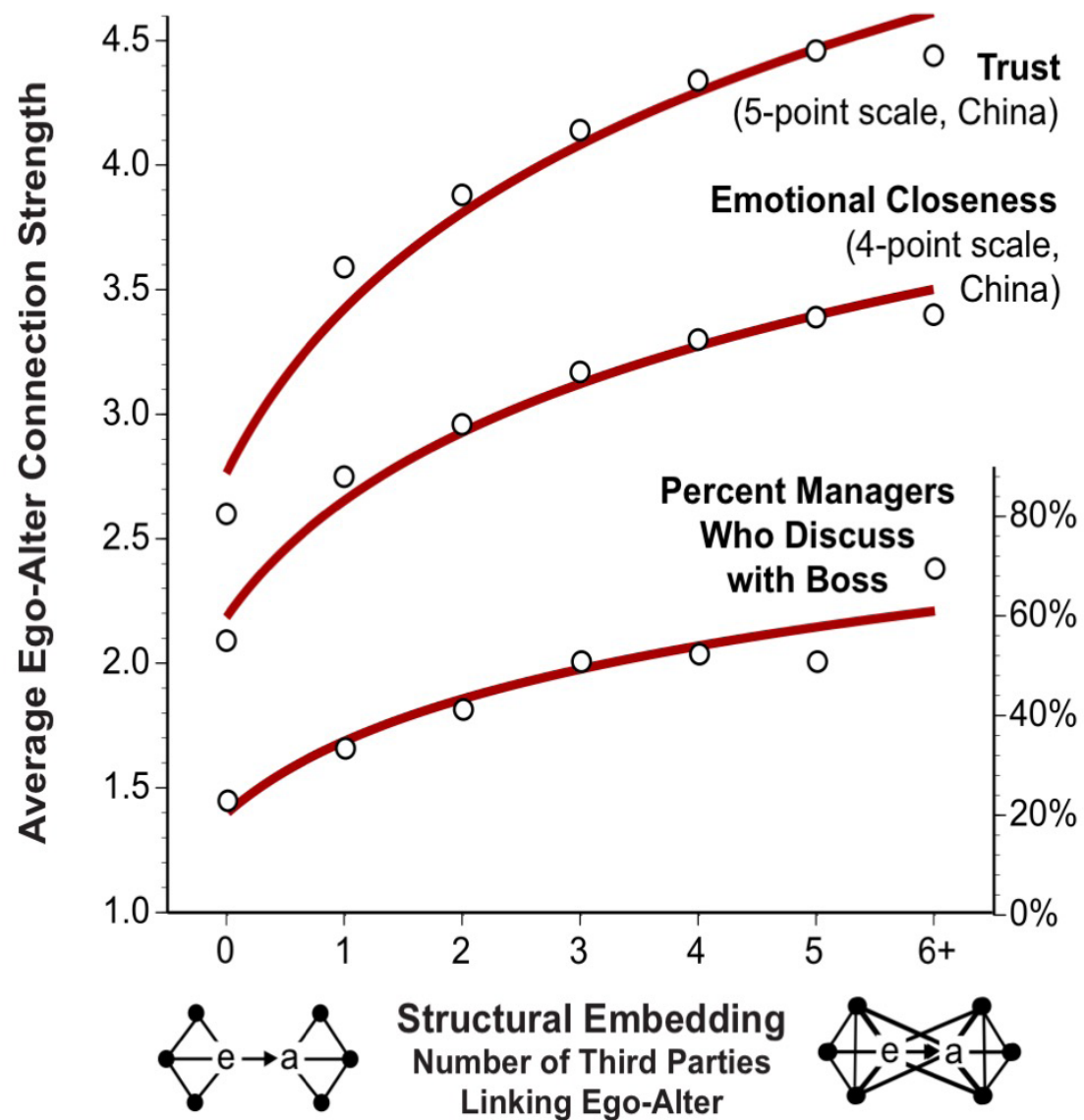
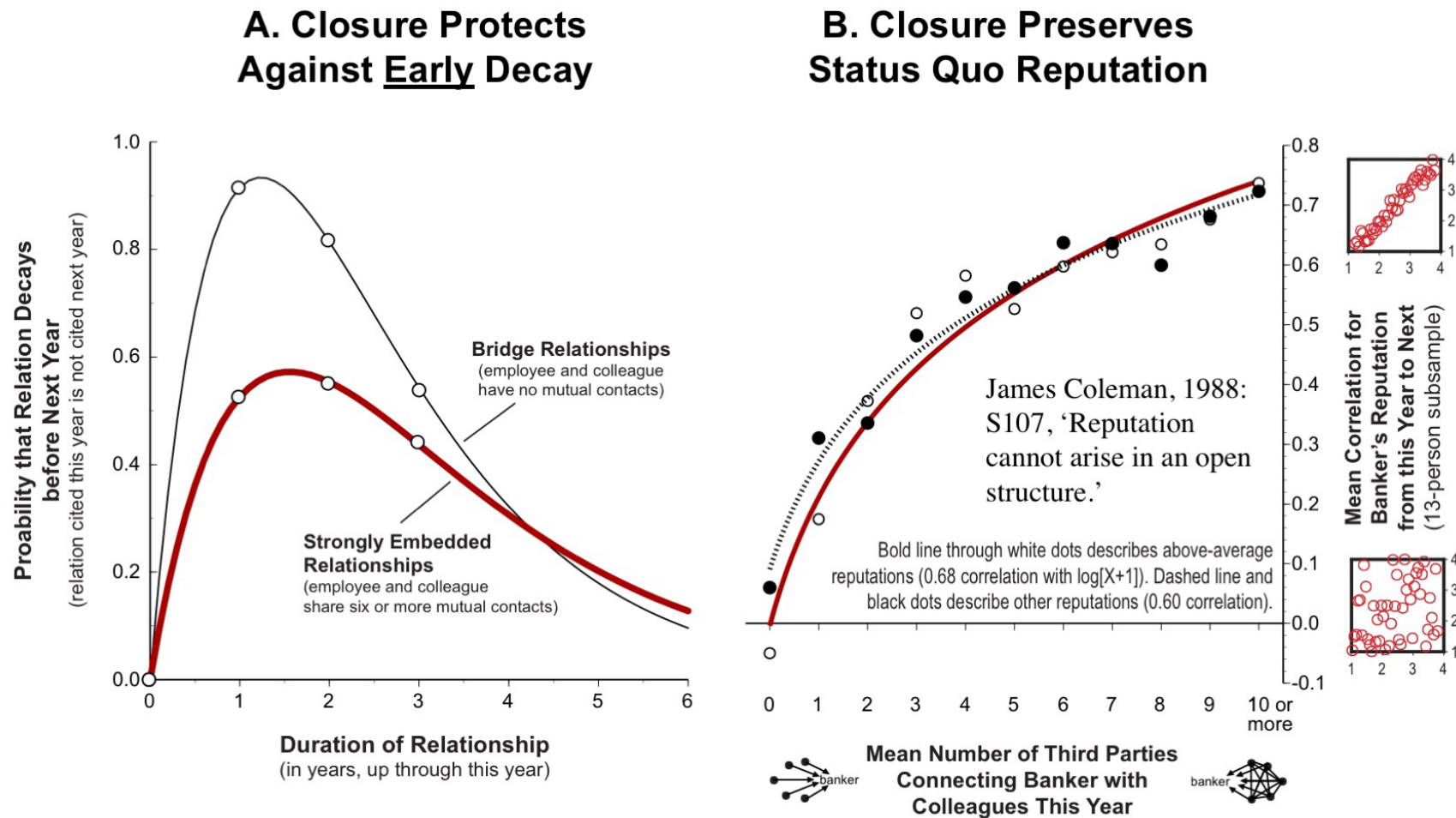


Figure 2 in Burt and Oppen, "Evaluation in network context," in 2025 *Oxford Handbook of Social Evaluation*



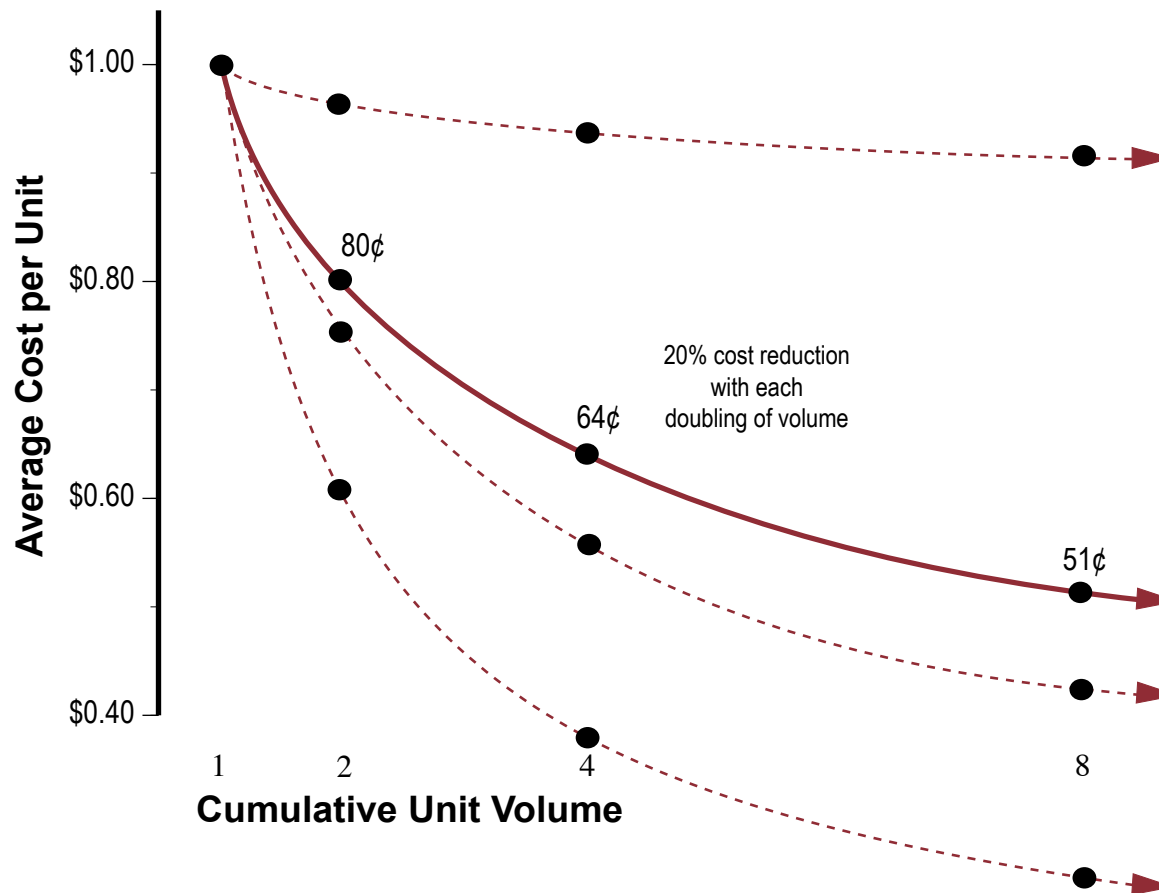
Closed Networks Preserve the Status Quo

NOTE: Graph A plots decay functions for colleague relations among investment bankers and analysts (based on 46,231 relations, see Fig 4.8 in *Brokerage & Closure* 2005, Fig 6.10 in *Neighbor Networks* 2010; Dahlander & Mcfarland [2013 ASQ] "Ties that last," on structural embedding facilitating tie formation versus decay). Regression lines are through the plotted data. Graph B plots stability in banker reputations from one year to the next (based on senior bankers over four years, see Fig 6.5 in *Neighbor Networks* 2010).

Figure 3 in Burt and Oppen, "Evaluation in network context," in 2025 *Oxford Handbook of Social Evaluation*

The Learning Curve: Build for Network Closure to Cut Costs, Delivering on a Known Value Stream

LEARNING CURVE (also known as experience curve) — increased efficiency associated with cumulative volume produced by group (e.g., timing & locating supplies, scheduling, tacit knowledge between colleagues, etc.). **THE MECHANISM** — With its dense social ties providing wide bandwidth for information flow, closure enhances communication and enforcement within a group, (1) which creates reputation, facilitating trust within a group division-of-labor, (2) which enhances performance as people become self-aligning between tasks, pushing one another to extraordinary efforts down the learning curve. The result is lower costs, and so higher productivity. Reputation is the engine. Closure delivers value through peer pressure on reputation within a group (else exogenous shocks disrupt the alignment of even personally dedicated individuals).

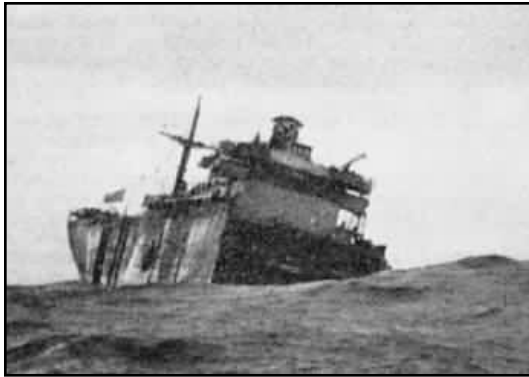


“Costs characteristically decline 20 to 30 percent in real terms each time accumulated experience doubles. This means that when inflation is factored out, costs should always decline.”

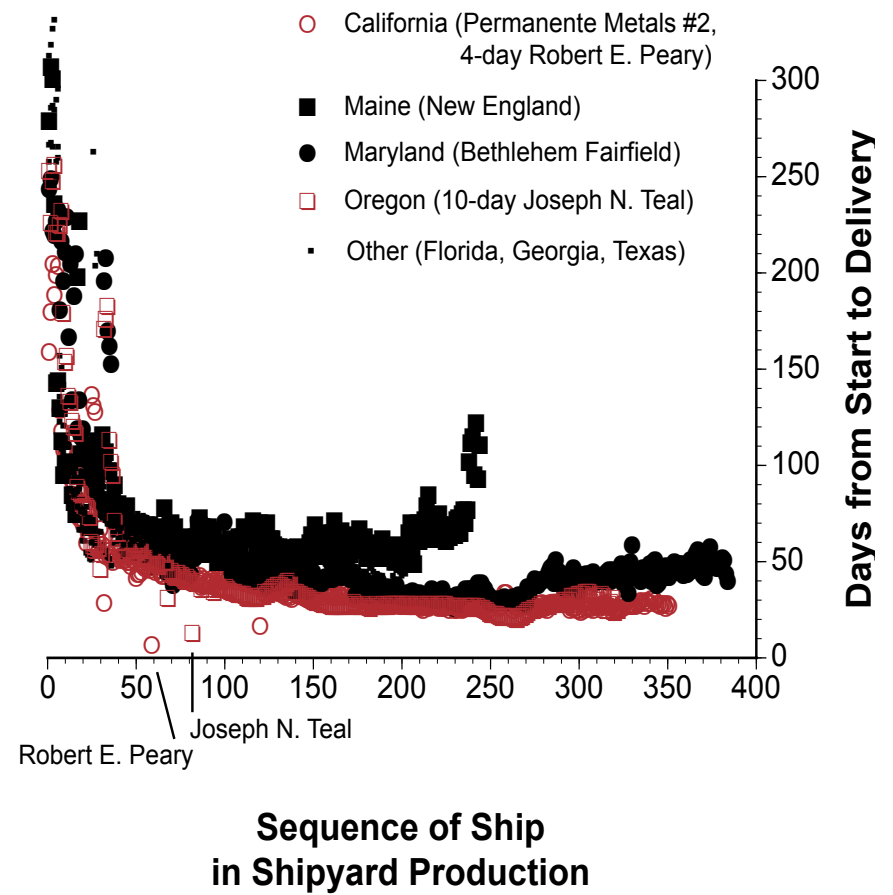
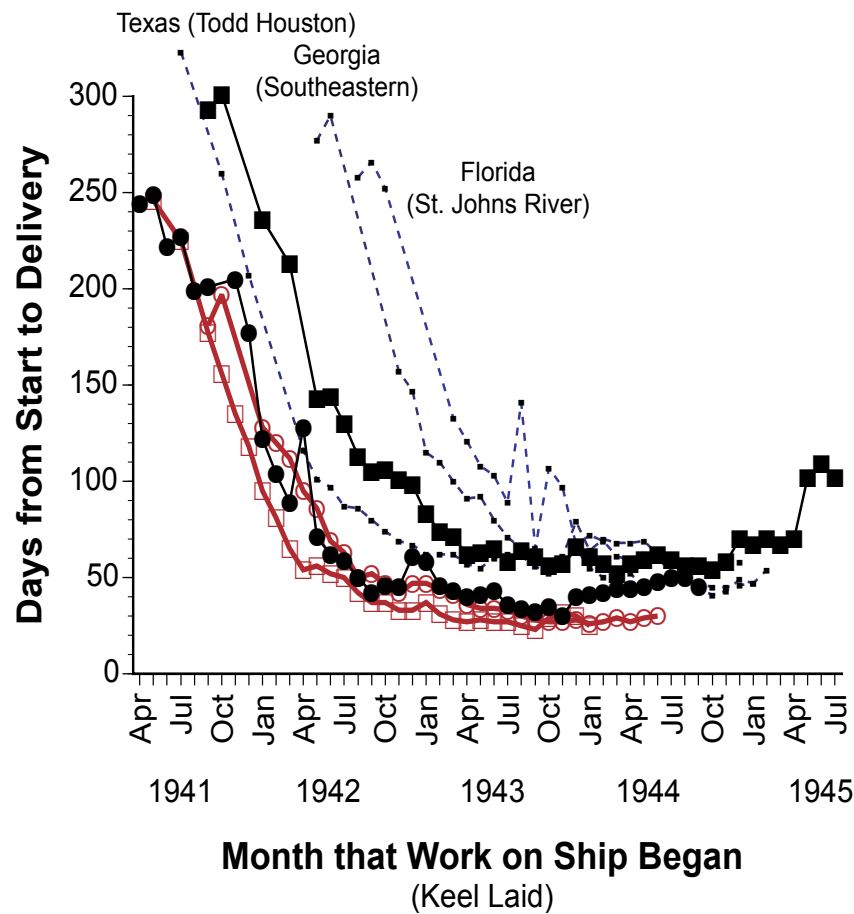
Associated with BCG and Bruce Henderson (1974, “The experience curve reviewed: why does it work?”), but more with Liberty Ships (Appendix III contains example curves). For early example, see Thurstone “The learning curve equation” (1919, *Psych. Monographs*). Barker describes the social foundation (1993, ASQ, “Tightening the iron cage”).

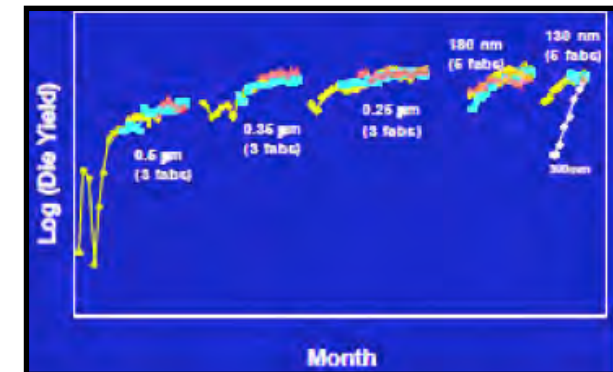
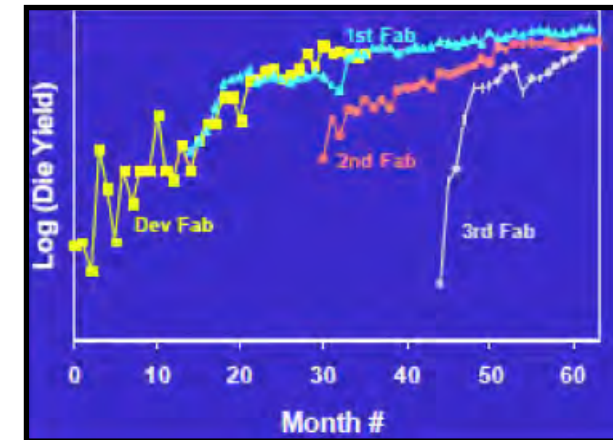
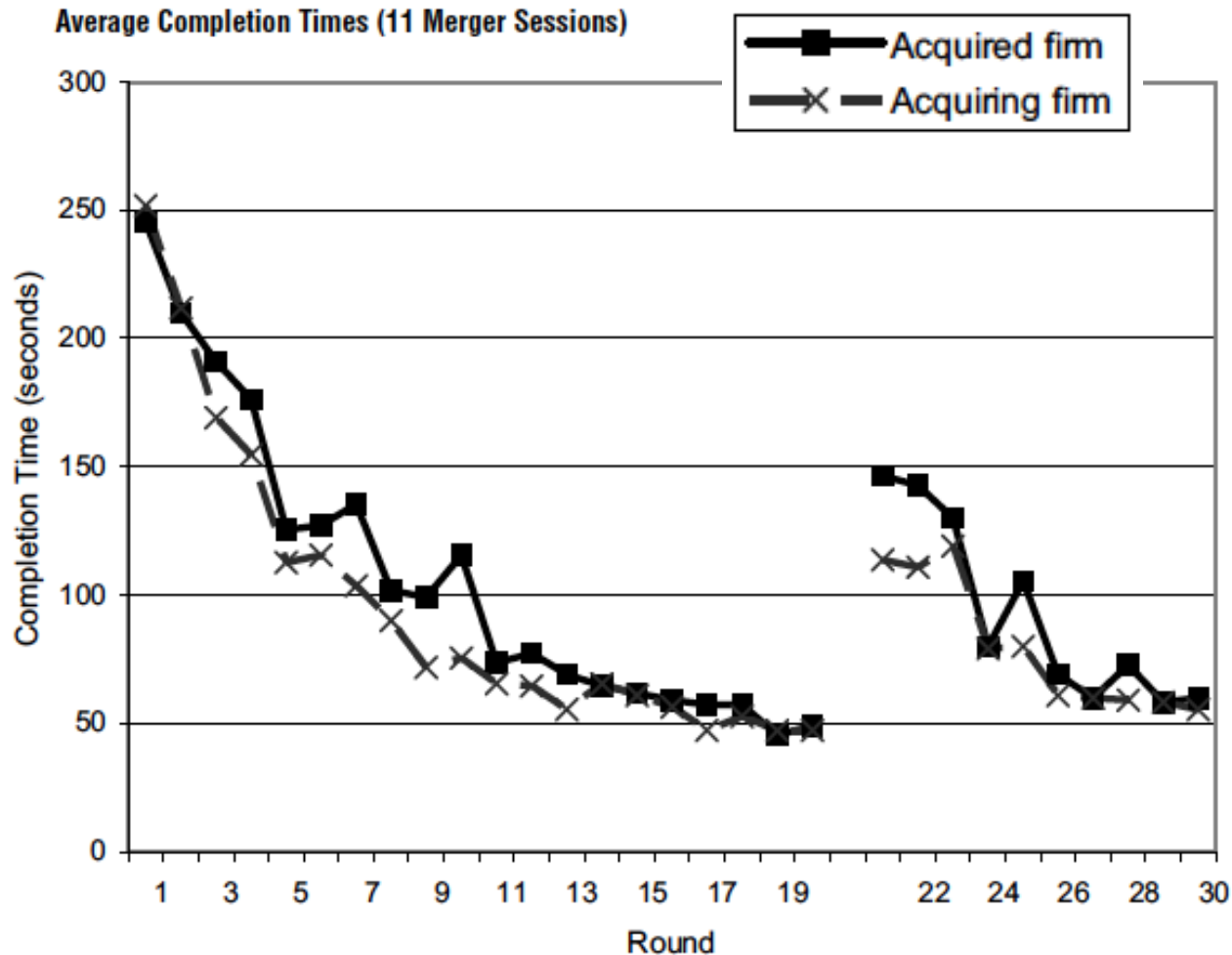


Detail on Learning Curves, Productivity on the WW II Liberty Ships



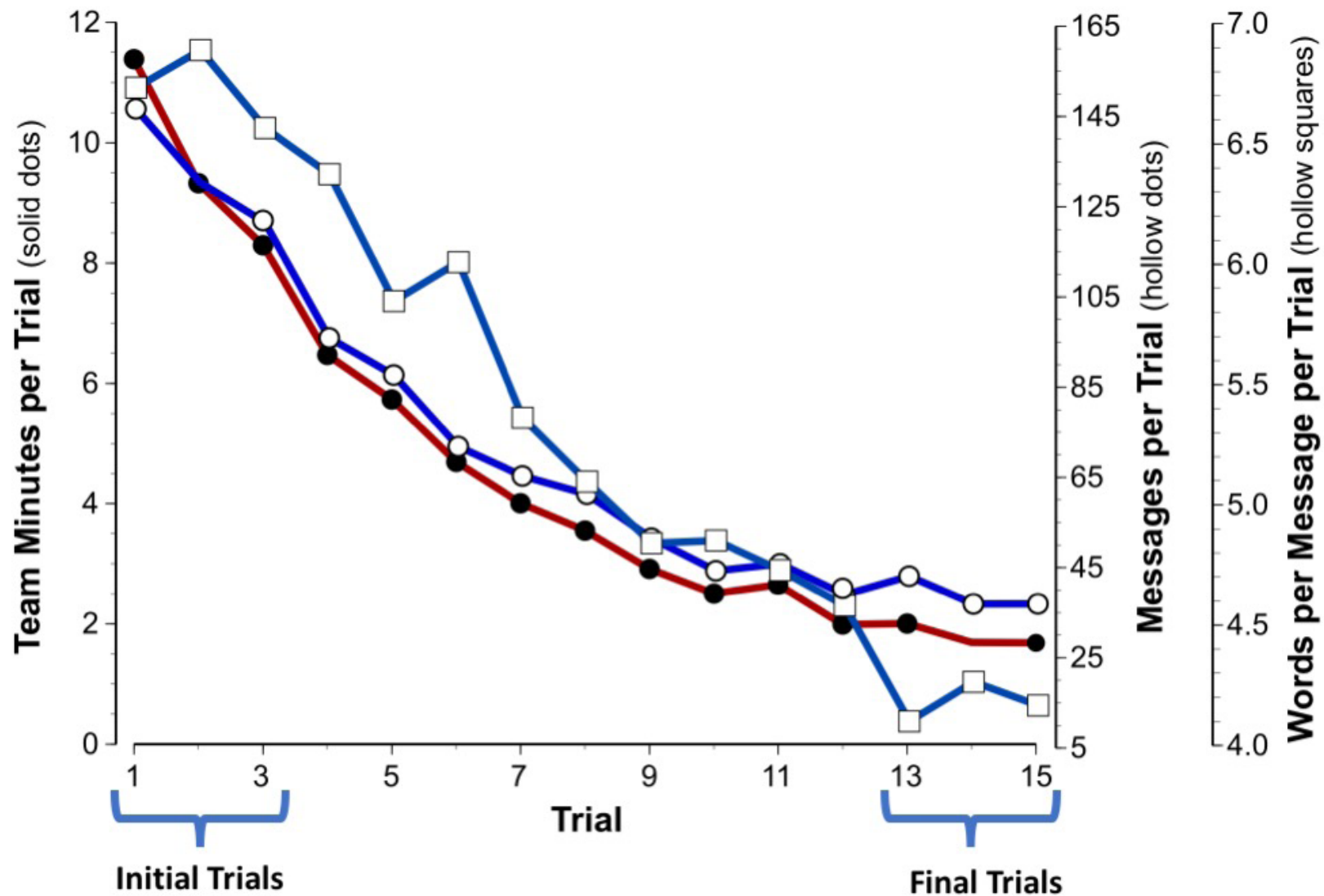
Stern of the SS John P. Gaines in the Aleutian Islands





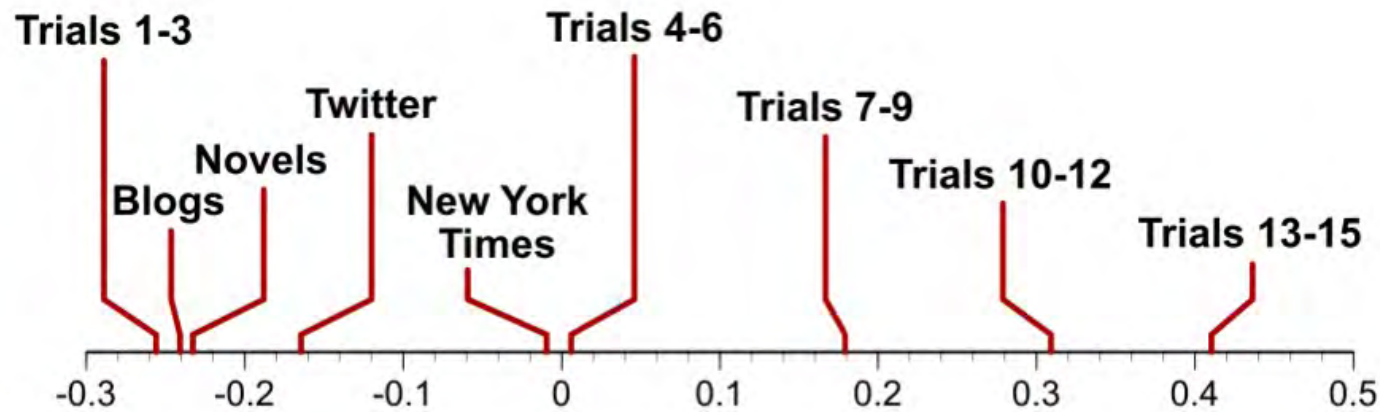
High-Performance Teams Do Not Coordinate Well Across Teams (without preparation)

NOTE — "Firm" here is a two-student team doing a simple coordination task (Weber & Camerer, "Cultural conflict and merger failure: An experimental approach," 2003, *Management Science*). After 20 trials, team of two is expanded to include person from a different team. Performance is immediately worse (delayed solution). Note similarity to data at the right leading to the "Copy Exact" program in Intel (from *Intel Technology Journal*, Volume 6, Issue 2).



Learning Curves In Team Experiment

(Figure 1 in Burt & Reagans, 2022, "Team talk: Learning, jargon, and structure versus the pulse of the network," *Social Networks*)



	Files	Words
Novels	875	57,467,183
Blogs	37,295	119,449,058
Twitter	35,269	23,172,994
New York Times	34,929	26,007,632

	Messages	Words
Trials 1-3	30,690	207,231
Trials 4-6	19,515	118,855
Trials 7-9	12,109	62,340
Trials 10-12	7,045	33,510
Trials 13-15	5,502	23,058

Team Language Evolves from Routine into Jargon

(Figure 2 in Burt & Reagans, 2022 *Social Networks*)

Figure 7, Burt & Reagans
(2022 *Social Networks*)

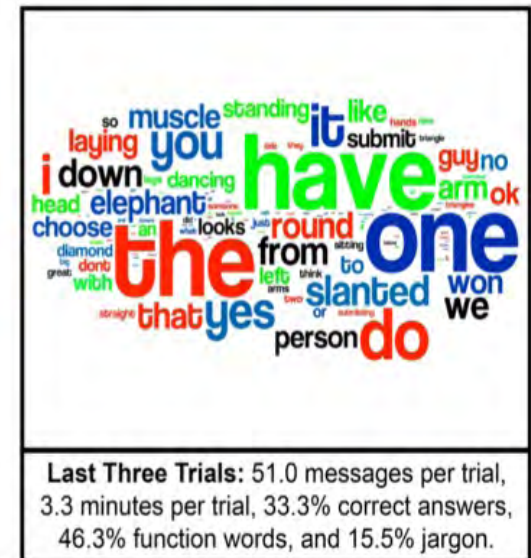
First Three Trials: 117.3 messages per trial, 4.1 minutes per trial, 100% correct answers, and 45.5% function words.



Last Three Trials: 28.7 messages per trial, 0.8 minutes per trial, 100% correct answers, 5.2% function words, and 86.8% jargon.

[illegible]

First Three Trials: 68.7 messages per trial, 7.7 minutes per trial, 0% correct answers, and 55.7% function words.



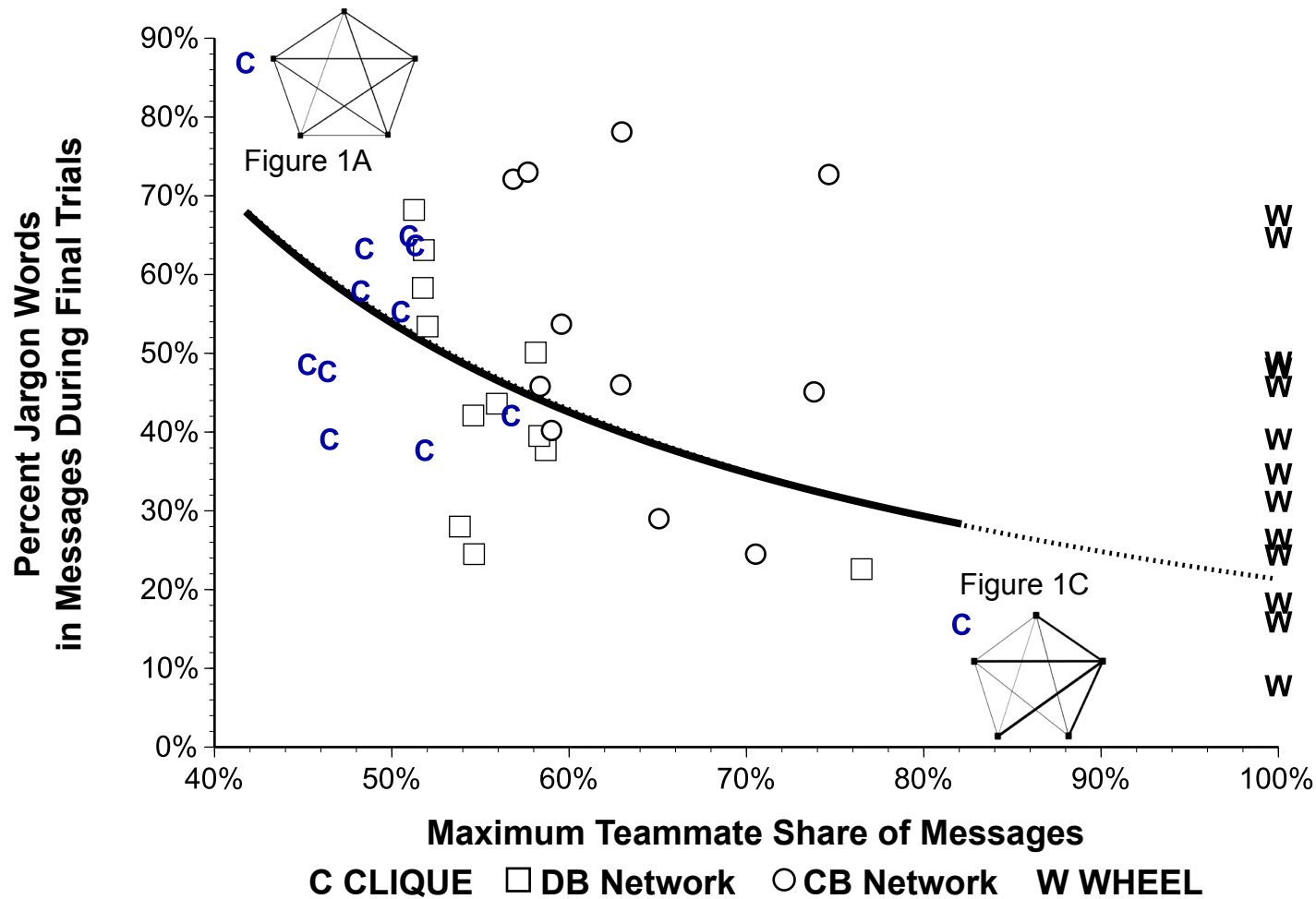
Last Three Trials: 51.0 messages per trial, 3.3 minutes per trial, 33.3% correct answers, 46.3% function words, and 15.5% jargon.

Doesn't Matter What Team Converges On as Long as Team Finds Agreed Jargon

NOTE — Tangrams are listed in order of increasing variation in jargon. Most common jargon for a symbol is listed under symbol with percent of teams using that jargon and number of other terms used as jargon. Rows below symbol list jargon words from diverse teams as illustration (each row a team's jargon).



Figure 4, Burt & Reagans
(2022 *Social Networks*)

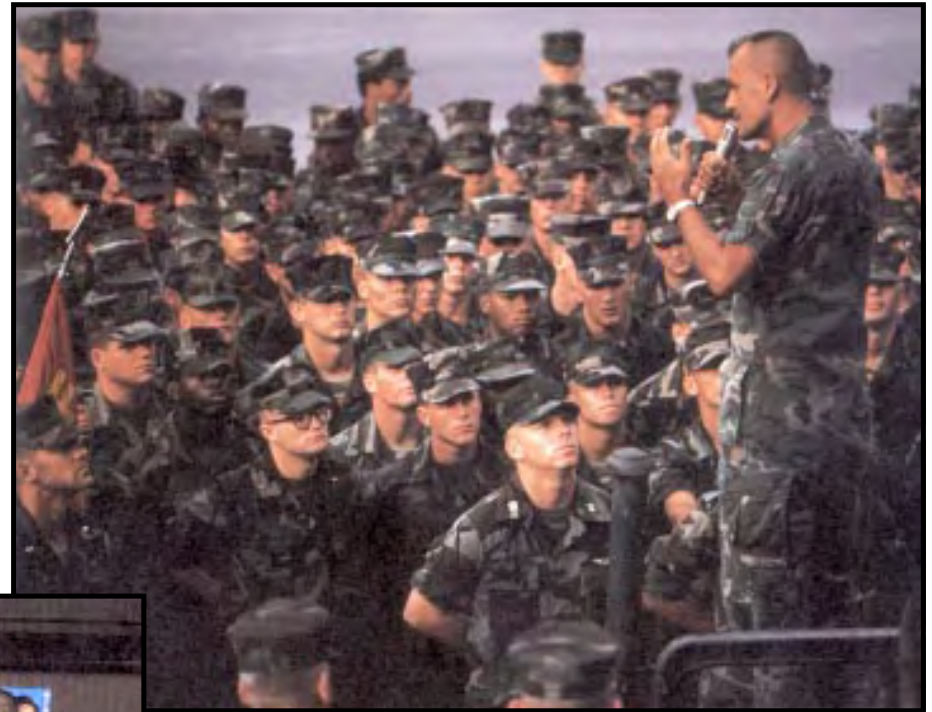


Team Convergence on Language Is Less Likely When Communication Is Primarily with a Leader

NOTE — Percent jargon during final trials (13, 14, 15) in 48 teams sorted on the horizontal axis by the maximum percent of team messages with one teammate. Line thickness in the two sociograms indicates the relative frequency with which teammates message one another. Dashed line is extrapolation from solid line regression. Word clouds for teammate messages in the two displayed sociogram are given on the next page. Figure 9, Burt & Reagans (2022 *Social Networks*)



**Unusual dress can enhance
team cohesion.**



As can shared stimata, such as mutilations and tatoos.



Initiation of a young male in the Sudan. The painful incisions around the forehead must be endured without signs of physical distress or pain. When the wounds heal, they will leave behind the characteristic scars that identify the individual as a full adult member of his tribe.

Group membership has to be an valued element in individual identity

(Durkheim on suicides by religion and elite corps).

Management training in Japan builds cohesion. Company trainees pass through an initiation ceremony in which they kneel in rows and 17 ribbons of shame are attached to their smocks, each one denoting some discipline to be fulfilled in order to graduate. The humbling process demands that trainees perform servile and useless tasks, such as picking grass from the lawns with their fingers (as pictured above for the Fuji School). The ritualized process discourages individuality, and reinforces loyalty and obedience to the company.



"Charles Schwab, the industrialist (not the stockbroker), while one day visiting one of his steel mills as the day shift was leaving, took a piece of chalk and wrote on the floor the number of steel ingots that shift had produced. The night shift, seeing the number, took it as a challenge and proceeded to produce more ingots than the day shift and wrote the number in chalk on the floor. As days went by, productivity escalated shift by shift - simply because Schwab had written a number in chalk on the plant floor."

The timeframe would be the late 1800's - early 1900's. Charles M. Schwab became president of Carnegie Steel Co. in 1897 after rising from a stake driver up through the ranks. In 1901, he became the first president of US Steel Corp, and two years later, he left US Steel, due to personality conflicts, to run the Bethlehem Steel Co. which he built into the largest independent steel producer. In 1908, Bethlehem Steel began producing the beam that revolutionized building construction and made possible the age of the skyscraper. It also made Bethlehem Steel the second largest steel company in the world. An H-beam descendant, the I-beam, became the company's logo.

Charles M. Schwab (1862-1939) was an interesting character. While making significant contributions to the steel industry as well as being quite involved in supporting the local community, he was also known to be a "notorious gambler, union buster and businessman of dubious ethics." The stock crash of 1929 wiped him out financially. He died bankrupt on Sept. 19, 1939. But World War II, which began a few weeks before his death, made his holdings worth millions.



Quotes from Dave Ulrich et al. (1999) *Results-Based Leadership* (Harvard Business School Press) p. 184.

Bottom-Line Performance Advantage of Closed Networks: Reputation Mechanism Generates Trust and Efficiency

By creating a wide bandwidth for information flow, closure enhances communication and personal visibility within a group, a sense of belonging,

- (1) which creates reputation costs for individuals who express opinion or behavior inconsistent with group standards,
- (2) which makes in-group bad behavior less likely, so trust is less risky,
- (3) which enhances productivity as people become self-aligning in extraordinary efforts to preserve their reputation (lowering costs for labor, monitoring, quality, and speed).

Reputation is the mechanism by which closure has its effect. Closure delivers value by creating a reputation cost for deviation from cooperative, extraordinary effort. In short, closure grows the bottom line. As illustrated by the example learning curves, you often see closure in the teamwork associated with successful efficiency programs such as TQM, SixSigma, and Lean Manufacturing.

See Appendix IV for industry differences in performance association with closure (strong culture).

Summary Image of Network Leadership

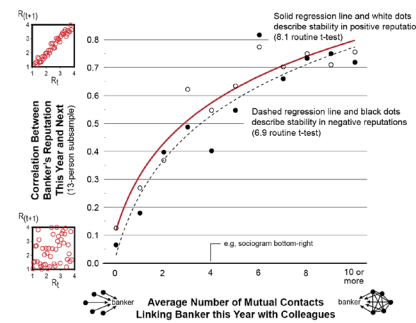
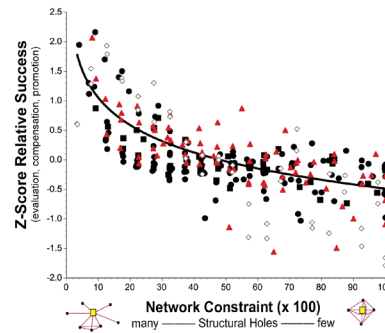
TOP-LINE GROWTH
New Services, New
Processes, New Business

MECHANISM

Information breadth,
timing, and arbitrage
advantages in detecting
and developing good
ideas

PATHOLOGY

Inefficiency,
Agency Costs,
Chaos



BOTTOM-LINE GROWTH
Efficient Use of Resources
(labor, supervision, speed)

MECHANISM

Alignment from
reputation cost for
deviant opinion/
behavior enforced
by echoed stories in
colleague gossip

PATHOLOGY

Ignorant Certainty,
Agentic State, Groupthink,
Insider vs. Outsider

Brokerage

Bridging
Structural Holes
between Clusters

Closure

Closing
Structural Holes
within the Cluster

Graphs are from Figures 1.8 and 4.6
in *Brokerage and Closure*.

(Q50) Reputation is the key to closure delivering value, but it is not critical to the value created via brokerage. **True or false?**

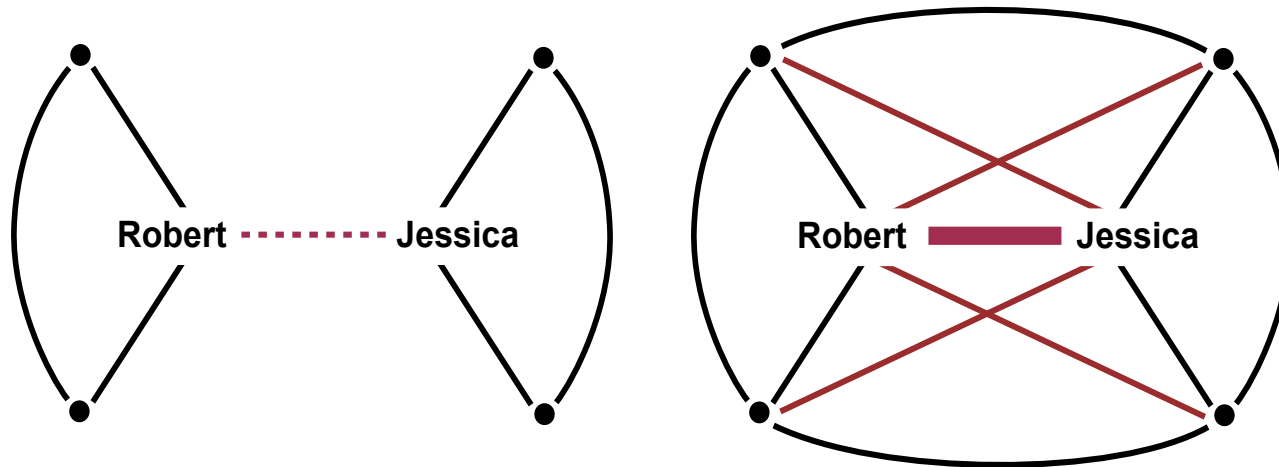
- A. True
- B. False

(Q187) Relationships embedded in a closed network are less subject to decay than bridge relations across closed networks. **True or false?**

- A. True
- B. False

(Q19) The survival of what kind of relationships is most improved from being embedded in a closed network?

- A. New relationships.
- B. Long-standing relationships.
- C. Advice relationships.
- D. Friendship relationships.
- E. Family relationships.

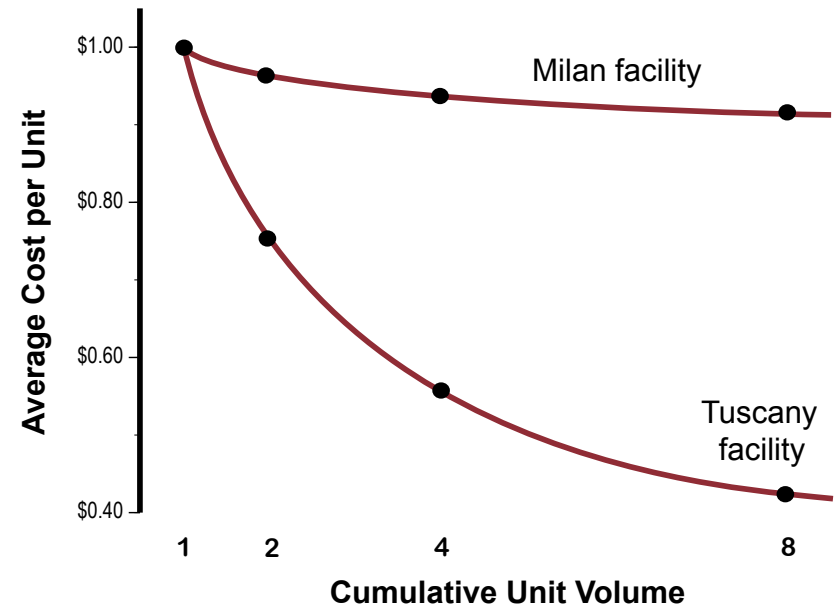


(Q181) Why is trust between Bob and Jess more likely in the network to the right than it is in the network to the left?

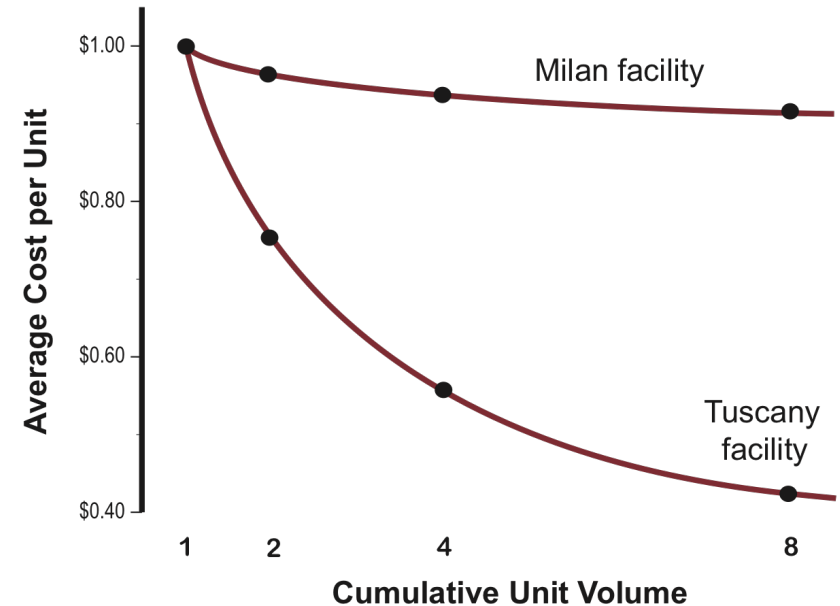
- A. Relational embedding.
- B. More likely detection of poor behavior.
- C. Structural embedding.
- D. Gender differences are easier to manage when there are mutual friends.
- E. More likely reputation cost for poor behavior.

(Q138) An acquisition leaves the acquiring firm with production facilities in Milan and Tuscany. The new COO wants to fold the acquired Tuscany operations into the company's long-standing Milan facility. He obtains learning curves for the history of operations in the two facilities (graph below). It is clear that the Tuscany facility is producing at a more attractive price point, but **what does the steeper learning curve in Tuscany tell you about a difference between team networks in the two facilities?**

- A. Team networks in Tuscany are more open.
- B. Team networks in Milan are more closed.
- C. Team networks in Tuscany are more closed.
- D. Team networks in Tuscany are more open.
- E. Cost is independent of local



(Q139) Given the team network difference between the two facilities in the previous question, **what are the implications of moving the Tuscany operations to Milan?**



- A. Cost advantage in Tuscany will be lost.
- B. Cost disadvantage in Milan will be eliminated.
- C. Too few Tuscany employees will move to Milan to make a difference.

Two Important Refinements on Closure-Trust Association: Strong Bridges & Network Echo. First, strong bridges.

The Closure-Trust Association — as widely understood, and covered above — implies that bridge relations are fragile, which makes fragile the growth and success associated with brokerage.

Coincident with the accumulating evidence of bridge relations as a source of competitive advantage is accumulating evidence of bridge fragility.

- Their value is contingent on a broker's social standing.
- They are prone to decay.
- Trust in bridge relations is unlikely by the closure-trust association.
- As famously stated by Granovetter (1973): Network bridges are weak ties.

Trust is a particular concern. Can I trust this information received from someone in that group — where their interests could be less virtuous, irrelevant, even contradictory, to my own? Is it even worth the costly due diligence to establish the validity of the information?

Given the closure-trust association, one way to ensure strong (load-carrying) bridges is to reinforce the bridges with third parties:

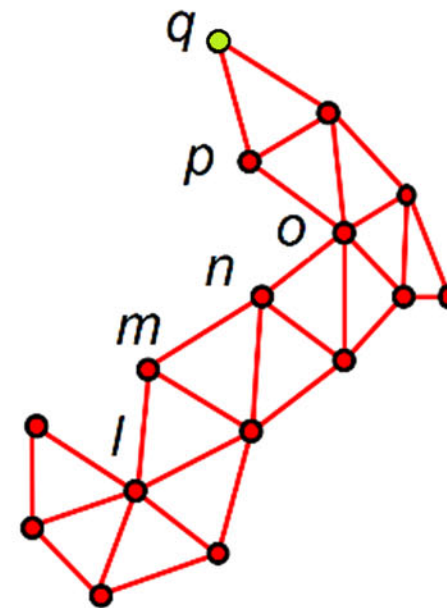
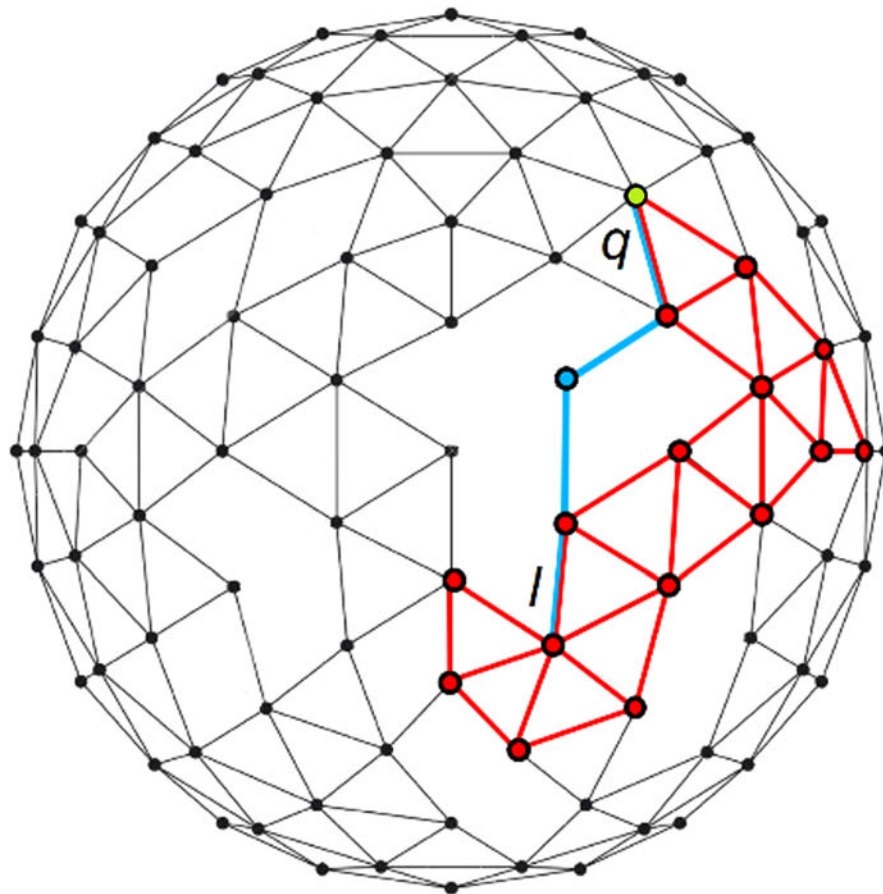
Simmel Ties - “Two people are Simmelian tied to one another if they are reciprocally and strongly tied to each other and if they are each reciprocally and strongly tied to at least one third party in common.” (Krackhardt, 1999:186; Krackhardt, 1992; Tortoriello and Krackhardt, 2010)

Wide Bridges – “A bridge is generally assumed to consist of a single tie, which is sufficient for simple contact between neighborhoods. However, if a connection requires multiple contacts, then a bridge must consist of multiple ties. Hence, we can measure a bridge not only by its length (the range that is spanned by the bridge) but also its width (the number of ties it contains). ... The importance of bridge width has been overlooked in previous research because it is not relevant for simple contagions. However, propagation of many collective behaviors depends on bridges that are wide as well as long. The structural weakness of long ties is that they form bridges that are too narrow for complex contagions to pass.” (Centola and Macy, 2007:710; Centola, 2010; 2018; Guilbeault and Centola, 2021) See example on next page.

Institutional Embedding - Stovel et al. (2011) discuss examples (cf. Kollock 1998, on “structural solutions,” Bernstein 1992 on diamond exchange): Brokerage can be made less fragile by confining it to a group that cannot abuse broker information advantage (e.g., marriage matchmakers in China), absorbing brokers into one side or the other (e.g., Protestant missionaries supporting practical community interests rather than colonial elite interests), or absorbing brokerage into the activity of an established organization (e.g., social welfare organizations that foster brokerage among members).

Ultimately this strategy turns brokerage into closure (e.g., network constraint), which is negatively associated with innovation and growth. Adding third parties converts a bridge between groups into a structurally embedded relationship within a group. Third-party reinforcement has several attractive features discussed in the above references, especially for loosely-connected networks across the internet. But for the general case, which includes unambiguously balkanized networks within and across organizations, third-party reinforcement is a theoretically unsatisfactory solution to fragility as an issue for bridge relations.

From Figure 1 in Guilbeault & Centola (2021 *Nature*)

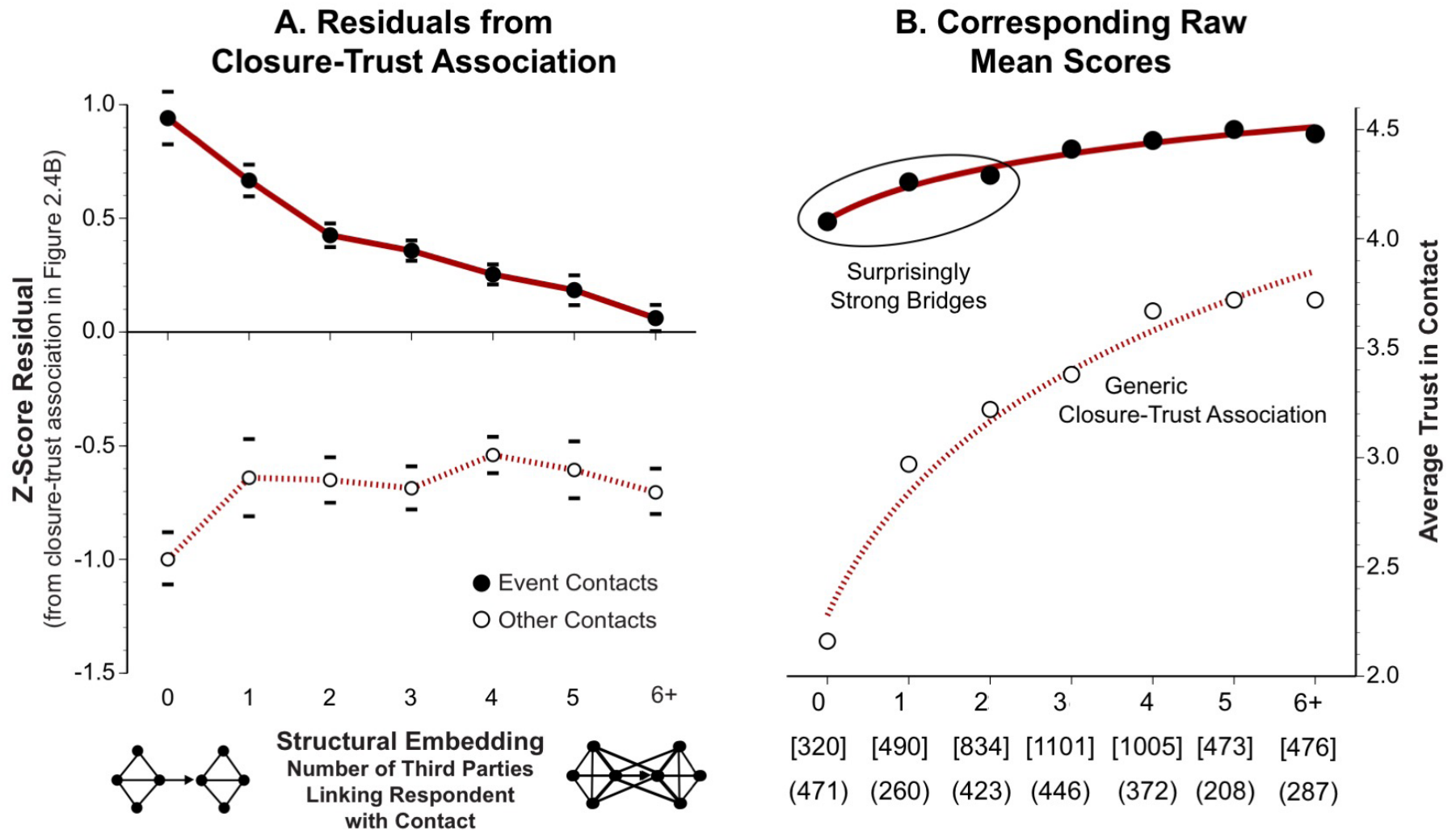


- Complex paths between node l and q
- Shortest simple path between node l and q

Shortest Complex Path

$$V(\text{Geodesic}) = \{l, m, n, o, p, q\}$$

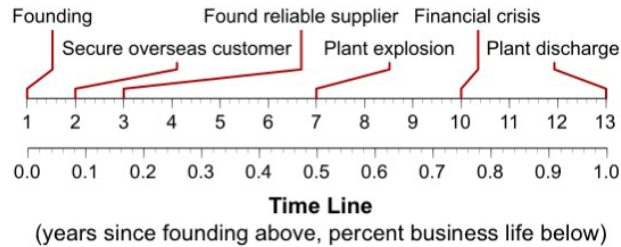
$$E(\text{Geodesic}) = \{(l, m), (m, n), (n, o), (o, p), (p, q)\}$$



Fragile Brokerage and Strong Bridges

NOTE: Units of analysis are 7,166 relationships cited by respondents in a stratified probability sample of 885 entrepreneurs leading Chinese SMEs. Horizontal axis is the number of other people in a respondent's network connected with the contact being evaluated for trust. Studentized residual z-scores on left vertical axis are defined by model M1 in Table 1 (\pm 95% confidence interval). Trust on right vertical axis is measured in five categories ("Low" to "High"). Frequencies to the right below each level of third-party connection show number of [relations with event contacts] and (relations with other contacts).

Figure 2.5 in Burt & Opper, *Strong Bridges*



2012	2018	
700	384	Respondents
80%	83%	Founders
11	10	Firm Age (med.)
67	66	Employees (med.)

Hunch: The Strong Bridges Look Like *Guanxi*

Two surveys, stratified area probability sample of Chinese heads of SME private enterprises (CEOs/entrepreneurs). Thick line indicates “especially close,” dashed line indicates “less than close,” no line indicates “distant,” and “trust” indicates relations deemed highest trust.

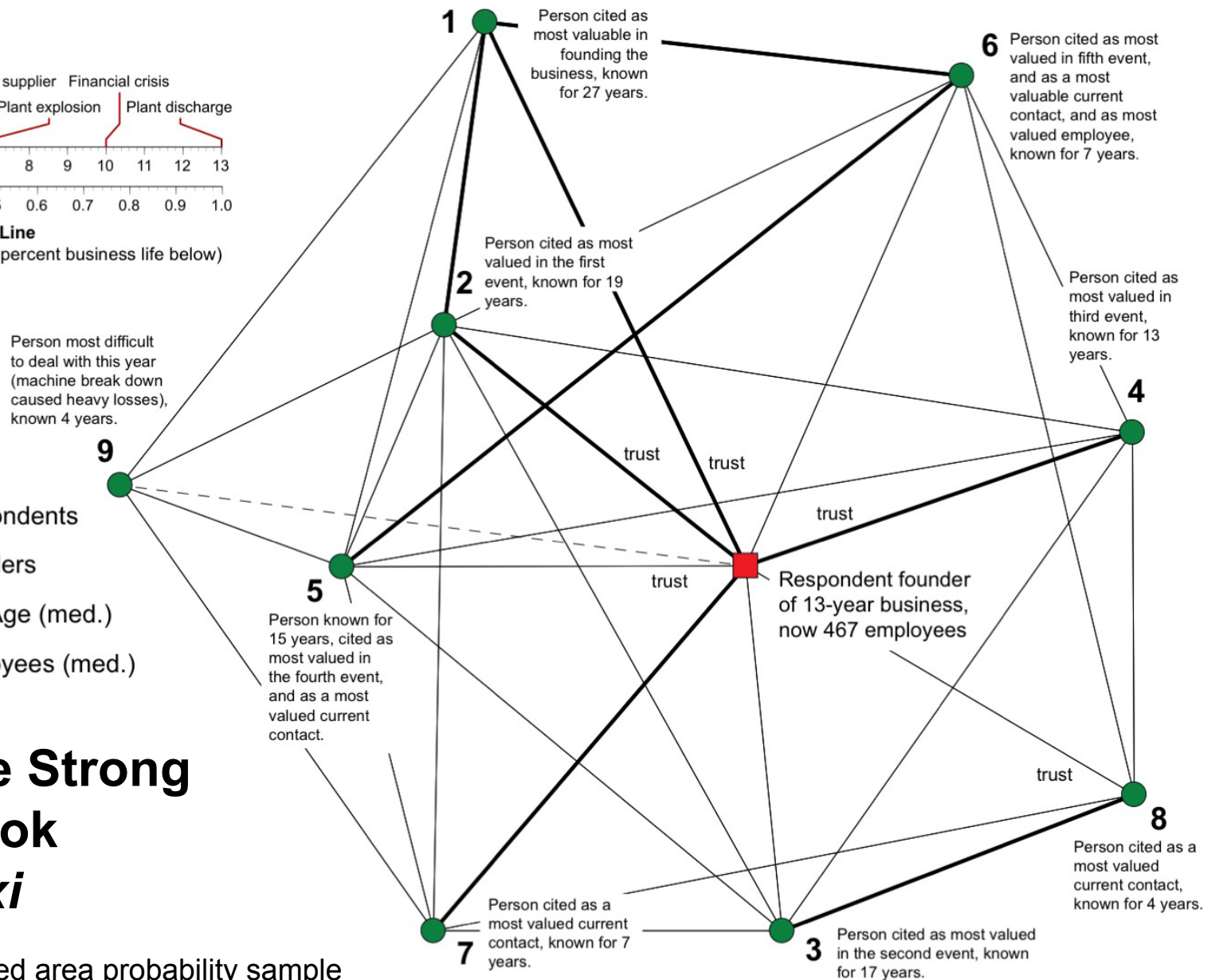


Figure 1, Oppen & Burt (2021 *AMJ*) and Figure 3.2, Burt & Oppen (2024 *Strong Bridges*)

Ask Business Leaders Directly Who in Their Network Is *Guanxi*

After eliciting the names of key business contacts, we put the name interpreter item at the right to the stratified probability sample of 384 Chinese CEOs in 2018 running SMEs to explicitly distinguish contacts they deem *guanxi* versus those deemed not-*guanxi*.

2018 sample is stratified by city, industry, and size (Shanghai, Ningbo, Hangzhou; Auto Parts vs IT; Small vs Large). No firm is included from the 2012 survey.

14. Are you familiar with the word “guanxi?”

(Interviewer circle answer) **yes** **no**

14b. If no, skip to question 14c. If yes, ask:
When there is guanxi between two people, that tells you certain things about their relationship. In your own words, how would you describe to a foreigner the relationship between two people who have guanxi with each other? (Interviewer, hand across GUANXI SHEET. Staple sheet to this page with answer.)

14c. In general, people say that guanxi exists when two people feel morally obligated to help one another without the expectation of a direct compensation. **Look over the list of your business contacts. Thinking of guanxi as feeling a moral obligation to help each other, with whom do you feel you have the strongest guanxi? Just read the number next to the name of the person.** (Interviewer, write “1” in response line for named person.)

14d. **Are there any other people on the list with whom you have guanxi almost as strong as with the person you just named, contact “number named in question 14c”?** (Interviewer, write “2” in response lines for named people.)

14e. **In terms of the general understanding of guanxi as feeling a moral obligation to help each other, with which people on the list do you definitely NOT have guanxi?** (Interviewer, write “3” in response lines for each named person.)

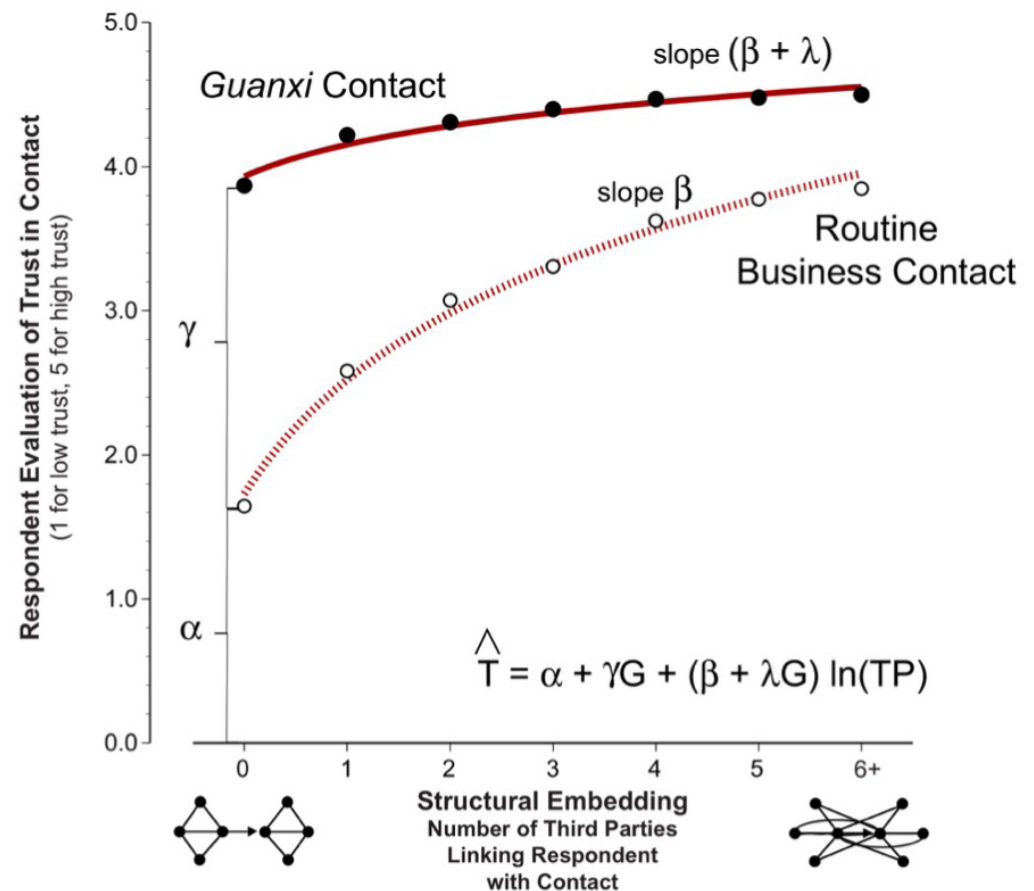
A Network Definition of *Guanxi*

If relations with event contacts are indicators of *guanxi*, then we expect known *guanxi* ties to reproduce the trust association with event contacts in the Figure 2.5 analysis of covariance model below. (This is a network definition of *guanxi* that will be useful for identifying *guanxi*-like ties outside China.)

Hypothesis 1: Compared to trust in non-guanxi ties, trust in guanxi ties is higher ($\gamma > 0$) and less contingent on structural embedding ($\lambda < 0$).

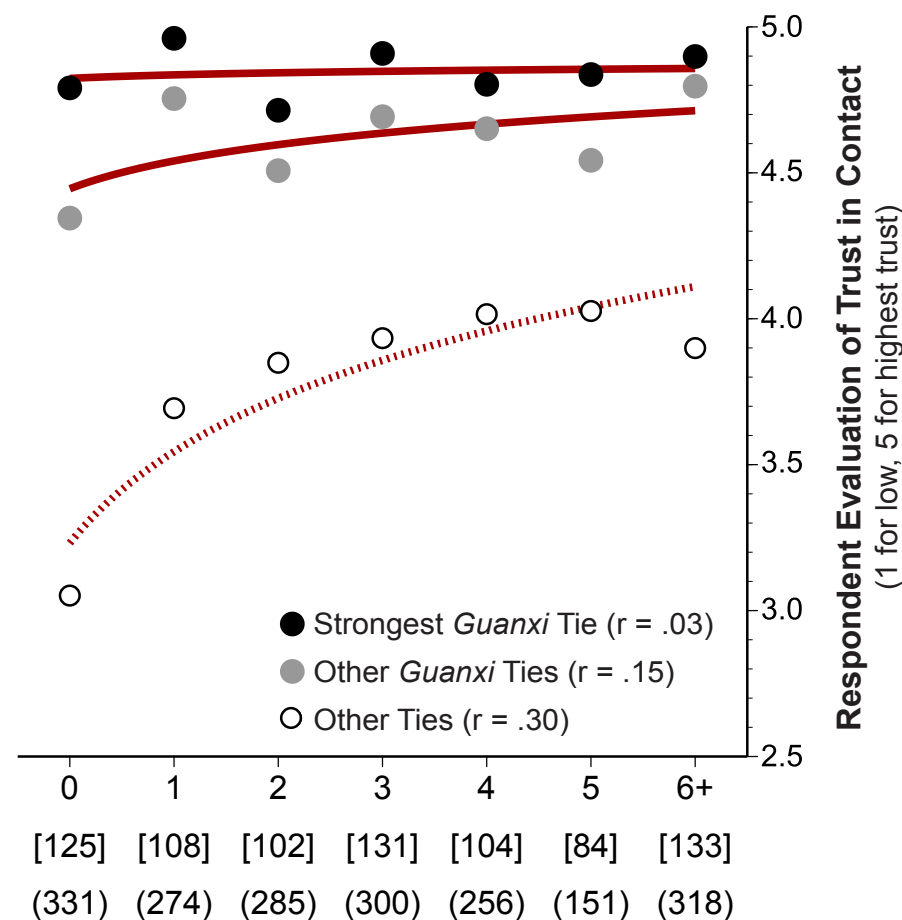
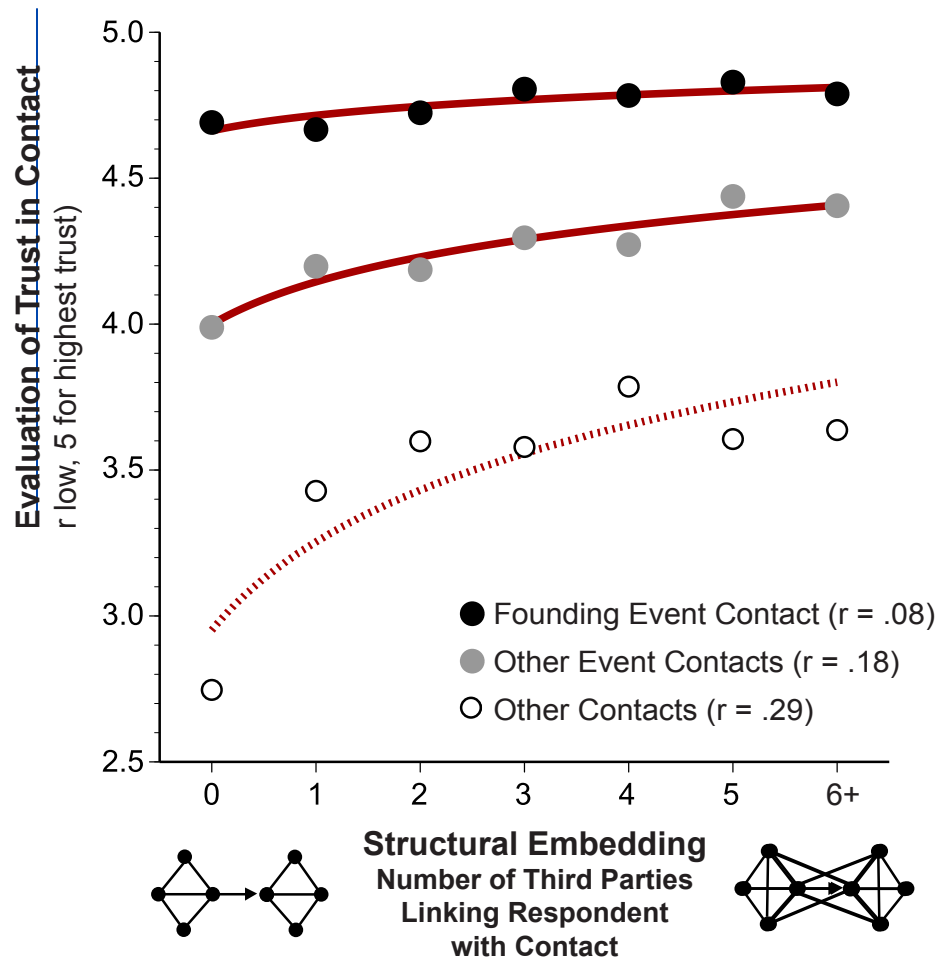
If *guanxi* provide strong-bridge advantages of spanning structural holes, we expect higher performance when a person's *guanxi* are bridge connections rather than connections buried in mutual friends.

Hypothesis 2: Performance increases more with bridge guanxi than with structurally embedded guanxi.



A. All Ties

B.



Trust Association Is More Obvious with *Guanxi* Rather than Events

NOTE: Dots are average Y scores at each level of X. Graphs describe relationships with 2,702 contacts cited by 384 entrepreneurs. Vertical axis is respondent trust, measured on a five-point scale. Horizontal axis is the number of other people in an entrepreneur's network connected with the contact being evaluated for trust. Correlations are computed between trust and $\log(\text{number third parties})$ across all relations within each category. Frequencies to the right below each level of third-party connection show number of [*guanxi* ties] and (other ties).

From Figure 3 in Burt & Oppen (2024, American Journal of Sociology)

Guanxi Ties Are Critical to the Network-Performance Association

NOTES: Plotted scores are 384 individual scores on vertical and horizontal axes averaged within five-point intervals of network constraint. Dark dots show average return on assets (adjusted for value of business assets, years from founding until business was profitable, and industry). Hollow dots show average return on equity (adjusted for value of business equity, years from founding until business was profitable, and industry). Correlations are computed from plotted data with $\log(\text{network constraint})$.

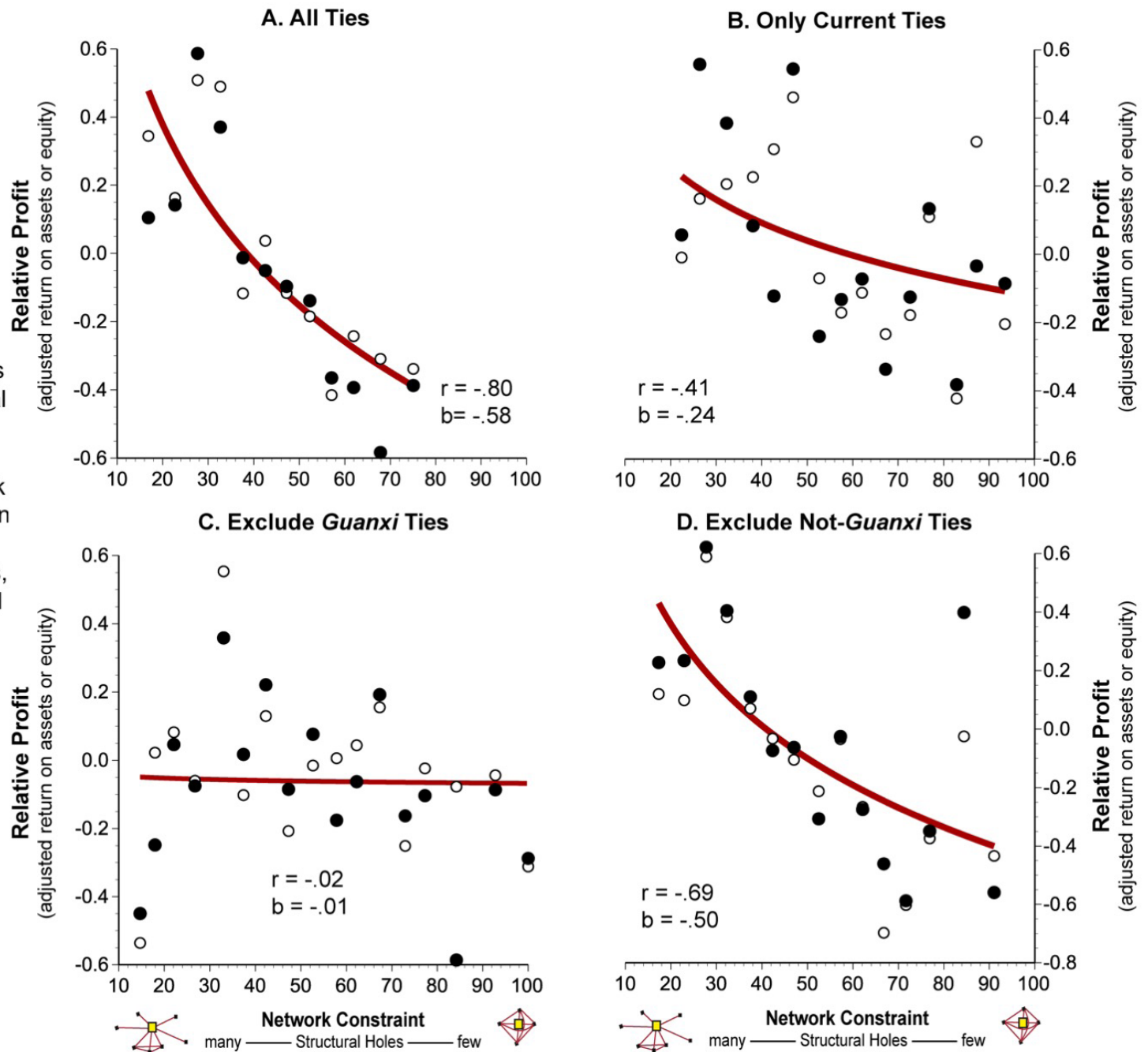


Figure 4 in Burt & Oppen, "Guanxi and Structural Holes" (2024 AJS).

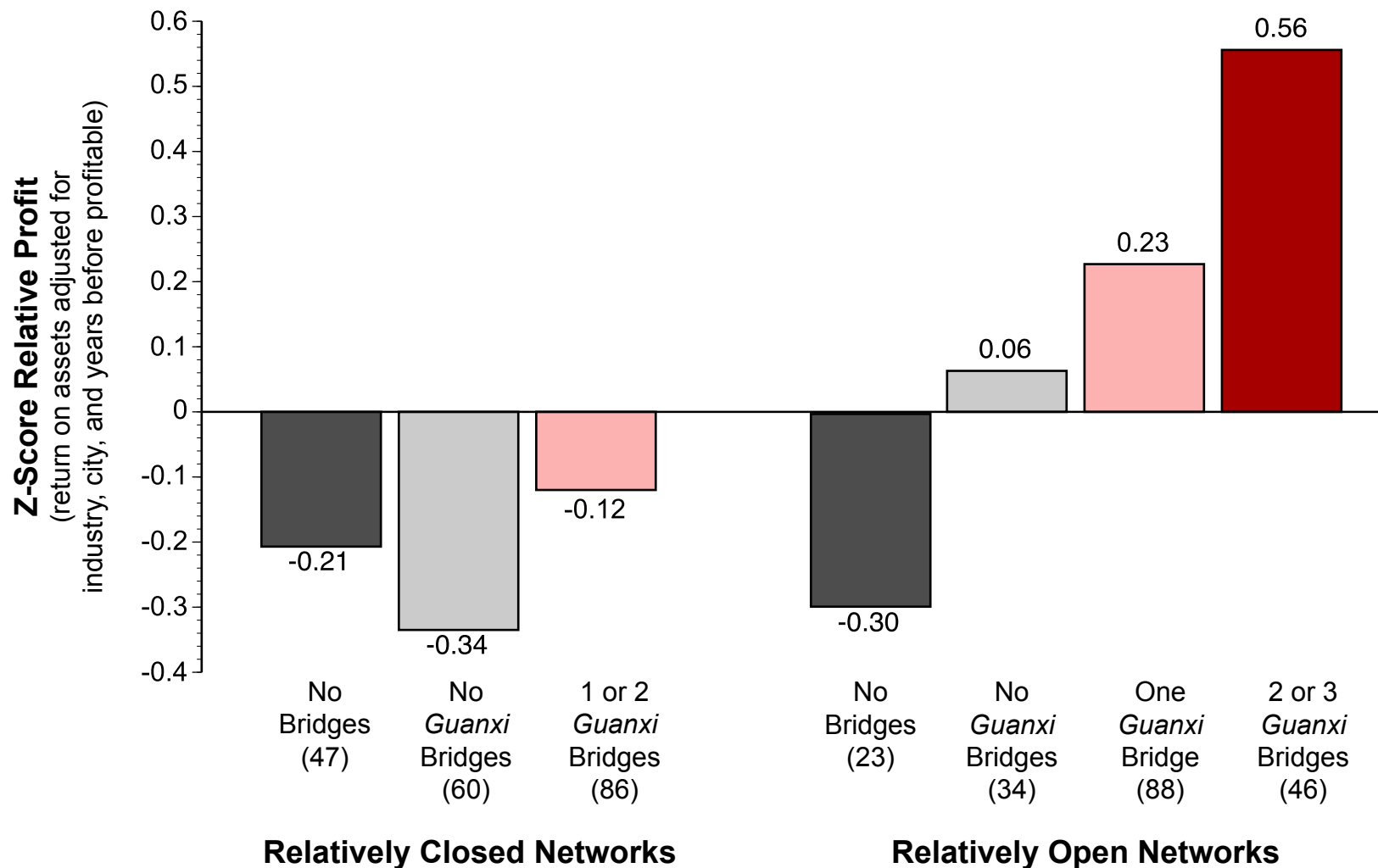


Figure 4.5 Performance, Networks, and *Guanxi* Bridges

NOTE: Bars show z-score relative profit. Networks are sorted on the horizontal (parentheses contains number of entrepreneurs in each condition). Closed versus open networks are distinguished by median network constraint computed from all ties except the strongest *guanxi* (aggregate network constraint predictor in Tables 4.4 and 4.6). The count of *guanxi* bridges in an entrepreneur's network is the measure in equation 2 rounded to nearest integer, and no bridges refers to networks in which no relationship is embedded in less than a strong indirect connection. Seven entrepreneurs with two *guanxi* bridges are combined in the high category of relatively closed networks, and six entrepreneurs with three *guanxi* bridges are combined in the high category of relatively open networks.

Figure 4.5 in Burt & Oper, 2025 Strong Bridges (cf. Figure 5 in Burt & Oppen, "*Guanxi* and Structural Holes" 2024 *AJS*).

Conclusions

Brokerage is not fragile when based on strong bridges.

Phrased in terms of network theory, our conclusion is that *guanxi* refers to a tie that has become strong through its history such that trust within the relationship is high and independent of the surrounding network (Hypothesis 1). In contrast to the discussion of strong ties deriving some large portion of their strength from corroborating relations with mutual friends and colleagues (structural embedding), *guanxi* ties derive their strength from the personal history between two people (relational embedding).

Different settings can define different events as significant — soldiers looking out for one another during combat, fraternity brothers pledging in the same cohort, people surviving together a disaster than for some others proved fatal. In general, *guanxi* ties are positive sentiment forged to bond through felt support during a significant event.

As such, *guanxi* ties can be strong bridges able to provide performance-relevant trust across structural holes. The more structurally embedded *guanxi* are, the less they operate as network bridges, and the lower their association with performance (Hypothesis 2).

Practical implication for network education: Are we misleading people by emphasizing the value of building casual bridge connections? Should some balance of effort go into relational embedding to secure *guanxi*-like ties that provide valuable bridge connections?

Now Network Echo

In contrast to closure providing full information ("bandwidth"), closure in social networks often creates selective reinforcement ("echo").

Third parties do not enhance information and protection so much as they create an echo that makes people feel more certain in their opinion of you.



Third parties selectively repeat information and enforcement, and so amplify relations to extremes of trust and distrust.

See Section 4.1 in *Brokerage and Closure*, Appendix V on why people don't discount gossip, Dunbar (1996) Grooming, Gossip, and the Evolution of Language.

Quidnunc (KWID-nunk, from Latin "what now", to English in 1709) - a person who seeks to know all the latest news or gossip. Example: I lowered my voice when I noticed that Nancy, the office quidnunc, was standing right next to my cubicle hoping to overhear what I was saying.

Civil Society

Felt Structural Equivalence

Mobility (expats)
Highway Experiment
Singles Bar Rhetoric

Bias in selecting third parties (balance mechanism) — Faced with a decision about whether to trust you, the other person (ego) turns to trusted contacts before less close contacts for information on you. Trusted contacts are likely to have views similar to ego's, so they are likely to report accounts of you consistent with ego's own view. A preference for trusted third parties means that ego draws a sample of information on you consistent with his or her predisposition toward you.

Bias in what third parties say (etiquette mechanism) — It is polite in conversation to go along with the flow of sentiment being shared. We tend to share in conversations those of our facts consistent with the perceived predispositions of the people with whom we speak, and facts shared with other people are facts more likely to be remembered. The biased sample of facts shared in conversations becomes the population of information on, and so the reality of, the people discussed.

For example (Higgins, 1992), an undergraduate subject is given a written description of a hypothetical person (Donald). The subject is asked to describe Donald to a second student who walks into the lab. The second person is a confederate who primes the conversation by leaking his predisposition toward Donald ("kinda likes" or "kinda dislikes" Donald). Subjects distort their descriptions of Donald toward the expressed predisposition. Positive predisposition elicits positive words about Donald's ambiguous characteristics and neglect of negative concrete characteristics. Negative predisposition elicits negative words about Donald's ambiguous characteristics and neglect of positive concrete characteristics.

In sum, echo has the other person (ego) in vicarious play with you in gossip relayed by third parties. The sample of your behavior to which ego is exposed is biased by etiquette to be consistent with ego's predisposition toward you. The result is that ego becomes ignorantly certain about you, and so more likely to trust or distrust you (as opposed to remaining undecided between the two extremes). Favorable opinion is amplified into trust. Doubt is amplified into distrust. The trust expected in strong relations is more likely and intense in relations embedded in strong third-party ties. The distrust expected in weak and negative relations is more likely and intense in relations embedded in strong third-party ties.

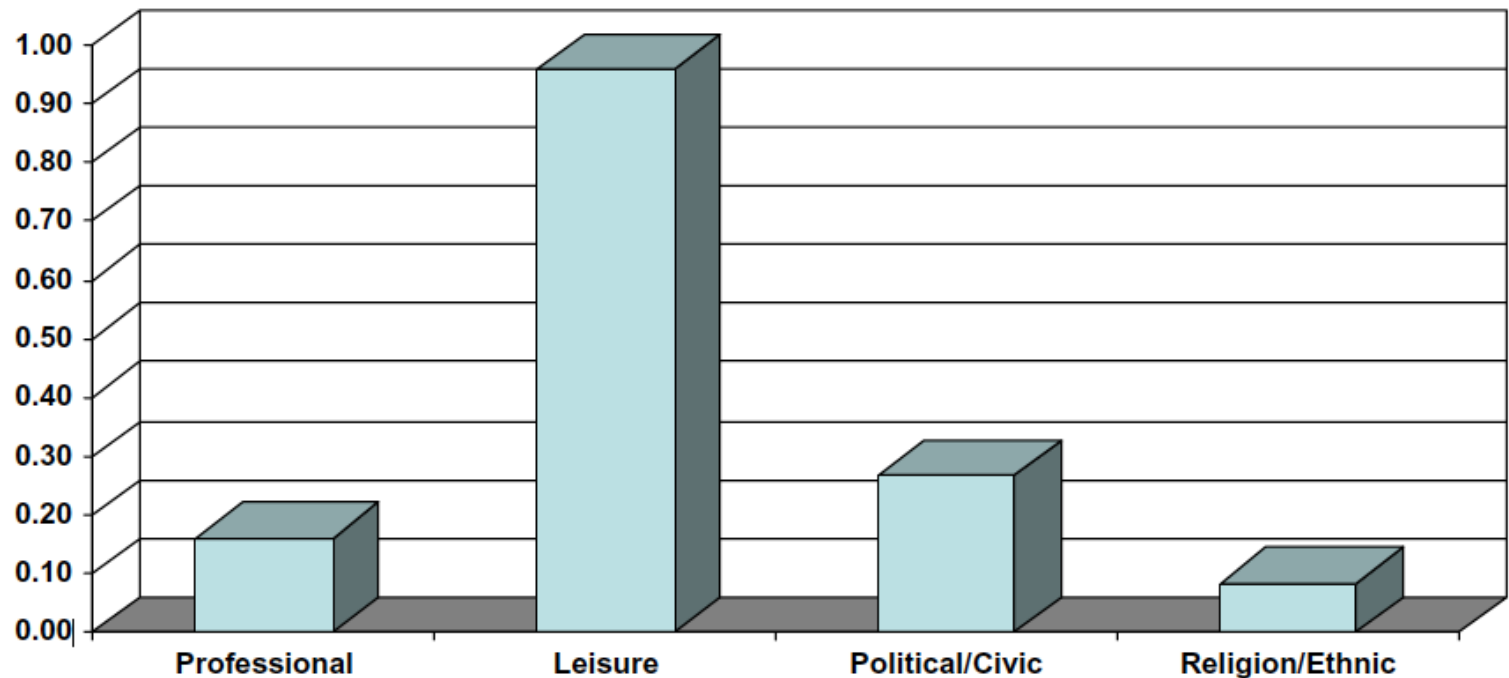
(Q211) Structurally equivalent people have all of the following characteristics except:

- A. They have strong connection with each another.
- B. They are likely to feel similar to one another.
- C. They have similar relations with other people.
- D. They are probably redundant sources of information.
- E. They are members of the same cluster in the surrounding network.

Relations develop as a by-product of felt similarity.

When two people feel socially similar, they more easily interact on other issues, even if potentially difficult (structural equivalence, homophily, "birds of a feather flock together").

Graph shows that the potential for discussion across political differences occurs primarily in online groups where politics is not the purpose of the discussion space. Horizontal is purpose of discussion space. Vertical axis is an index of extent to which space draws many users, often discussing politics, and encountering high levels of political disagreement. Leisure includes groups based on shared hobbies/activities, social support, socializing, romance, fan groups for a TV show, actor, musical group, or sports team, and general trivia groups. Responses are from a national probability sample of 1028 people who report participating in one or more chat rooms or message boards.



From Figure 3 in Wojcieszak & Mutz (2009, *J of Communication*), "Online Groups and Political Discourse: Do Online Discussion Spaces Facilitate Exposure to Political Disagreement?" For a review of relations associated with people sharing similar backgrounds or interests, see McPherson, Smith-Lovin & Cook (2001, *Ann. Rev. Sociology*), "Homophily in social networks" (usual dimensions are people in the same place at the same time, same age, gender, religion, occupation, income, social class). For some tactical guidance on your network, see Uzzi & Dunlap (2006, *HBR*), "How to build your network," and Cassario et al. (2016, *HBR*), "Learn to love networking."

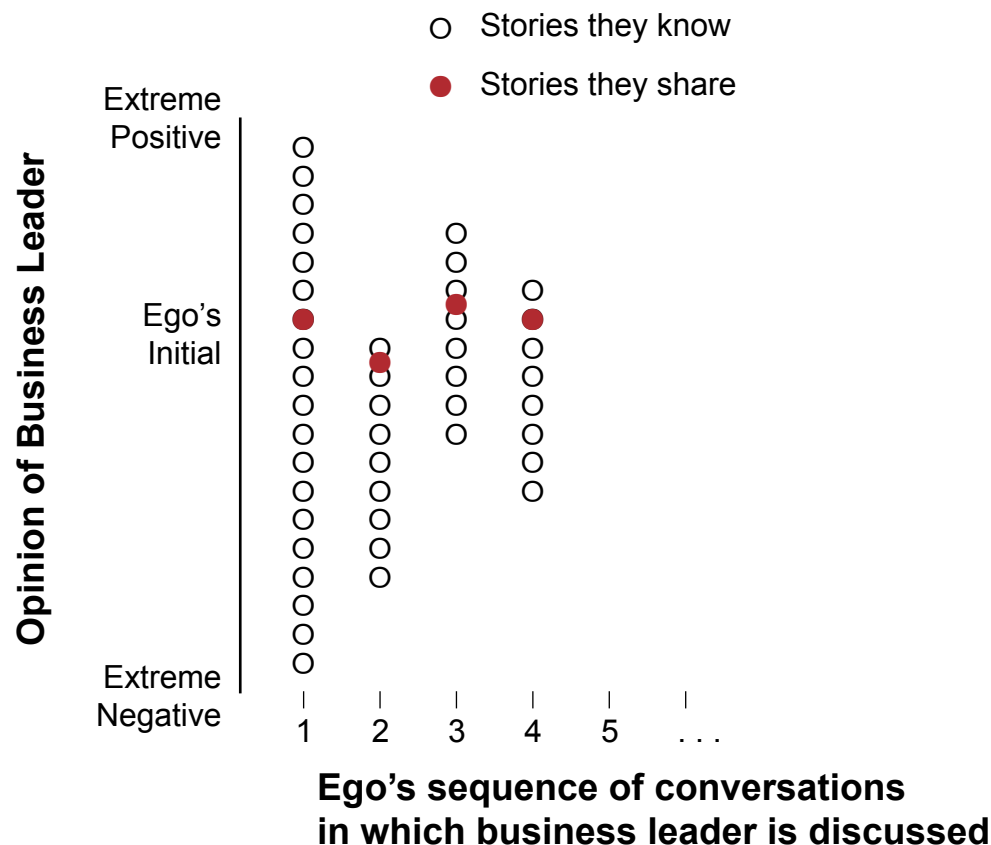
Predicting effects of “echo” in a triad.



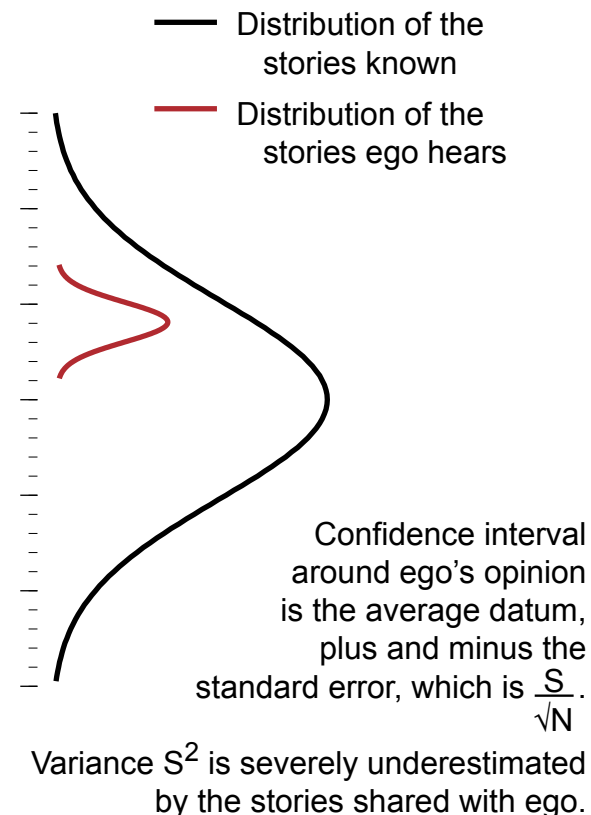
The Result Is Ignorant Certainty. Expect extreme opinions amplified by gossip in closed networks (regardless of the bandwidth focus on positive versus negative indirect connections through mutual contacts). Note internet algorithms exacerbating ignorant certainty by feeding people consistent content.

"Often mistaken, never in doubt"

GOSSIP (data filtered by etiquette)



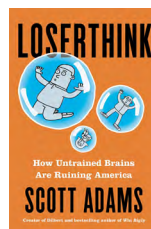
CREATES IGNORANT CERTAINTY



The number of observations N is increasing as ego hears more stories.

So the confidence interval around ego's opinion becomes tight, making ego feel certain, but only because etiquette has filtered out data inconsistent with ego's opinion.

For discussion, read the footnotes on pages 98-99 and 106 of *Brokerage and Closure*. Several examples are given in Chapter 4 of *Brokerage and Closure*. For Twitter illustration see Brady et al., "How social learning amplifies moral outrage" (2021, *Science Advances*). On breaking out of ignorant certainty, see Appendix VII, the section on framing in the "practice" handout, and Dilbert-creator, Scott Adams' book, *Loserthink*.



Network Echo and Ignorant Certainty (now in words)

The substance of human social life is people sharing stories about surrounding events, objects, and people. To be polite, maintaining civil society, people select stories to share that are consistent with the ongoing tone of conversation.

By sharing stories consistent with the tone of a conversation, speakers signal shared membership in a community of people with similar opinions of surrounding events, objects and people (in network terms, speakers highlight their structural equivalence with listeners).

Simultaneously, sharing stories creates a social endorsement of the information bits shared in the stories in that listeners appear to accept or corroborate the information, and speakers are not being corrected on the information shared. (Friendly edits to information are welcome, but direct contradiction is a bid for status.)

Ego - in a closed network of supportive colleagues - accumulates vicarious experience in the circulating stories of a consistent theme within the network, protected from contradictory information circulating outside ego's network. ("I don't know how that man got elected. Everyone I know voted against him.")

Ego accumulates a data distribution of vicarious experiences that gives priority to community (structural equivalence) over reality – a distribution centered on the tone of conversation around ego, with severely underestimated variance.

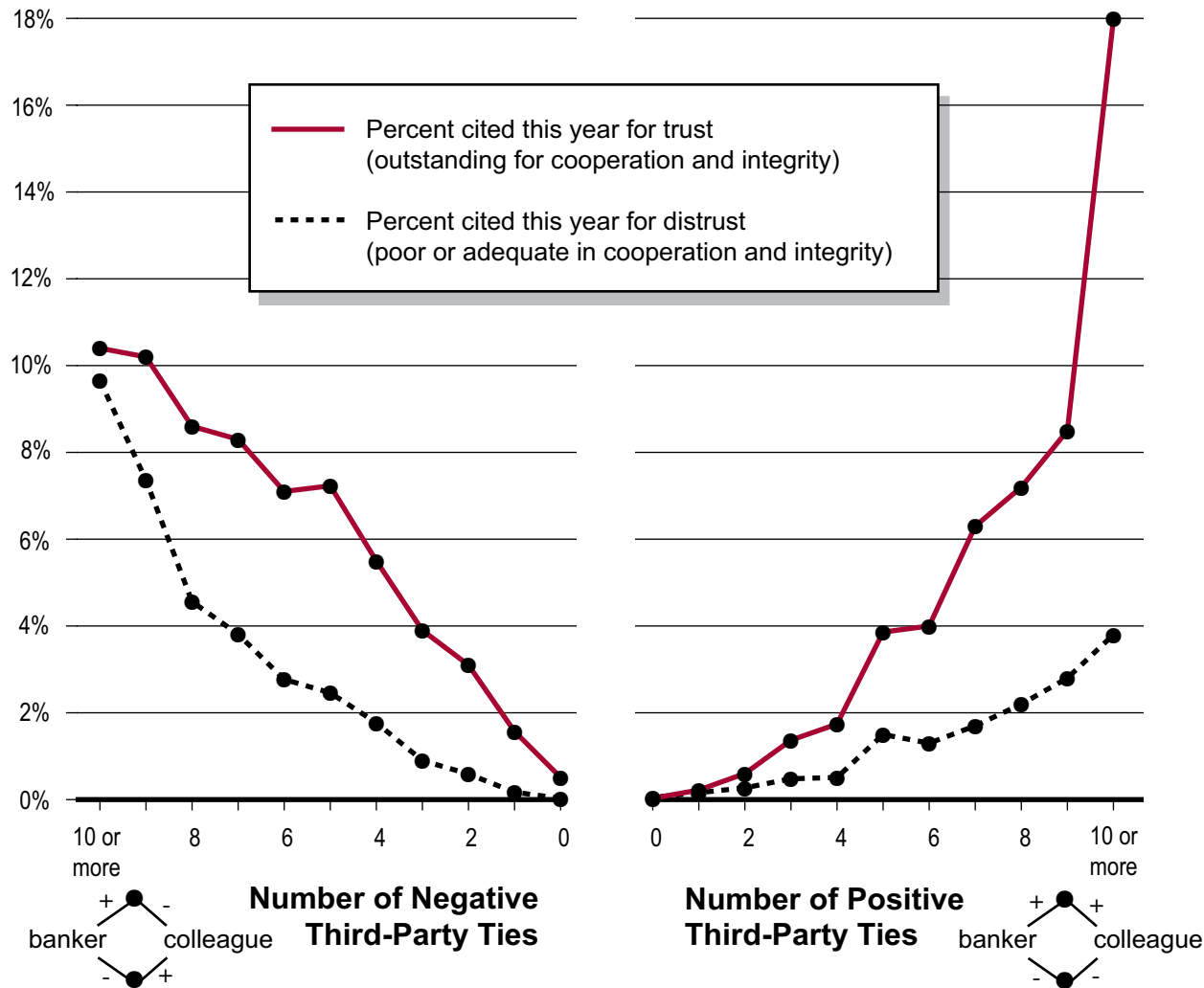
Reasoning within his or her biased distribution of vicarious experiences, ego becomes ignorantly certain in his or her opinions [low standard error of the mean: $\text{standard deviation of info bits} / \sqrt{\text{number of info bits}}$]

Implications for people in more closed networks:

- (1) more violations of balance principle,
- (2) more likely erroneous belief that their opinion is shared by friends/colleagues,
- (3) more extreme opinions of events, objects, and people (black vs white replaces shades of gray),
e.g., character assassination of difficult people, and hero worship of admired people.

(speculation: macro versus micro polarization; failure to learn from failure)

(1) Violations of Balance Theory: Positive Relations Are More Likely in Positive Closed Networks — but Negative More Likely Also.



Echo can be seen in the fact that closure amplifies trust and distrust such that

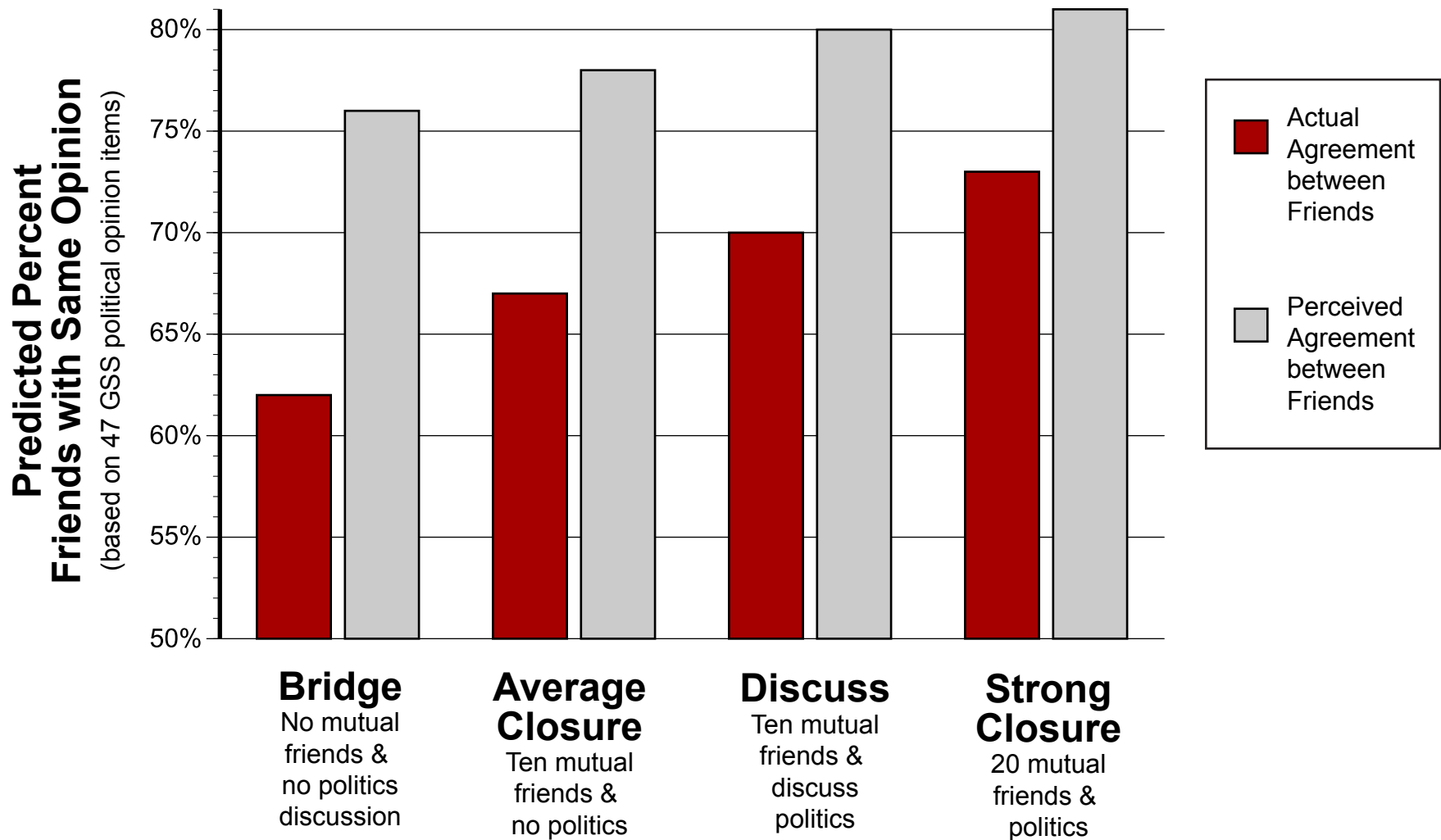
relations are balanced in their intensity (certainty about the colleague),

not in their direction (positive or negative about the colleague).

All Bankers Who Could Have Been Cited for Substantial Business Contact
(118,680 relationships)

From Figure 3.4 and 4.3 in *Brokerage and Closure*.
See Appendix I on measuring network closure/embedding.

(2) Echo makes you more likely to believe that your friends agree with you (etiquette creates an echo shielding you from contradictions)



NOTE — These data are from a selection of young people on Facebook, who responded to a survey invitation (Coel, Mason, and Watts, 2010, *Journal of Personality and Social Psychology*). The above graph is based on the line graph in Figure 3, page 615, from which the authors conclude: "it appears that much of the diversity of opinions that exist in social networks is not apparent to their members. Moreover, the difference between real and perceived agreement is almost twice as large for weak ties as for strong ties. In other words, friends consistently overestimate their similarity with one another."

(3) Echo Amplifies Opinions to Extremes in Closed Networks: Character Assassination

These are explanations from managers in electronic equipment and financial services; from Table 1 in Burt “Entrepreneurs, Distrust, and Third Parties” (1999, *Shared Cognition in Organizations*). Numbers in parentheses to the left are the hostility scores on next page.

Some Managers Blame the Situation (n = 88)

- (0) conflict of goals; what was good for him was bad for my group
- (25) different management style and motivation
- (0) I do not know; most likely a misunderstanding of my work rather than him personally
- (25) influential; has different view of importance and implementation of my current function
- (0) language barrier was very difficult
- (38) little or no interest in my functional area yet is my boss' boss
- (0) managed a parallel sales organization with a different philosophy
- (13) personally we got along wonderfully, but people in her organization have a difficult style
- (0) representative of an organization that has goals and objectives in opposition to mine
- (0) she is under a lot of pressure and it spills over to the people around her

Some Managers Blame the Other Person's Competence (n = 200)

- (63) almost always makes unreasonable schedule and cost demands
- (13) does not understand his functional area
- (25) her planning requests do not take into account time difference between NY and Europe
- (100) incompetent; can not make a decision and stick with it
- (75) inexperienced; too emotional and immature to manage his organization
- (50) micromanagement; poor understanding of our client group's needs
- (25) mixed messages; no road map of clear direction
- (0) not able to effectively affect change in organizational direction
- (88) promoted too high, too fast; beyond her level of experience
- (75) wastes people's time requiring work be done over 20-30 times, eventually doing it herself

Some Managers Blame the Other Person's Character (n = 228)

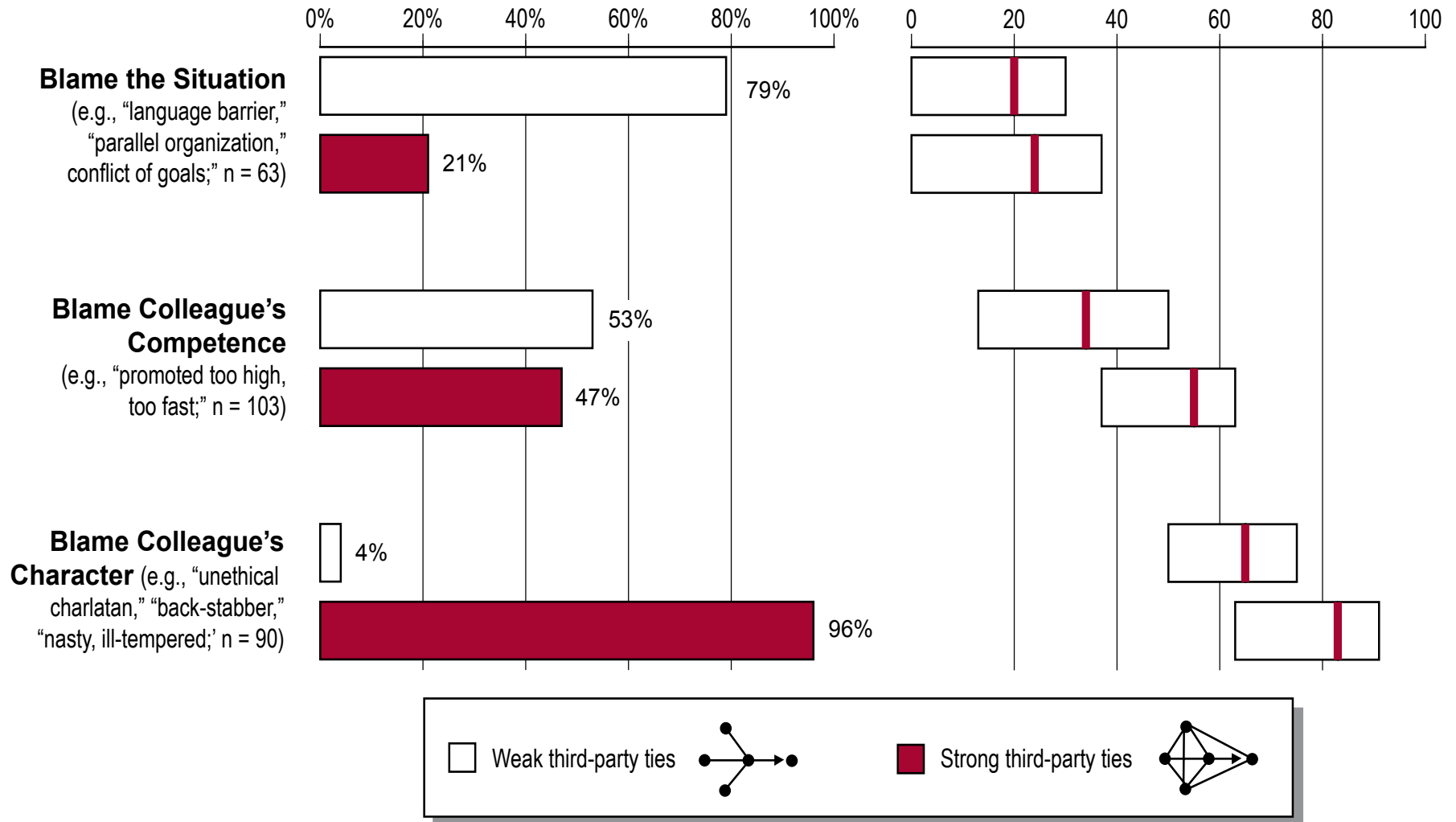
- (100) dishonest; self-serving; no integrity
- (100) divide and conquer person; takes credit for my work; disempowers
- (100) egotistical; self-oriented; liar; worst manager I have ever met
- (100) jerk; power-hungry; political; etc....
- (100) lone ranger type; my way is the only way
- (88) loses her temper and has a very unprofessional attitude with myself and external clients
- (100) manipulative - insensitive to people - dishonest
- (100) most territorial, uncooperative person I know
- (100) my boss and a charlatan
- (100) nasty, ill-tempered bitch
- (100) not trustworthy; a back-stabber
- (88) person can not accept females
- (100) secretive; insecure
- (88) shared private information with manager & peers
- (100) unethical; uncooperative; unpleasant

Anger and Character Assassination in Closed Networks

**Third-Party Ties
Surrounding Explained Relationship**
(93.33 chi-square, 2 d.f., $P < .001$)

Anger in the Explanation

(box shows 25%, mean, 75%; 11.56 t-test for association with strong third-party ties, $P < .001$)



From Figure 4.4 in Brokerage and Closure. But also, irritating people are less avoidable in a closed network (e.g., Offer & Fischer 2018 ASR on Americans citing family as most likely source of difficult relationships). Next page is important because situation involves little contact with difficult person.

More Specifically, Who Is Prone to Blaming Broker Character?

(For calculations: solid line is strong tie [$z_{ja} = 1.0$], dashed line is weak tie [$z_{ja} = .5$])

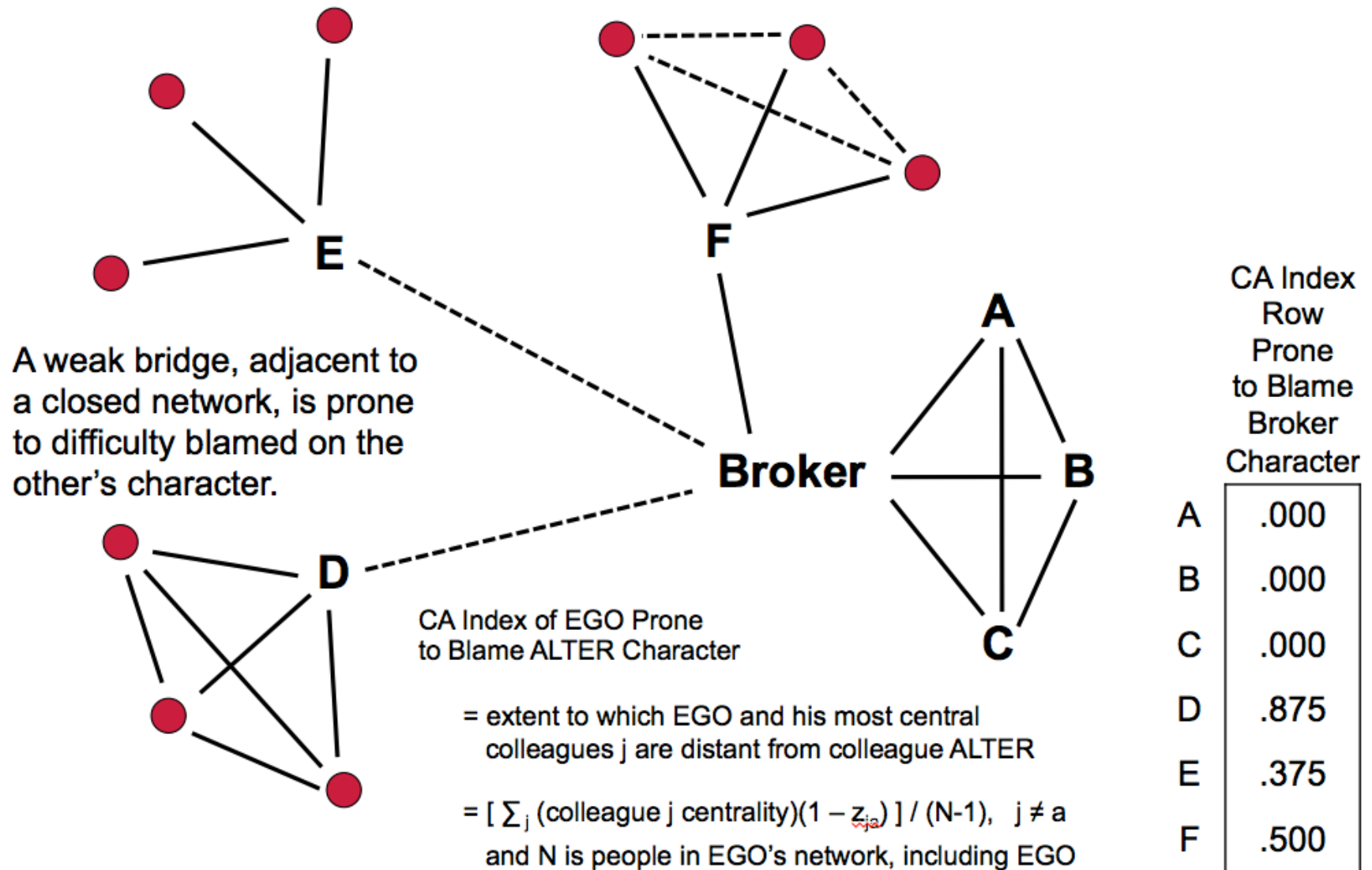
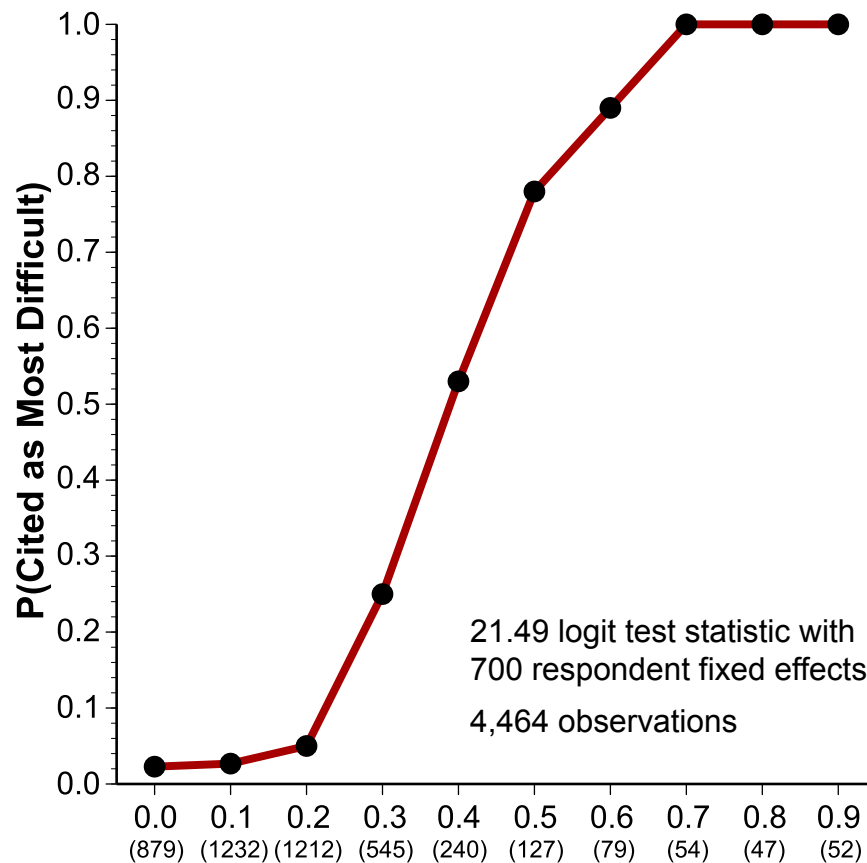
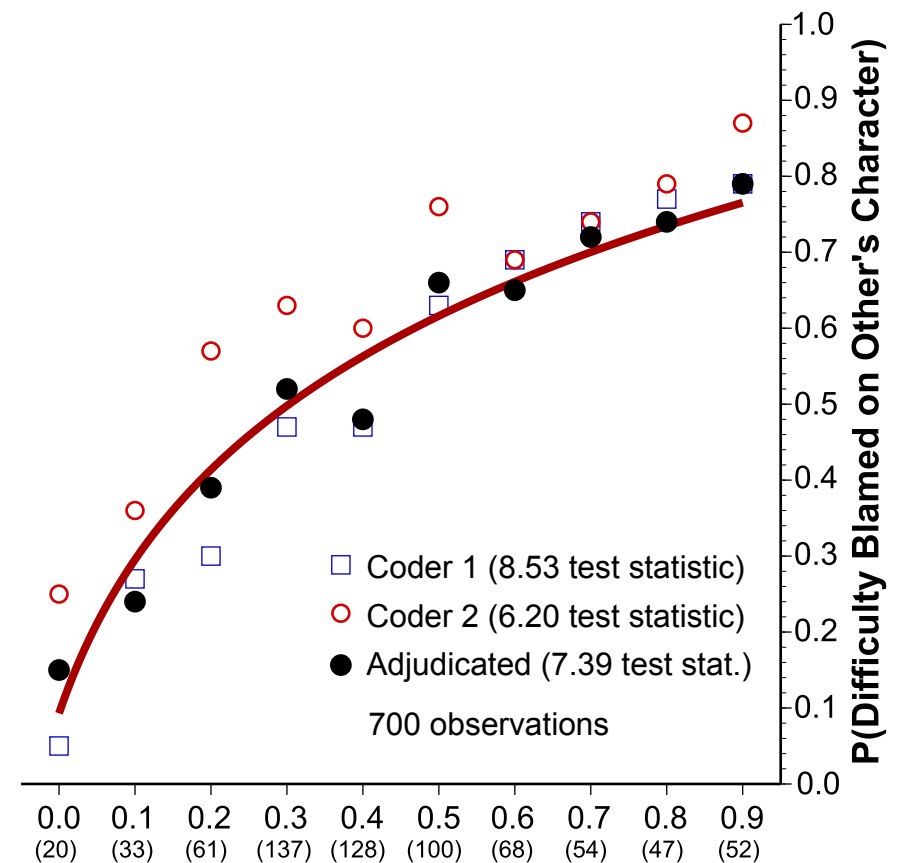


Figure 5 in Burt and Luo, "Angry entrepreneurs" (2020, *Social Networks at Work*)



A. Who Is Cited as Most Difficult?

(Parentheses contain number of relations at each level of CA index.)



B. Who Blames Difficulty on Other's Character?

(Parentheses contain number of respondents at each level of CA index.)

CA Index Predicts Difficulty and Blame

(Plotted data are averages within .1 intervals of CA index.)

Figure 5 in Burt and Luo, "Angry entrepreneurs" (2020, *Social Networks at Work*)

(Q193) Character assassination is facilitated in a closed network by all of the below except:

- A. Higher volume of stories exchanged
- B. More variation in stories exchanged
- C. More colorful stories exchanged
- D. Higher trust in the stories exchanged
- E. Desire to be accepted within the closed network

(Q141) We discussed two ways in which reputations emerge from stories shared in closed networks: from improved circulation of information (“bandwidth,” e.g., electronic networks such as eBay, Amazon, Oyster), and from less varied information circulating (“echo,” which is typical in social networks). **Why is “echo” typical of social networks?**

- A. People tell stories that are often not true.
- B. People have limited imagination for telling stories.
- C. People forget faster than electronic networks.
- D. People like to share stories that make them feel similar.
- E. People like to elaborate on story details.

(Q133) People in closed networks, on average, have more extreme, rigid opinions. **True or false?**

- A. True
- B. False

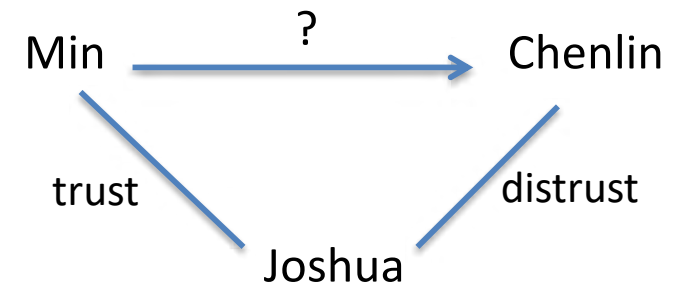
(Q207) Bridge relations are often developed as a by-product of shared activity in mutual interests. **True or false?**

- A. True
- B. False

(Q198) Trust is facilitated in closed networks by all of the following except:

- A. Increased odds of detecting bad behavior
- B. Membership in multiple closed networks
- C. Amplified negative and positive reputations
- D. Repeated stories
- E. Increased odds of reputation cost enforcement

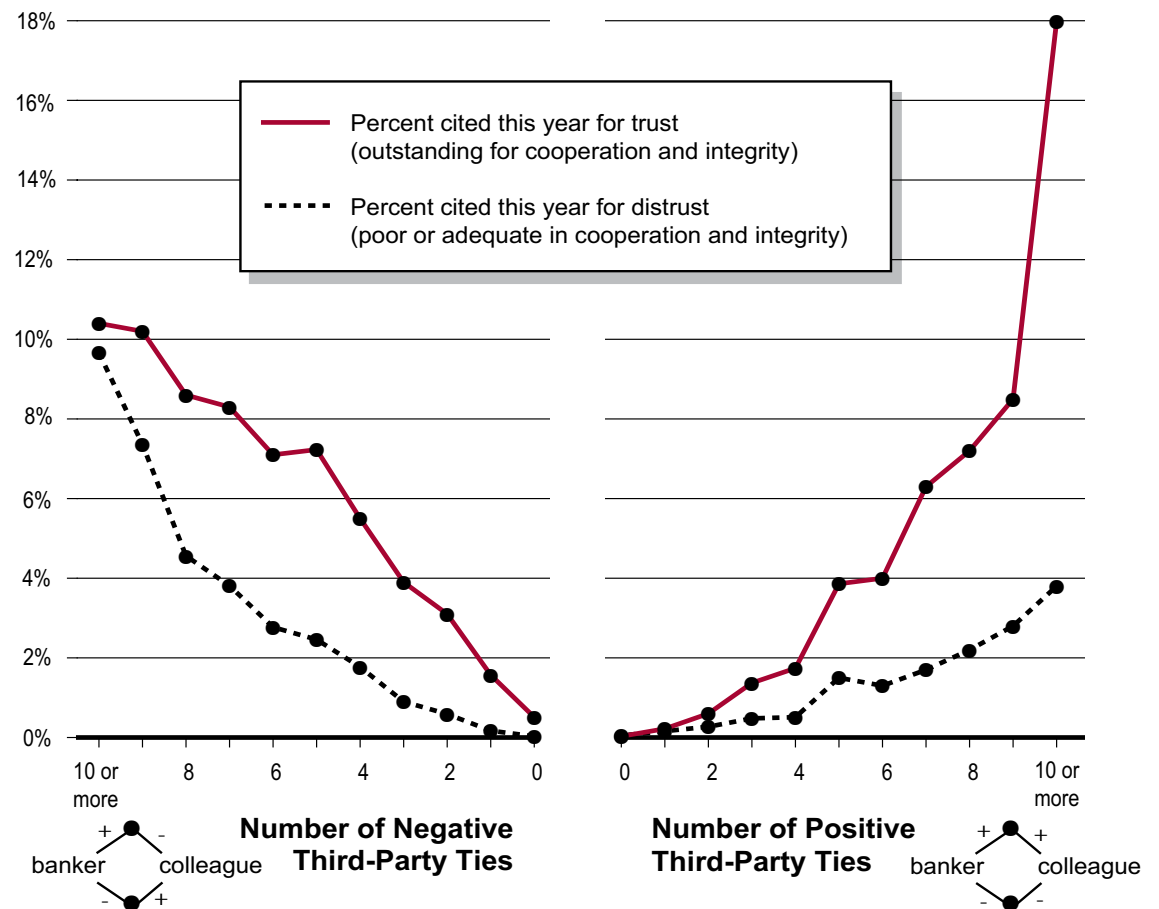
(Q209) Min has met Chenlin briefly on a couple occasions. Min learned today that she has to decide whether she can trust Chenlin with a sensitive piece of work. **If the network around Min and Chenlin operates by the BANDWIDTH mechanism, predict the level of trust Min is likely to have in Chenlin given the below indirect connection through third party Joshua.**

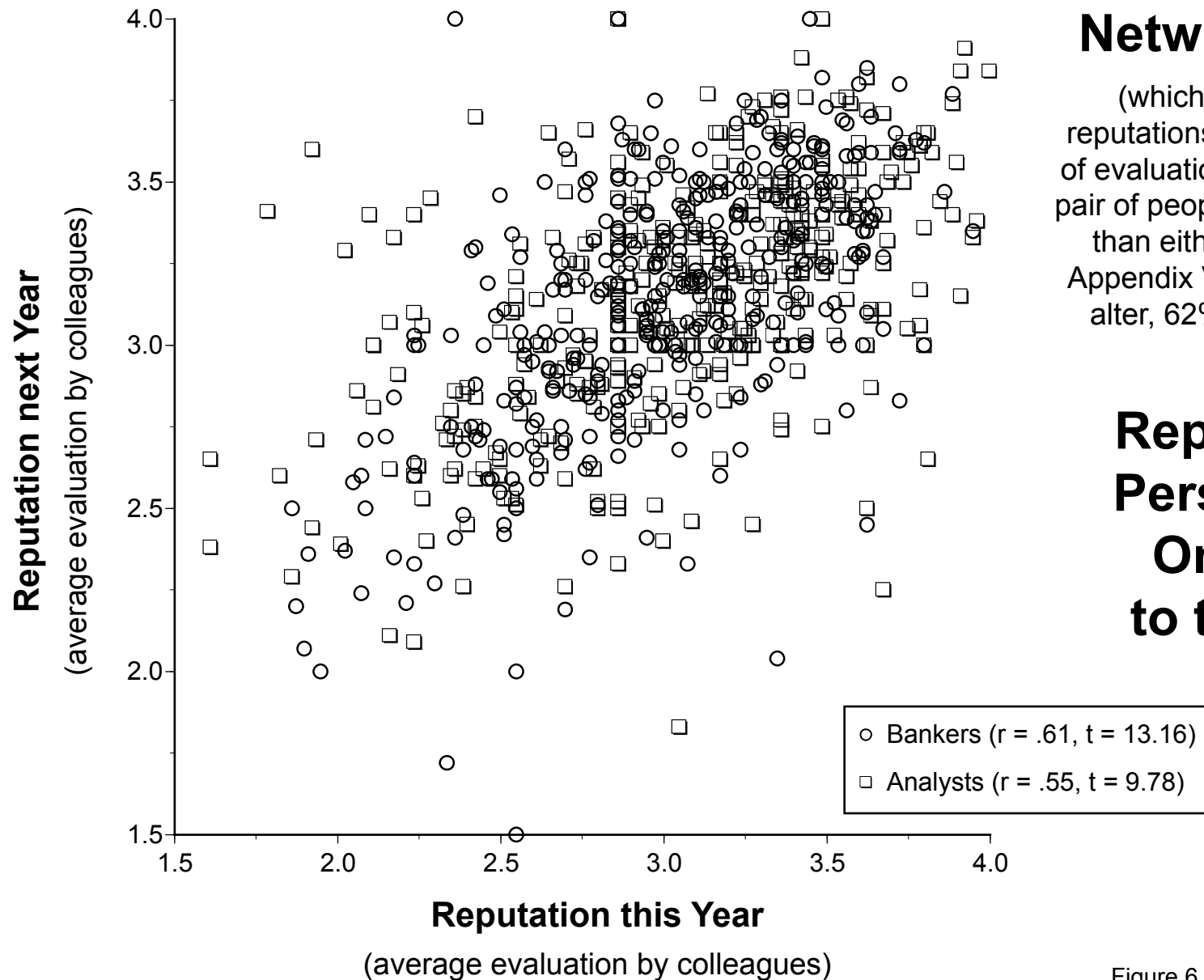


- A. More positive than expected from Min's personal experience with Chenlin.
- B. More negative than expected from Min's personal experience with Chenlin.
- C. About what you'd expect from Min's personal experience with Chenlin.
- D. Less positive or negative than expected from Min's personal experience with Chenlin.
- E. More positive or negative than expected from Min's personal experience with Chenlin.

(Q38) If you saw the displayed diagnostic data on an organization (in this case a bank), would you say that closed networks in the organization create bandwidth or echo?

- A. Some bandwidth.
- B. Some echo.
- C. Mostly bandwidth.
- D. Mostly echo.



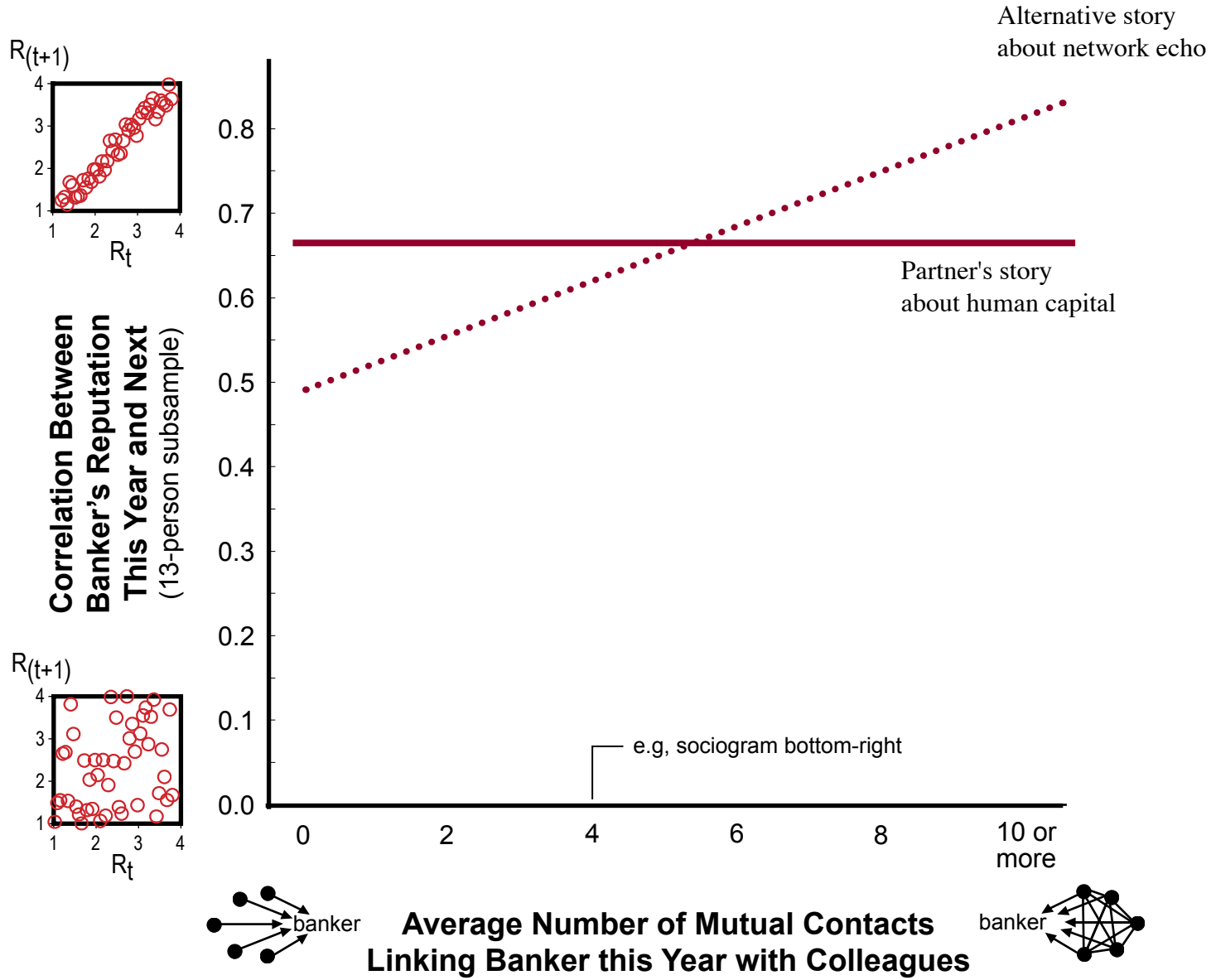


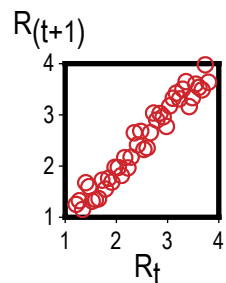
Despite a High Average Rate of Network Decay

(which implies volatile reputations because so much of evaluation variance is in the pair of people connected rather than either individual, see Appendix VIII [25% ego, 13% alter, 62% ego-alter pair]),

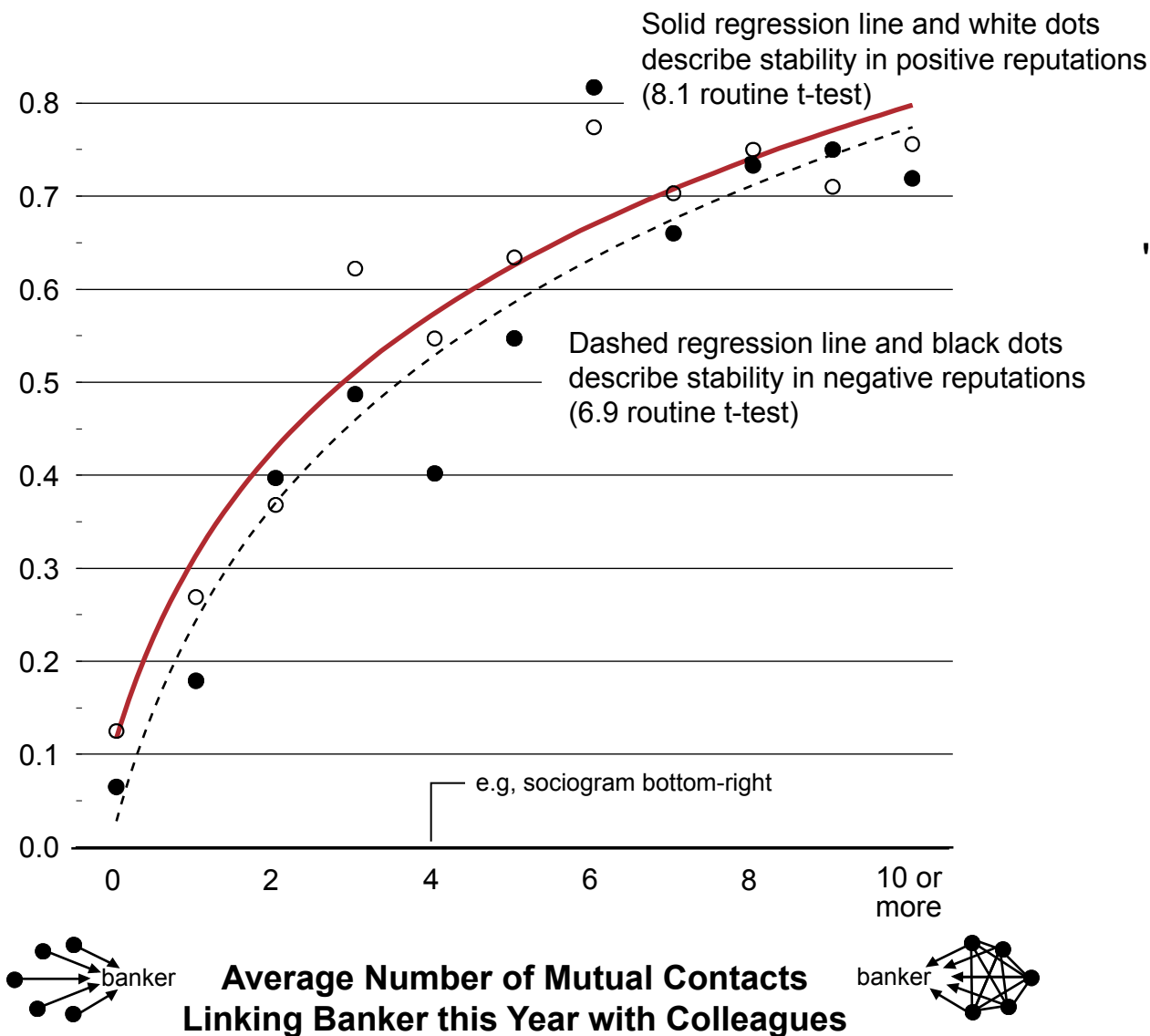
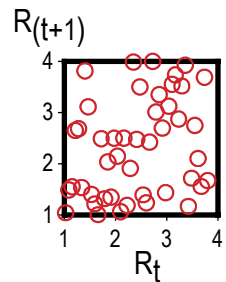
Reputations Persist from One Year to the Next

Figure 6.3 in *Neighbor Networks*





**Correlation Between
Banker's Reputation
This Year and Next**
(13-person subsample)



Closure Is Essential to Reputation

(James Coleman, 1988:S107, "Reputation cannot arise in an open structure.")

Positive and Negative Reputations Quickly Stabilize.

What Implications for Building Reputation?

From Figure 4.6 in *Brokerage and Closure*, Figure 6.4 in *Neighbor Networks*.
See Appendix I on measuring network closure/embedding.

Implications for Managing Reputation

Questions:	When Closure Creates Bandwidth (e.g., Amazon, eBay)	When Closure Creates Echo (most social networks)
1. What makes your reputation persist?	Your consistent behavior, on which others are informed. The bandwidth provided by a closed network enhances information distribution and consistency.	
2. Therefore, who owns your reputation?	You do. It is defined directly and indirectly by your behavior.	
3. So, what are the implications for effectively building reputation?	Behave well and get the word out.	
4. How many reputations do you have? (Does the relevant network distribute or filter information?)	One reputation, defined by your behavior. Variation can exist from imperfect information distribution or conflicting interests, but variation is resolved by finding the true, authentic you.	

from Burt (2021, *Structural Holes in Virtual Worlds*). "Merchants of Doubt" video clip on manipulating reputation (also www.mediamanipulationcasebook.org). Daniel Diermeier (2011), *Reputation Rules*, is a readable description of successful and unsuccessful efforts to manage reputation.

The gossip in closed networks that amplifies reputations to positive and negative extremes generates a by-product pathology — the "agentic state:"

The things people say and do (owned and enforced by group gossip) become separate from the things people believe, eroding person responsibility for behavior and expressed opinion such that people passively wait around for orders before acting, and can end up doing things they would be uncomfortable doing as thoughtful individuals.



This takes us back to the Spring of 1961. Milgram devised his psychological study to answer the question: "Could it be that Eichmann and his million accomplices in the Holocaust were just following orders? Could we call them all accomplices?"



Public Announcement

**WE WILL PAY YOU \$4.00 FOR
ONE HOUR OF YOUR TIME**

Persons Needed for a Study of Memory

*We will pay five hundred New Haven men to help us complete a scientific study of memory and learning. The study is being done at Yale University.

*Each person who participates will be paid \$4.00 (plus 50c carfare) for approximately 1 hour's time. We need you for only one hour: there are no further obligations. You may choose the time you would like to come (evenings, weekdays, or weekends).

*No special training, education, or experience is needed. We want:

Factory workers	Businessmen	Construction workers
City employees	Clerks	Salespeople
Laborers	Professional people	White-collar workers
Barbers	Telephone workers	Others

All persons must be between the ages of 20 and 50. High school and college students cannot be used.

*If you meet these qualifications, fill out the coupon below and mail it now to Professor Stanley Milgram, Department of Psychology, Yale University, New Haven. You will be notified later of the specific time and place of the study. We reserve the right to decline any application.

*You will be paid \$4.00 (plus 50c carfare) as soon as you arrive at the laboratory.

TO:
PROF. STANLEY MILGRAM, DEPARTMENT OF PSYCHOLOGY,
YALE UNIVERSITY, NEW HAVEN, CONN. I want to take part in
this study of memory and learning. I am between the ages of 20 and
50. I will be paid \$4.00 (plus 50c carfare) if I participate.

NAME (Please Print)

ADDRESS

TELEPHONE NO. Best time to call you

AGE OCCUPATION SEX

CAN YOU COME:

WEEKDAYS EVENINGS WEEKENDS

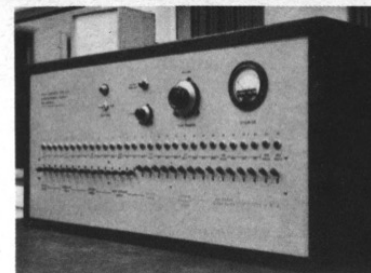


Fig. 3

Shock generator.



Victim is strapped into chair.



Subject receives sample shock.



Subject breaks off experiment.

Ad is from page 15 of *Obedience to Authority*

Baseline Results on the Agentic State

Shock Level	Voltage	Survey Baselines	Remote	Voice	Visual	Touch
	Slight Shock	5				
1	15	1				
2	30					
3	45	1				
4	60	2				
	Moderate Shock					
5	75	17				
6	90	5				
7	105	5				1
8	120	8				
	Strong Shock					
9	135	6		1		1
10	150	35		5	10	16
11	165	3		1		
12	180	11		1	2	3
	Very Strong Shock					
13	195	3				
14	210	1				1
15	225	1			1	1
16	240	1				
	Intense Shock					
17	255	1				1
18	270				1	
19	285			1		1
20	300	4	5	1	5	1
	Extreme Intensity Shock					
21	315		4	3	3	2
22	330		2			
23	345		1	1		1
24	360		1	1		
	Danger: Severe Shock					
25	375		1		1	
26	390					
27	405					
28	420					
	X X X					
29	435					
30	450		26	25	16	12
Mean Maximum Shock		8.83	27.0	24.5	20.8	17.9
% Giving Maximum Shock		0%	65%	63%	40%	30%

There were striking reactions of tension and emotional strain. One observer related: "I observed a mature and initially poised businessman enter the laboratory smiling and confident.

Within 20 minutes he was reduced to a twitching, stuttering wreck, rapidly approaching a point of nervous collapse. He constantly pulled on his earlobe, and twisted his hands.

At one point he pushed his fist into his forehead and muttered: 'Oh God, let's stop it.' And yet he continued to respond to every word of the experimenter. . ."

(from page 337 of Milgram, "Behavioral study of obedience," 1963, *Journal of Abnormal and Social Psychology*)

ENACTING POLICY

Barry Schwartz holds forth on "practical wisdom" as an antidote to a society gone mad with bureaucracy (TED2009).



For discussion of the baseline survey and experiments, see pp. 26, 29, and 35 in Milgram (1974) *Obedience to Authority*. Obedience is

93% if subject has peer administer shocks. For recent corroboration, see Burger, "Replicating Milgram: would people still obey today?" (2009, *American Psychologist*). For reluctance to discuss in business education, see Bridgeman & Cummings (2023, *Academy of Management Learning & Education*) Also, Appendix VII on groupthink and unlearning.

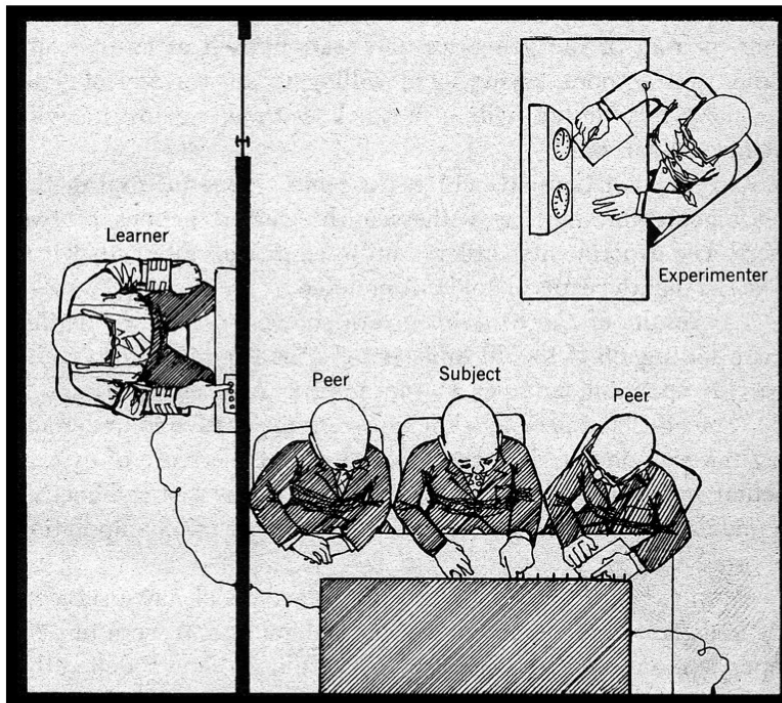


Victim Speaks Out in the Milgram Experiment

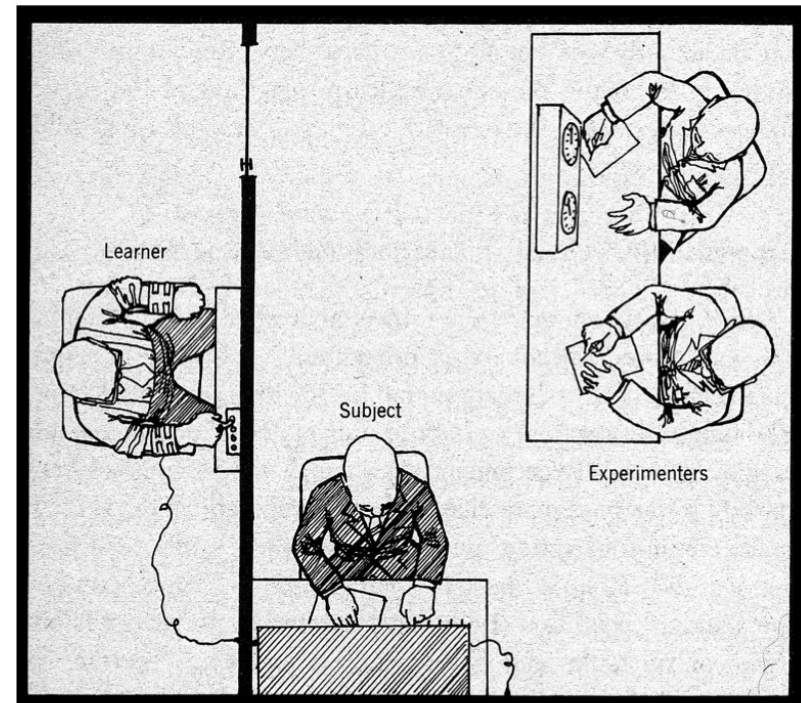
for discussion, see pp. 56-57 in Milgram (1974), *Obedience to Authority*.

15-60 volts (1-4)	—
Moderate Shock	
75 volts (5)	Ugh!
90 volts (6)	Ugh!
105 volts (7)	Ugh! (<i>louder</i>)
120 volts (8)	Ugh! Hey, <i>this</i> really hurts.
Strong Shock	
135 volts (9)	Ugh!!
150 volts (10)	Ugh!!! Experimenter! That's all. Get me out of here. I told you I had heart trouble. My heart's starting to bother me now. Get me out of here, please. My heart's starting to bother me. I refuse to go on. Let me out.
165 volts (11)	Ugh! Let me out! (<i>shouting</i>)
180 volts (12)	Ugh! I can't stand the pain. Let me out of here! (<i>shouting</i>)
Very Strong Shock	
195 volts (13)	Ugh! Let me out of here. Let me out of here. My heart's bothering me. Let me out of here! You have no right to keep me here! Let me out! Let me out of here! Let me out! Let me out of here! My heart's bothering me. Let me out! Let me out!
210 volts (14)	Ugh! Experimenter! Get me out of here. I've had enough. I <i>won't</i> be in the experiment any more.
225 volts (15)	Ugh!
240 volts (16)	Ugh!
Intense Shock	
255 volts (17)	Ugh! Get me <i>out</i> of here.
270 volts (18)	(<i>Agonized scream.</i>) Let me out of here. Let me out of here. Let me out of here. Let me out. Do you hear? Let me out of here.
285 volts (19)	(<i>Agonized scream.</i>)
300 volts (20)	(<i>Agonized scream.</i>) I absolutely refuse to answer any more. Get me out of here. You can't hold me here. Get me out. Get me out of here.
Extreme Intensity Shock	
315 volts (21)	(<i>Intensely agonized scream.</i>) I told you I refuse to answer. I'm no longer part of this experiment.
330 volts (22)	(<i>Intense and prolonged agonized scream.</i>) Let me out of here. Let me out of here. My heart's bothering me. Let me out, I tell you. (<i>Hysterically</i>) Let me out of here. Let me out of here. You have no right to hold me here. Let me out! Let me out! Let me out! Let me out of here! Let me out! Let me out!
345-450 volts (23-30)	—

Setup #17: Three Colleagues



Setup #15: Contradictory Bosses

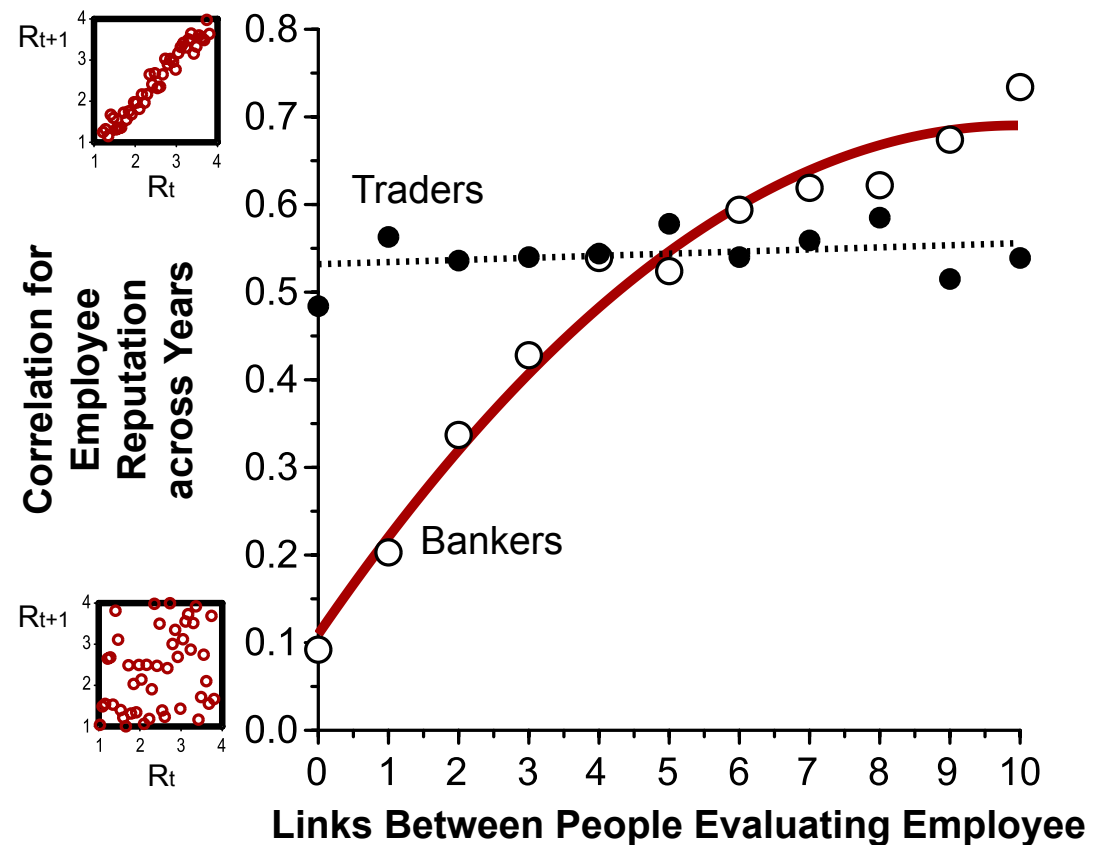


Cracking the Agentic State

Shock Level	Voltage	Survey Baselines	Remote	Voice	Visual	Touch	Peers (17)	Contradictory Scientists (15)
1	Slight Shock	5						
2	15	1						
3	30							
4	45	1						
5	60	2						
6	Moderate Shock							
7	75	17						
8	90	5						
9	105	5				1	1	
10	120	8						
11	Strong Shock							
12	135	6		1		1		1
13	150	35		5	10	16	3 (first peer out)	18
14	165	3		1			4	1
15	180	11		1	2	3	1	
16	Very Strong Shock							
17	195	3					4	
18	210	1				1	12 (second peer out)	
19	225	1			1	1		
20	240	1						
21	Intense Shock							
22	255	1				1		
23	270				1		4	
24	285			1		1		
25	300	4	5	1	5	1		
26	Extreme Intensity Shock						2	
27	315		4	3	3	2		
28	330		2				3	
29	345		1	1		1		
30	360		1	1				
31	Danger: Severe Shock							
32	375		1		1			
33	390						1	
34	405							
35	420							
36	X X X						1	
37	435							
38	450		26	25	16	12	4	
Mean Maximum Shock		8.83	27.0	24.5	20.8	17.9	16.5	10.0
% Giving Maximum Shock		0%	65%	63%	40%	30%	10%	0%

(Q53) After running 360 evaluations for two years, the head of HR has correlations computed between average evaluations in the two years. The higher the correlation, the more that employee reputation persisted between years. Plotting individual reputation correlations against links between the people evaluating each employee yields the below graph for the trading division versus the banking division. **How is reputation different in the two divisions?**

- A. Banker reputations are more associated with compensation.
- B. Banker reputations persist longer in closed networks.
- C. Trader reputations persist longer in closed networks.
- D. Trader reputations show no change over time, on average.
- E. Traders have more positive reputations.



(Q134) In management networks, who owns your reputation?

- A. It is owned by the person whose behavior defines it, which is you.
- B. It is owned by the senior people above you, who control whether you rise up in the organization.
- C. It is owned by the people who share stories about you, where ever and whom ever those people are.
- D. It is owned by your colleagues and customers, who decide with their behavior how attractive it is to work with you.

(Q194) Gossip in closed networks preserves negative reputations more than it preserves positive reputations. **True or false?**

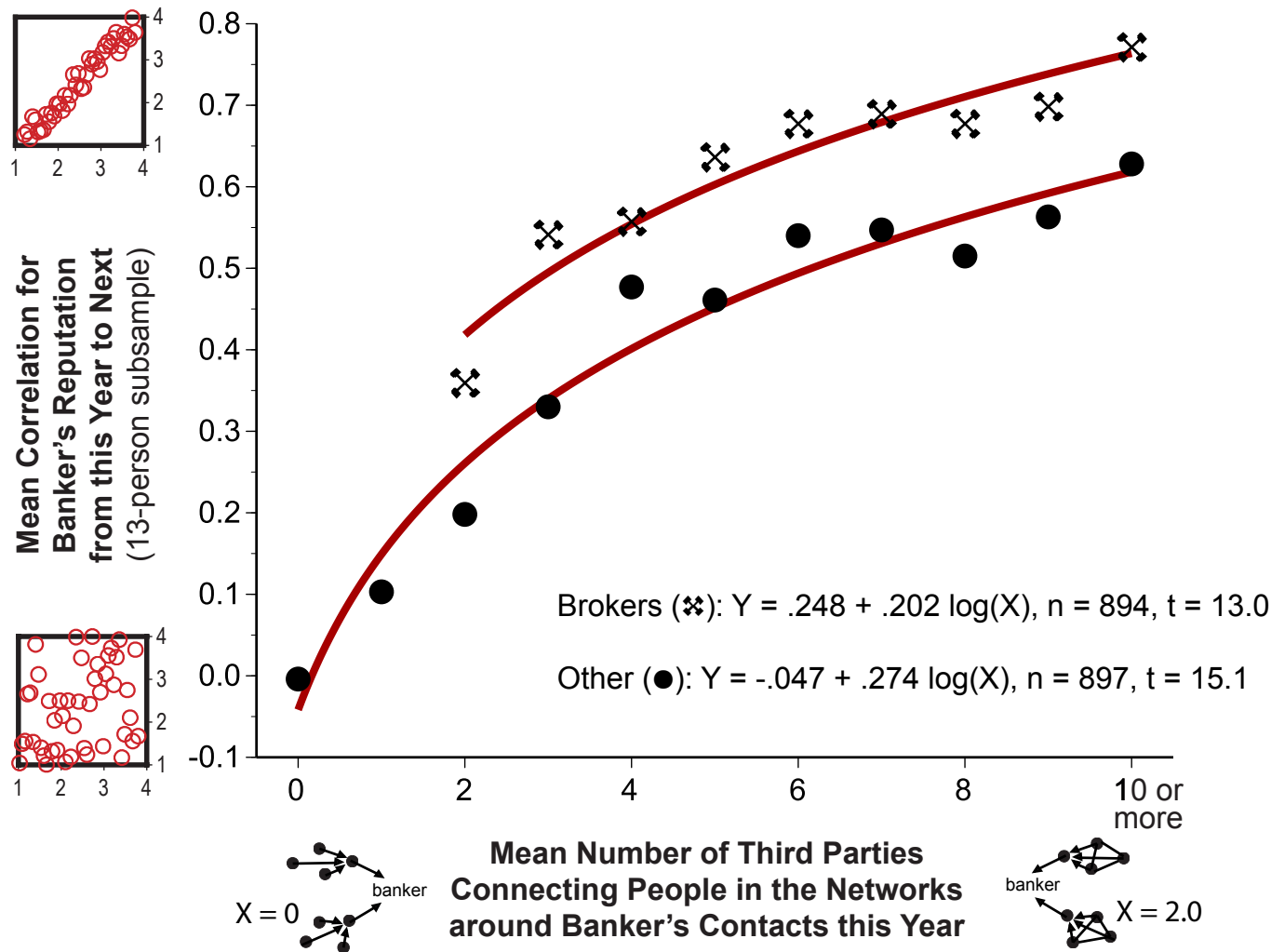
A. True

B. False

(Q212) Since reputations persist longer in closed networks and network brokers do not have closed networks, the reputations of brokers are less stable than the reputations of people in closed networks. **True or false?**

A. True

B. False



Essential Closure Is Around Contacts, Maintaining the Reputations of Brokers and People in Closed Networks

Vertical axis is same as on page 44. Horizontal axis is average number of third party connections in the networks around banker's contacts (rounded to nearest whole number). Brokers are bankers with below-median network constraint this year. Regression lines go through averages plotted in the graph. Test statistics are adjusted down for correlation between repeated observations of the same bankers using the "cluster" option in Stata.

(Q90) If company sales are weak because of the company's negative service reputation among customers, the company can correct the situation by creating a good service function and letting customers know about the new service function.

- A. True, because customers are not blind to improved service.
- B. True, because service is an important component in company reputation.
- C. False, because former customers now buying from other companies won't know about the new service.
- D. False, because change depends on people replacing their old stories about bad service with stories about the new service.
- E. True, because people like to talk about improved service.

Three Summary Points

ANCHOR RESULT #3: Reputations Emerge from Gossip in Closed Networks, which Generates a Sense of Community and Efficiency as a By-Product.

Network closure enhances communication and visibility within a group, (a) which creates reputation costs for individuals who express opinion or behavior inconsistent with group standards, (b) which increases the probability of trust and cooperation within the group, (c) which enhances productivity as people become self-aligning in extraordinary efforts. Higher productivity comes from lower costs for labor, management, and time. Closure delivers value by creating a reputation cost for deviation from shared colleague opinion and practice.

STRONG BRIDGES: Brokerage Need Not Be Fragile if You Have a Core Set of *Guanxi*-Like Strong Bridges that Give You a Trusted Escape from Closure.

NETWORK ECHO: The Reputation Mechanism by which Closure Delivers Value Can Have a Side Effect of Ignorant Certainty, Groupthink, and so Value Destruction.

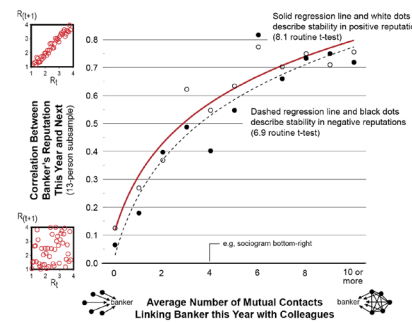
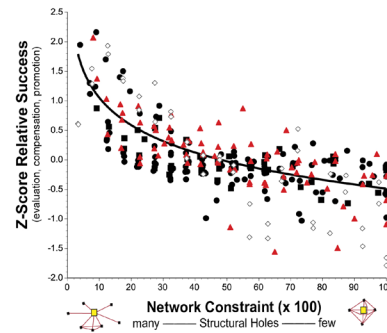
When information moves unaffected through an digital network (e.g., eBay.com, oyster.com), closure creates wide bandwidth, facilitating trust and efficiency. Social networks usually involve an etiquette filter. The more polite the people, the more etiquette affects what is shared, so closure produces echo, not bandwidth. The information that defines reputation is selected for empathy between gossipers, not accuracy about the person or object discussed. The result is ignorant certainty and you no longer own your reputation — it is owned by the people who gossip about you. Key players in reputation development are therefore three: you, your contact, and the contact's colleague. Build by focusing on projects colleagues will want to discuss. Allowed to develop unchecked, the ignorant certainty fostered by closed-network echo can become rigid stereotypes about people and practices outside the group (with predictable problems for the realized value of diversity), and people withdraw into Milgram's agentic state, waiting for orders.

Summary Image of Network Leadership

TOP-LINE GROWTH
New Services, New
Processes, New Business

MECHANISM

Information breadth,
timing, and arbitrage
advantages in detecting
and developing good
ideas



BOTTOM-LINE GROWTH
Efficient Use of Resources
(labor, supervision, speed)

MECHANISM

Alignment from
reputation cost for
deviant opinion/
behavior enforced
by echoed stories in
colleague gossip

Brokerage

Bridging
Structural Holes
between Clusters

Closure

Closing
Structural Holes
within the Cluster

PATHOLOGY

Inefficiency,
Agency Costs,
Chaos

PATHOLOGY

Ignorant Certainty,
Agentic State, Groupthink,
Insider vs. Outsider

Graphs are from Figures 1.8 and 4.6
in *Brokerage and Closure*.

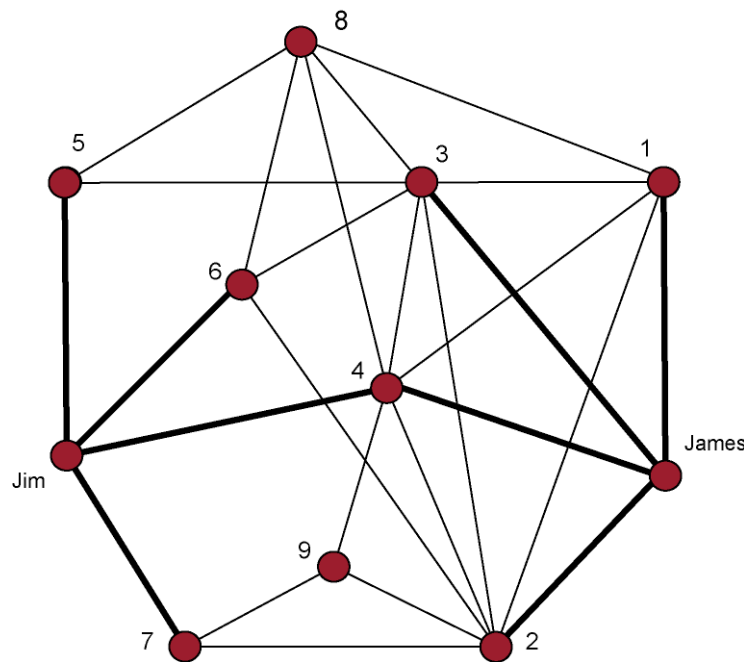
Appendix Materials



Appendix I. Measuring Network Closure/Embedding

Let a 2-step connection refer to a connection between two people through a mutual contact. For example, the “1” under “D” for Jim in the first row of the table refers to person 4 in the sociogram. Person 4 is the only contact linked directly to Jim and person 1. The “3” underneath the “1” in the table refers to three mutual contacts between Jim and person 2. The mutual contacts are persons 4, 6, and 7. Two-step connections are this chapter’s measure of direct structural embedding. Indirect structural embedding is measured in this chapter with 3-step connections. For example, the “1” under “I” for Jim in the second row of the table refers to persons 5 and 3 in the sociogram. Jim’s connections to 2 through persons 4, 6, and 7 are 2-step connections.

Jim’s fourth contact, person 5, is not connected to person 2, but is connected to 3 who is connected to 2, so Jim has a 3-step connection to person 2 via person 5. In graph theoretic terms, I am looking for geodesics linking two people through one intermediary (direct structural embedding) or two intermediaries (indirect structural embedding). Since I want to know how indirect embedding adds to direct embedding, I only count distant connections in the absence of closer connections. For example, Jim is connected to person 6 who is connected to 3 who is connected to 2, which is an 3-step connection between Jim and person 2. However, Jim reaches 2 through 6 directly, so the table reports one 3-step connection (the 5-3-2 connection).



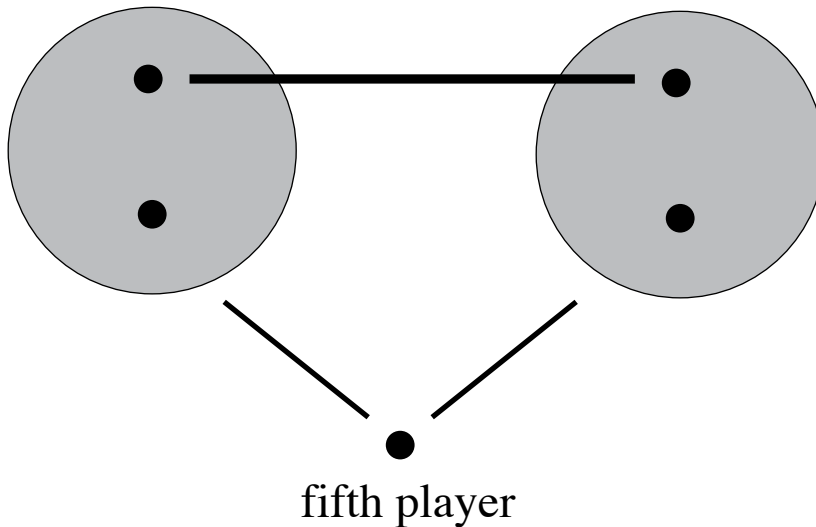
Number of 2-Step (Direct) and 3-Step (Indirect) Connections

	Jim		James	
	D	I	D	I
1	1	3	3	0
2	3	1	3	0
3	3	1	3	0
4	0	3	3	0
5	0	2	1	3
6	0	3	2	2
7	0	2	1	3
8	3	0	2	2
9	1	2	1	3
Jim	—	—	1	3
James	1	3	—	—

Mean per Contact (in box) 0.0 2.5 3.0 0.0

This is Figure 2 in Burt, "Closure and stability" in *The Missing Links: Formation and Decay of Economic Networks*, edited by J. Rauch (2007 Russell Sage Foundation). For elaboration and illustration of indirect connections, see Chapter 7 in the on-line network textbook, *Introduction to Social Network Methods*, by Robert A. Hanneman and Mark Riddle (<http://faculty.ucr.edu/~hanneman/nettext>).

Appendix II: Closure/Embedding and the Theory of the Firm



**The Source is John Commons'
Five-Player Unit
for Transactional Analysis**

- (1) MAY — range of behaviors allowed in relationship
- (2) MUST — minimum obligations of relationship
- (3) CAN — minimum rights in relationship
- (4) CANNOT — behaviors prohibited in relationship

Graphic is from Figure 7.1 in *Structural Holes* (Burt, 1992), see John R. Commons (1924), *Legal Foundations of Capitalism*, chapter on transactions, which set a stage for Coase's (1937) nobel-winning "The Nature of the Firm" in *Economica*, which was the stage for transaction cost (Williamson, 1975) and resource dependence (Pfeffer and Salancik, 1978) theories of the firm, followed by subsequent work on "competitive strategy."

Appendix III: Closure and Learning Curves

by Michael Rothschild

Bruce Henderson certainly didn't look like a revolutionary. No tattered army fatigues. No fiery rhetoric. He favored starched white shirts and pinstripe suits. He spoke softly, in the measured, almost halting, manner of a southern gentleman. But Bruce Henderson had the "right stuff" of a revolutionary — profoundly new ideas that change the way society works. The originator of modern corporate strategy and founder of The Boston Consulting Group (BCG), Bruce Henderson died this summer in his hometown of Nashville, Tennessee. He was 77.

Trained as an engineer, Bruce Henderson became fascinated with economic ideas for terribly practical business reasons. Back in the days before he established the discipline of corporate strategy, making the big decisions about a company's long-term future was pretty much a "seat of the pants" affair. The CEO, with perhaps a few senior executives and board members, would sit around and talk until they came up with a plan that seemed sensible. "Bet-your-company" decisions like launching a new product line, acquiring a subsidiary, or shutting down a factory, were made on little more than intuition.

A rigorous analytical approach to making key decisions was impossible, because there were no guiding strategic principles, no theories that could be turned into quantifiable models. Standard economic models existed, of course, but every sophisticated businessman knew that the economists' mythical kingdom of "perfect competition" bore no relationship to reality. To turn corporate strategy into a credible discipline — and consulting assignments that major clients would pay major money for — Henderson had to find a hard link between business and underlying economic forces.

Henderson's search began with highly detailed analyses of production costs. Early in his career, while a purchasing manager for a Westinghouse division, he wondered why suppliers who produced their goods in virtually identical factories often put in bids at dramatically different prices. Economic theory said it wouldn't happen. Producers using similar capital equipment were supposed to have similar unit costs and offer roughly the same prices. But economic theory was wrong. In case after case, actual unit costs varied dramatically among suppliers. Henderson didn't know why, but he had zeroed in on the crucial question.

Then, in 1966, shortly after he founded BCG, a study for Texas Instruments' semiconductor division revealed the answer. When TI's unit cost data for a particular part was plotted against the company's accumulated production experience, the cost of the part declined quite predictably. For example, if the 1000th unit off the line had cost \$100 to make, the 2000th unit would cost 80% as much, or \$80. By the time the 4000th unit was produced, it would cost just \$64 (\$80 x 80%). Every time cumulative experience doubled, unit costs dropped about 20%. Though it's "old hat" among today's high-tech managers, the notion of predictably declining costs was a radical concept when Bruce Henderson began teaching companies about the "experience curve" a quarter century ago.

(over)

During the 1970s, Henderson's concept became the foundation of modern corporate strategy. For the first time, it was possible to explain why building a factory just like your competitor's didn't mean you could match his costs. If he had a head start in experience, you could wind up chasing him down the experience curve. If you both sold at the market price, he'd make money on every unit, while you'd be lucky to break-even.

Once the experience curve was understood, the importance of being the first one to enter a new market became clear. Properly executed, the preemptive strike could mean long-term market leadership and long-term profits. Similarly, the experience curve explained why defending market share mattered. Raising prices to boost short-term profits sold off market share, slowed experience growth, and often handed over low cost leadership to an aggressive competitor. It's a scenario that's been played out hundreds of times as "experience conscious" Japanese competitors overtook their "profit conscious" American rivals.

Simply put, Bruce Henderson's experience curve explained how an industry's past shapes its future. Where conventional economics banished history by blithely assuming that "technology holds constant," Henderson used the experience curve to show how the new insights generated by practical experience translated into higher productivity and lower costs. Where conventional economics taught the "law of diminishing returns," Bruce Henderson taught the "law of increasing returns." Where mainstream economics taught that marginal unit costs must rise at some point, Henderson showed that marginal unit costs can continually fall.

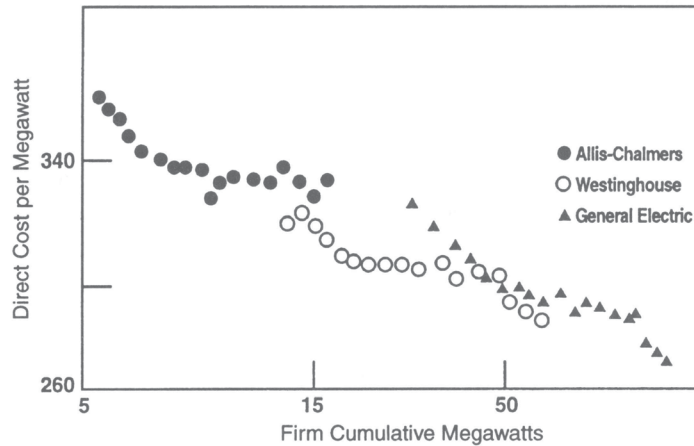
When the cost/performance potential of a particular technology is nearly exhausted, an industry will shift to a substitute technology and begin a new "experience curve." For example, even as the airlines have shifted from one aircraft technology to the next, their cost/seat-mile keeps falling, opening up air travel to the entire population. By substituting new knowledge for labor and materials, experience-driven innovation keeps pushing costs down. As Henderson put it, when a firm is properly managed, its "product costs will go down forever."

Though he concentrated on the practical problems of clients, Henderson knew full well that the experience curve had undermined the intellectual foundation of mainstream economics. In 1973, he wrote: The experience curve is a contradiction of some of the most basic assumptions of classical economic theory. All economics assumes that there is a finite minimum cost which is a function of scale. This is usually stated in terms of all cost/volume curves being either L shaped or U shaped. It is not true except for a moment in time. . . . Our entire concept of competition, anti-trust, and non-monopolistic free enterprise is based on a fallacy.

I'm often asked whether the work of the great Austrian economist F.A. Hayek inspired me to write *Bionomics*. Despite my unending admiration for Hayek, the short answer is no, I'd never read him. Bruce Henderson inspired me to rethink the received economic wisdom. Without his "experience curve," there is no final and fully satisfying explanation for falling costs, rising incomes, and the phenomenon of economic growth. More than anyone else, he made it both possible and necessary for economic thinkers to break free of the static, zero-sum mentality that has gripped the "dismal science" for 200 years. Bruce Henderson gave us the key to "positive-sum" economics. Thanks for the revolution, Bruce.

Some Example Learning Curves

Direct Costs per Megawatt, Steam Turbine Generators, 1946–1963. Each Dot Corresponds to a Year. The Horizontal Scale Is the Total Cumulative Output of the Specific Firm Involved to That Year. SOURCE: Confidential information from General Electric, Westinghouse, and Allis-Chalmers was made available in public records as the result of antitrust litigation



SOURCE: Graphs to the left are from Stern and Stalk (1998: pp. 14, 19), *Perspectives on Strategy*. The one below is from Thurstone (1919, p. 45) "The learning curve equation," *Psychological Monographs*. The association below can be described as $Y = aX^b$, where Y is words typed in four minutes, X is cumulative words typed (at 250/page), and the estimated slope b is .42 (cf. slope estimates of .11 to .29 for ship production in Rapping, 1965, p. 65, "Learning and World War II production functions" *Review of Economics and Statistics*).

THE LEARNING CURVE EQUATION

45

Integrated Circuits. SOURCE: Published Data of Electronics Industry Association

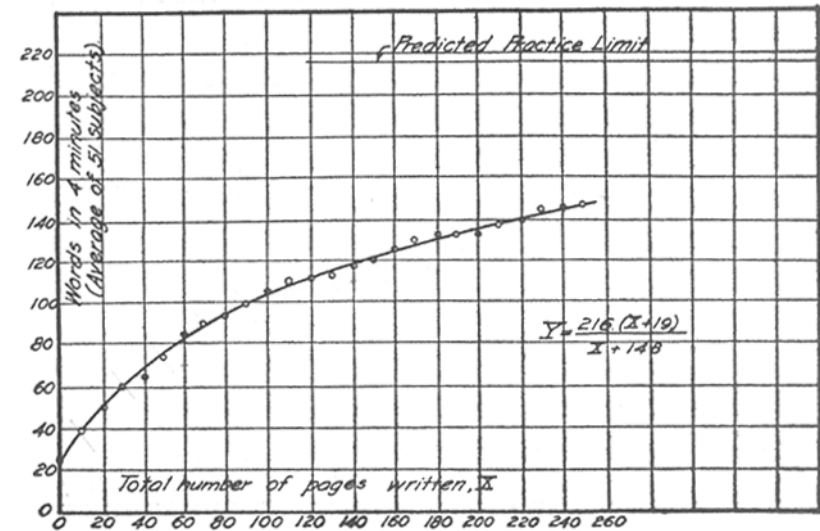
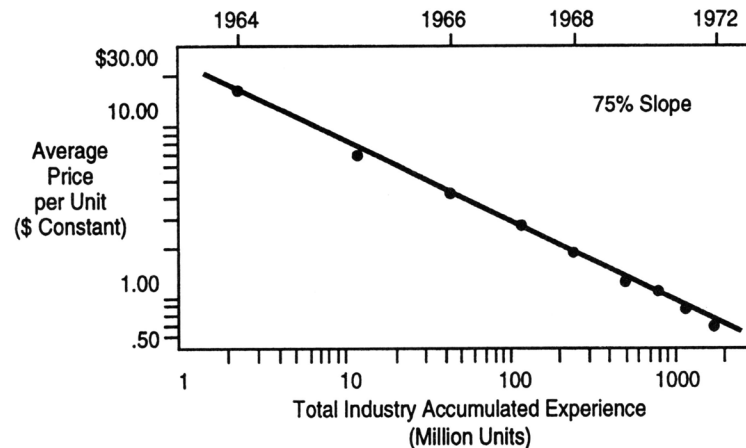
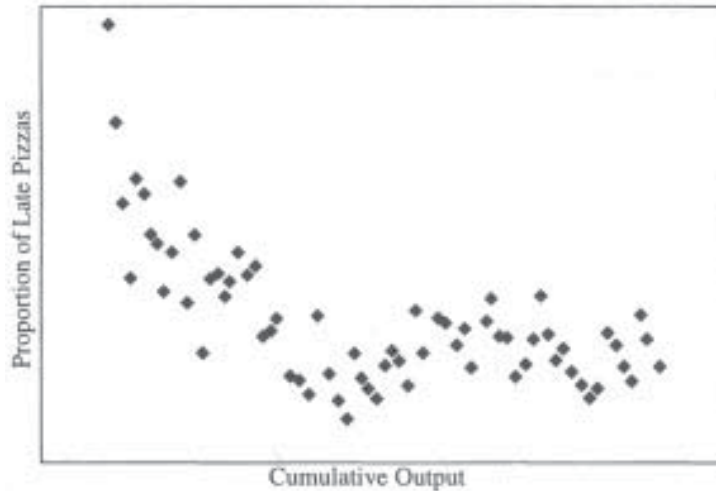
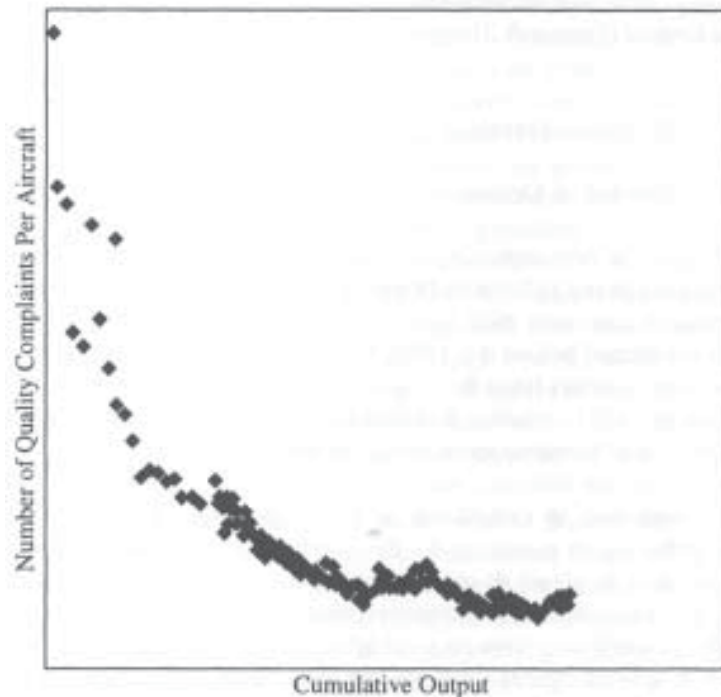


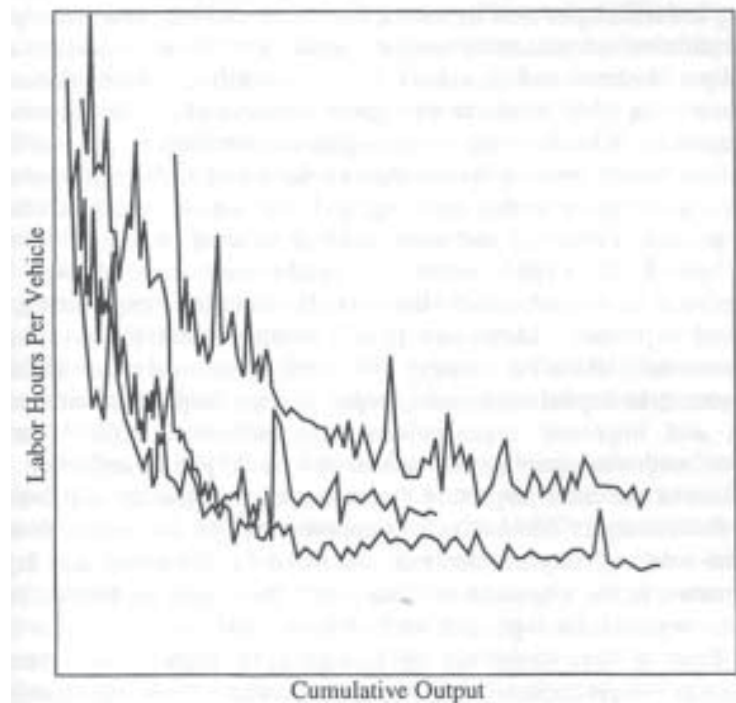
FIGURE 5

Research on semiconductor learning curves shows 20% decrease in cost with cumulative volume doubling, learning three times faster from one's own experience than from experience in another organization, and spillovers between organizations as likely within as between countries (Irwin and Klenow, "Learning-by-doing spillovers in the semiconductor industry," 1994, *Journal of Political Economy*).

The Relationship Between Proportion of Late Pizzas
and Cumulative Output

 The Relationship Between Number of Complaints
About Quality Per Aircraft and Cumulative Output


Learning curves from Argote's 1999 book, *Organizational Learning*.

Units of cumulative output are omitted to protect confidentiality. Pizza delivery is from page 9 in book. Squawks per aircraft is from page 8 (originally in 1993 *British Journal of Social Psychology*, "Group and organizational learning curves"). Hours per vehicle is from page 21 (originally in 1990 *Science*, "Learning curves in manufacturing.").

 The Relationship Between Labor Hours Per Vehicle
and Cumulative Output for Three Plants


Appendix IV: Snippets on Business Culture

from the
Autumn, 1999
Financial Times
series on
“Mastering
Strategy”

When is Corporate Culture a Competitive Asset?

Culture is to a corporation what it is to any other social system, a selection of beliefs, myths, and practices shared by people such that they feel invested in, and part of, one another. Putting aside the specific beliefs that employees share, the culture of an organization is strong to the extent that employees are strongly held together by their shared belief in the culture. Culture is weak to the extent that employees hold widely different, even contradictory, beliefs so as to feel distinct from one another.

Culture effect in theory

In theory, a strong corporate culture can enhance corporate economic performance by reducing costs.

There are lower monitoring costs. The shared beliefs, myths, and practices that define a corporate culture are an informal control mechanism that coordinates employee effort. Employees deviating from accepted practice can be detected and admonished faster and less visibly by friends than by the boss. The firm's goals and practices are more clear, which lessens employee uncertainty about the risk of taking inappropriate action so they can respond more quickly to events. New employees are more effectively brought into coordination with established employees because they are less likely to hear conflicting accounts of the firm's goals and practices. Moreover, the control of corporate culture is less imposed on employees than it is socially constructed by them, so employee motivation and morale should be higher than when control is exercised by a superior through bureaucratic lines of authority.

There are lower labor costs. For reasons of social pressure from peers, the attraction of pursuing a transcendental goal larger than the day-to-day demands of a job, or the exclusion of employees who do not feel comfortable with the corporate culture, employees work harder and for longer hours in an organization with a strong corporate culture. In other words, a strong corporate culture extracts unpaid labor from employees.

These savings mean that companies with a stronger corporate culture can expect to enjoy higher economic performance. Whatever the magnitude of the economic enhancement, it is the “culture effect.”

Evidence is mixed

The most authoritative evidence of the culture effect comes from a study by Harvard Business School professors John Kotter and James Heskett, based on data published in the appendix of their 1992 book, *Corporate Culture and Performance*. Measures of performance and strong culture are listed for a large sample of firms in a variety of broad industries analogous to the industry categories in *Fortune* magazine.

To measure relative strength of culture, Kotter and Heskett mailed questionnaires in the early 1980s to the top six officers in each sample company, asking them to rate (on a scale of 1 to 5) the strength of culture in other firms selected for study in their industry. Three indicators of strong culture were listed: (1) managers in the firm commonly speak of their company's style or way of doing things, (2) the firm has made its values known through a creed or credo and has made a serious attempt to encourage managers to follow them, and (3) the firm has been managed according to long-standing policies and practices other than those of just the incumbent CEO. Ratings were averaged to define the strength of a firm's corporate culture, which can be adjusted for the industry average to make comparisons across industries.

Summary

Advocates speak of corporate culture affecting the bottom line, but the cited evidence is rarely more than anecdotes, and then inconclusive. Some companies doing well have strong cultures, but other companies do well with nothing in the way of shared beliefs that could be termed a corporate culture. So why worry about it? It is to be worried about because in certain industries, a strong culture can be a powerful advantage over competitors. The complication is that in other industries, culture is irrelevant to performance. The trick is to know when culture is a competitive asset and when it is not. **Ron Burt** explains with empirical evidence how and where a strong corporate culture can be a competitive asset. Knowing the contingent value of culture can be a guide to deciding when to invest in the culture of your own organization, when to protect the culture of an organization merged into your own, and when not to worry about culture.

For example, Johnson & Johnson is cited as benefiting from its strong culture in the rapid recall of Tylenol when poisoned capsules were discovered on shelves. In the Kotter and Heskett study, Johnson & Johnson received an average rating of 4.61, the highest given to a pharmaceutical firm in the study, 1.07 points above the 3.51 average for pharmaceutical firms, so you see the company to the far right of the graph below (Graph 1).

Relative economic performance is plotted on the vertical axis of the graph. Kotter and Heskett list three measures reported to yield similar conclusions about the culture effect: net income growth from 1977 to 1988, average return on invested capital from 1977 to 1988, and average yearly increases in stock prices from 1977 to 1988. For illustration here, I use average return on invested capital.

For example, Johnson & Johnson enjoyed a 17.89% rate of return over the decade, but pharmaceuticals is a high-return industry in which 17.89% was slightly below average, so you see Johnson & Johnson below zero on the vertical axis of the graph (17.89 minus 20.21 equals the Johnson & Johnson score of -2.32).

The point is the lack of association between economic performance and corporate culture. Graph 1 contains pharmaceutical firms, along with sample firms from beverages, personal care, and communications — a total of 30 firms. No extreme cases obscure an association. There is simply no association. The correlation of .06 is almost the .00 you would get if performance were perfectly independent of culture. Kotter and Heskett report a slightly higher .31 correlation across all of their firms, but the correlation was still sufficiently weak for them to conclude in their book that: “the statement ‘strong cultures create excellent performance’ appears to be just plain wrong.”

Contingent value of culture

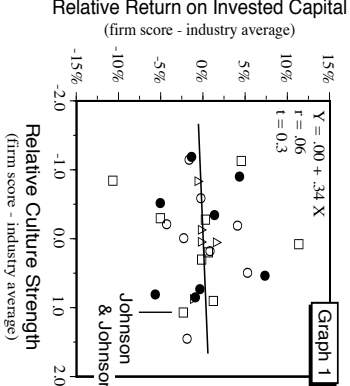
There is a powerful culture effect in fact, but it occurs elsewhere in the economy. Graph 2, at the top of the next page, has the same axes as Graph 1 but plots data on sample companies from other industries — airlines, apparel, motor vehicles, and textiles. The 36 sample firms from these industries show a close association between performance and culture: the stronger the corporate culture, the higher the return on invested capital.

The key point is illustrated in Graph 3, which shows a predictable shift from culture being

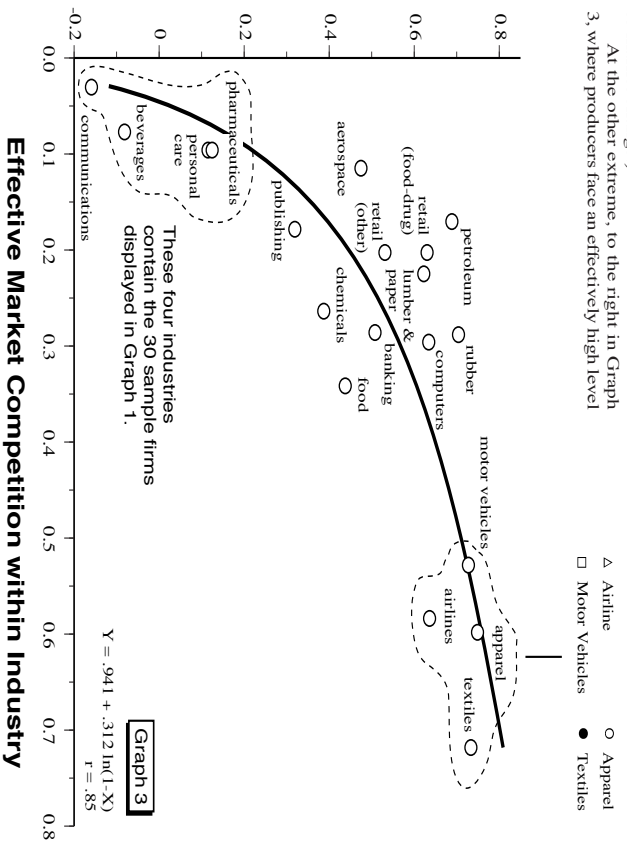
economically irrelevant (Graph 1) to it being a competitive asset (Graph 2). Nineteen industries from the Kotter and Heskett study are ordered on the vertical axis of Graph 3 by the correlation between performance and culture. Apparel is at the top of the graph with its .76 correlation between culture and performance. Communications is at the bottom with its negligible .15 correlation.

The horizontal axis of Graph 3 is a measure of market competition in each industry. Using data in the public domain (primarily the benchmark input-output tables published by the U.S. Department of Commerce; similar data are available for aggregate industries in most advanced economies), market competition is derived from the network effect on industry profit margins of industry buying and selling with suppliers and customers (thus the “effective” level of competition). The effective level of market competition is high in an industry to the extent that producers show lower profit margins than expected from the network of their transactions with suppliers and customers (for measurement details see, under Further Reading, my 1999 paper on competition and contingency with Miguel Gutierrez at the Fielding Institute, Holly Raider at INSEAD, and Yuki Yasuda at Rikkyo University).

Graph 3 shows that market and culture are complements. To the left, where producers face an effectively low level of market competition, culture is not a competitive asset. These are the 30 sample firms in Graph 1 taken from the four

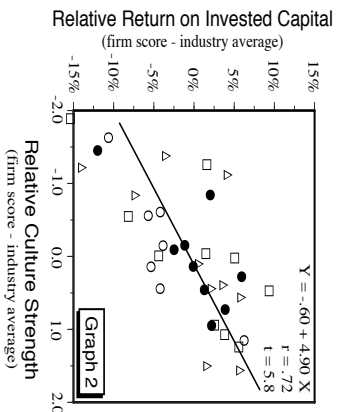


Correlation within Industry between Performance and Strong Culture



industries enclosed by a dotted line in the lower-left of Graph 3. These are complex, dynamic markets such as the communications and pharmaceutical industries, in which profit margins are good, but companies have to stay nimble to take advantage of the next shift in the market. There is competition to be sure (see the 1999 paper), but the point here is that a strong corporate culture is not associated with economic performance. (My colleague at the University of Chicago, Jesper Sørensen, has studied these firms over time, and describes in his 1998 paper on reliable performance how the culture effect is weaker for firms more subject to market change.)

At the other extreme, to the right in Graph 3, where producers face an effectively high level



can expect from investing in a strong corporate culture. Further, when you merge with a new company, ask about its industry. If the industry resembles a commodity market and the company has no corporate culture, then the company's performance would be higher. If a strong culture were instilled. But if the industry resembles a commodity market and the company already has a strong corporate culture, pay attention to the culture because the company's performance is some part due to its culture. On the other hand, if the company operates in a complex, dynamic market, you are free to integrate the company into your own without concern for whatever culture existed before because culture is irrelevant to performance in such markets.

Final illustration: consider two consultants assembling results on the performance effects of a strong corporate culture. One selects 10 telecommunication firms for case analysis because he worked in the industry, and so has good personal contacts there. The other consultant selects 10 textile firms.

These are two reasonable and interesting projects, with a relatively large number of firms for case analysis.

There is no need to read their reports. The first consultant selected an industry with a low effective level of market competition (the communications industry is to the far left in Graph 3). A strong corporate culture is not a competitive asset in such complex, dynamic industries. This consultant will find no evidence of higher performance in strong-culture firms, will generalize his results to conclude that the culture effect does not exist, then earnestly (since he has research to support his conclusion) advise client firms against wasting resources on institutionalizing a strong corporate culture.

The second consultant selected an industry at the other extreme of the contingency function. Textile producers face an effectively high level of market competition (they appear at the far right of Graph 3). A strong corporate culture is a competitive asset in such industries. This second consultant will find evidence of higher performance in strong-culture firms, will generalize her results to conclude that performance depends on developing a strong corporate culture, then earnestly (since she too has research to support her conclusion) advise client firms to concentrate on institutionalizing a strong corporate culture.

When these consultants approach the same clients, clients will hear earnest, contradictory results, and conclude that the jury is still out on corporate culture. All of these people are drawing reasonable conclusions within the limits of their experience. Nevertheless, all are wrong; simplistic in their ignorance of the contingent value of a strong corporate culture.

the performance variance described by industry differences!

Thinking strategically about culture

Contingent value is the main point here. A strong corporate culture is neither always valuable, nor always irrelevant. Value is contingent on market. A strong corporate culture can be a powerful competitive asset in a commodity market. In a complex, dynamic market, on the other hand, culture is irrelevant to economic performance.

The contingent value of culture can be a guide to thinking strategically about culture. The more your company's industry resembles a commodity market, the more economic return you

This is a selection of industries from the 1982 benchmark input-output table published by the U.S. Department of Commerce. Industries are listed in order of the extent to which a strong corporate culture is a competitive asset. The fraction next to each industry is the correlation (predicted by the contingency function) in the industry between culture strength and economic performance. Kotler and Heskett industries are marked with an asterisk (note how similar the predicted correlations below are to the correlations in Graph 3 that were observed in the industries).

Real estate & rental	-0.47	Scientific & controlling instruments	0.49
Telecommunications (not radio or TV)	-0.08	*Lumber & wood products (not containers)	0.49
Truck and trailer	0.06	*Paints & allied products	0.49
Business services	0.13	*Food processing	0.53
Optical, photographic & photographic equip.	0.15	*Rubber & miscellaneous plastic products	0.53
Ordnance & accessories	0.16	*Office, computing & accounting machines	0.54
*Food (beverages)	0.19	*Plastics & synthetic materials	0.57
Radio & TV broadcasting	0.21	*Food (not beverages)	0.58
Hotel, restaurant & repair services	0.22	Jewelry, sports, toys & other misc. manu.	0.58
*Drugs, cleaning & toilet preparations	0.26	*Textile mill (not spinning & weaving)	0.62
Stone & clay products	0.27	Finance (brokers and insurance)	0.63
*Aircraft & parts	0.27	Machinery, metalworking	0.65
Amusement & mining equipment	0.27	Engines & turbines	0.66
*Petroleum refining	0.38	Household appliances	0.67
*Printing & publishing	0.39	*Machinery, general industrial products	0.70
*Paper & allied products (not containers)	0.43	*Motor vehicles & equipment	0.70
Wholesale trade	0.44	Electrical industrial equipment	0.72
Radio, TV & communication equip.	0.44	Furniture (household)	0.72
Transportation & warehousing (not airlines)	0.47	*Airlines	0.73
Eating & drinking places	0.47	*Glass & glass products	0.74
Machinery, materials handling	0.48	Electronic components & accessories	0.75
*Chemicals	0.48	*Fibers, yarn & thread mills	0.79
Furniture (not household)	0.48	*Textile goods & floor coverings	0.79
Food (not beverages)	0.48	*Textile machinery products & stampings	0.87
Farm & garden machinery	0.49	Machinery, special industry	0.87

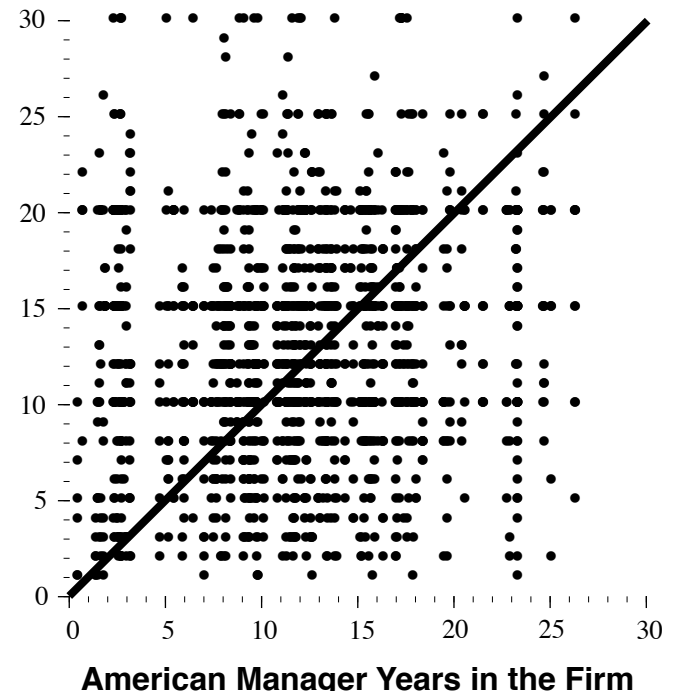
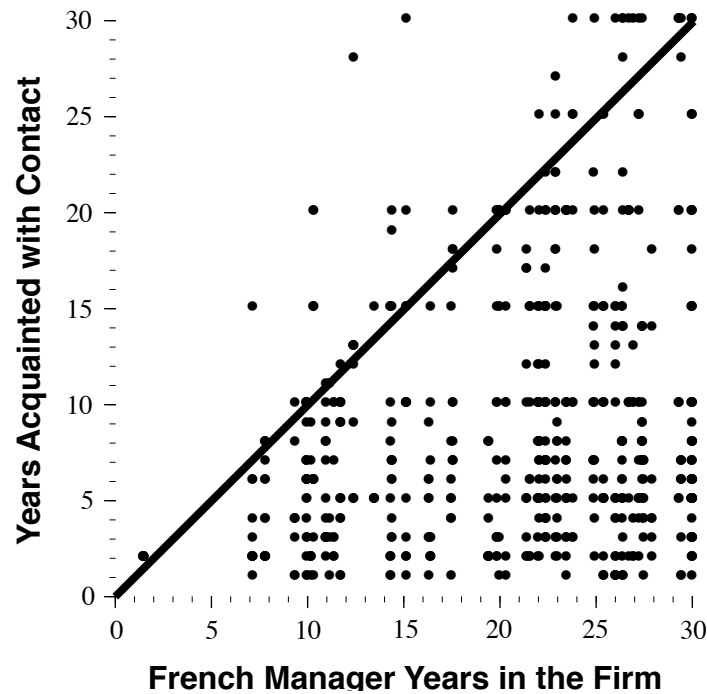
Since industry scores on the horizontal axis are computed from data publicly available on all industries, the expected value of a strong corporate culture in any industry can be extrapolated from the contingency function. Results for a selection of industries are given in the box to the right.

The high correlation for the contingency function shows that the function is an accurate description of culture's effect in the diverse markets ($r = .85$, for details on deriving, and extrapolating from, the contingency function see my 1994 article on contingent organization with Shaull Gabbay at Technion, Gerhard Holt at INSEAD, and Peter Moran at the London Business School).

At the level of individual firms, 44% of the variance in company returns to invested capital can be predicted by the industry in which they primarily operate, and their relative strength of corporate culture accounts for another 23% of the variance. Culture accounts for half again

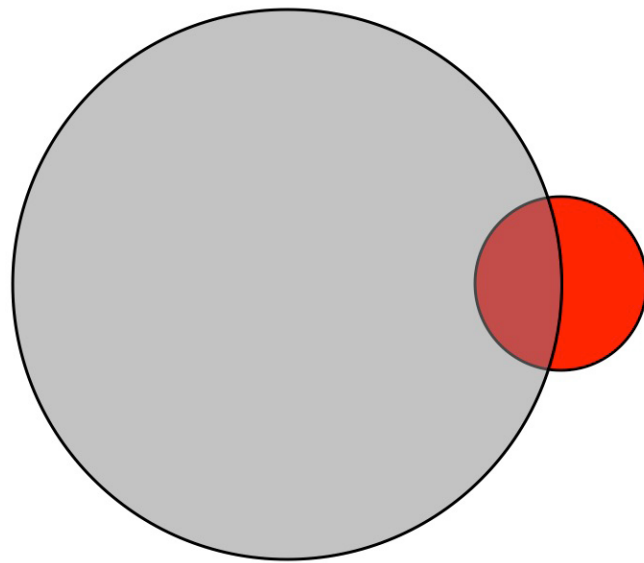
Distinctions Between Inside and Outside the Firm

(colleague relations pre-dating entry into the firm)

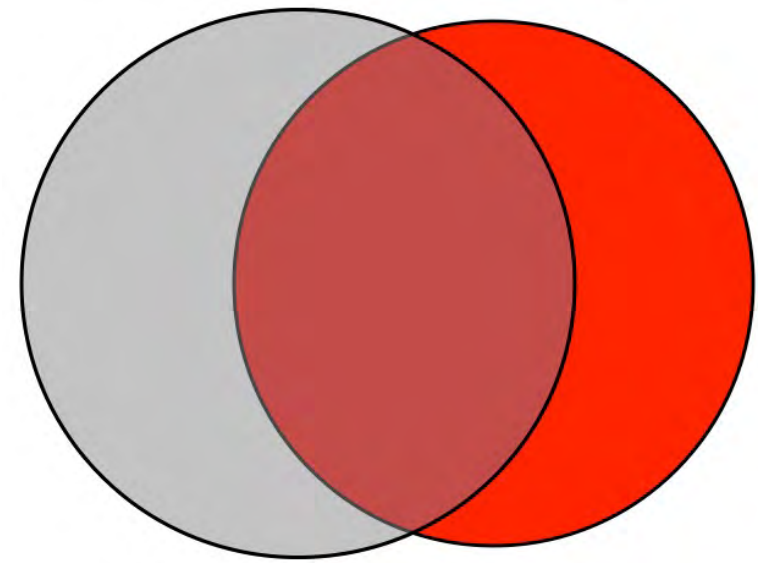


French Managers				American Managers		
Years in the Firm	Number Colleagues	% Known Before Firm	Mean Years Known	Number Colleagues	% Known Before Firm	Mean Years Known
0 to 10	105	26%	5.2	691	81%	12.6
11 to 20	160	15%	8.2	875	42%	13.5
Over 20	391	5%	10.3	129	6%	14.9
Total	656	11%	9.0	1695	55%	13.0

from Burt, Hogarth, and Michaud "The social capital of French and American managers" (2000, *Organization Science*)



Western Analysts and Bankers
1,233 Ties Are *Guanxi*, of
13,148 at Risk of Being *Guanxi* (9%)



Chinese Entrepreneurs
2,905 Ties Are *Guanxi*, of
4,464 at Risk of Being *Guanxi* (65%)

Same Network Mechanism, with Different Mixtures, Can Define Different Business Environments

NOTE: Grey area is current contacts (contacts cited this year by analyst or banker, contacts cited as current or met daily by Chinese entrepreneur). Red area is proportional to number of *guanxi* ties (known for more than two years for analyst or banker, most valued help in significant event for Chinese entrepreneur). Overlap indicates *guanxi* ties in current network.

QUESTIONS: *Guanxi* ties are more prevalent in China and critical to network advantage in China (there is no evidence of network advantage associated with success absent *guanxi* ties not cited as current contacts).

- Is the China difference a substantive difference between China and the West, or a methodological artifact? (54% of *guanxi* ties are cited as routine business contacts on non-event name generators.) What implications? As Schelling (1975:19) so nicely states the issue in *Micro Motives and Macro Behavior*: "How well each does for himself in adapting to his social environment is not the same thing as how satisfactory a social environment they collectively create for themselves."
- How prevalent are *guanxi* ties in the West (now we know what to look for), how often are they active as current contacts, and to what extent does success in the West depend on them?

Appendix V: Why Don't People Discount Gossip?

In other words, why does casual conversation have such a powerful impact?

Cognition (mental defect) — We have a preference for information consistent with our predispositions; i.e., people are likely to believe stories about you that are consistent with their preconceptions of you (e.g., Klayman, 1995, on confirmation bias).

Sociability (naiveté) — Gossip is the verbal analogue to grooming among primates. Its purpose is to create and maintain relations, so information obtained is a by-product that feels unintentional, and so unbiased (Gambetta, 1994; Dunbar, 1996).

Identity (psychological need) — People define who they are in part with negative stereotypes of people on the social boundary of their group. Insiders believe stories about you that are consistent with stories they know about people like you (e.g., Durkheim, 1893; Elias and Scotson, 1965; Erikson, 1966).

Social Construction/Contagion (no absolute truth against which one can discount gossip) — When confronted with an ambiguous decision, we tend to imitate the opinions and behaviors of peers. People in groups who don't know you and have to deal with you will discuss you among themselves, create an image of you, then deal with the image as if it were you (e.g., Festinger, Schachter & Back, 1950; Pfeffer, Salancik & Leblebici, 1976; Zucker, 1977; Burt, 1987; Rogers, 1995).

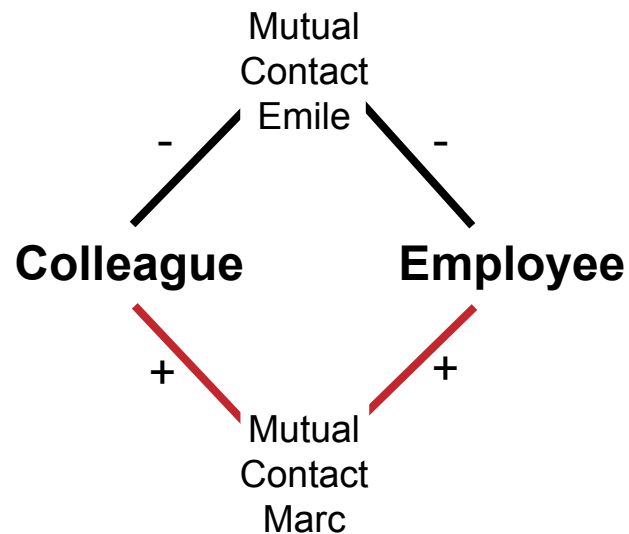
for the citations and discussion, see Section 4.1.2 in *Brokerage and Closure*



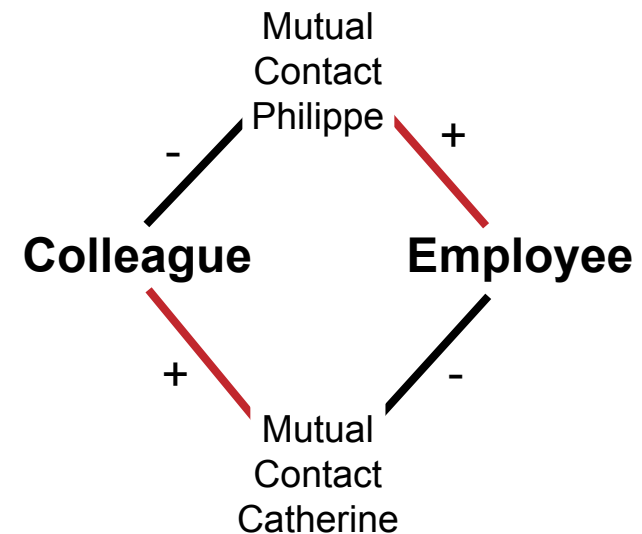
APPENDIX VI: Detail, Reputation & Echo vs Bandwidth

Reputation Stability Predicted by Positive Closure versus Negative Closure

A. Positive Indirect Connections



B. Negative Indirect Connections



If bandwidth story true, then:

Stability of positive reputation increases with positive indirect, decreases with negative indirect (relations as info pipes)
Stability of negative reputation increases with negative indirect, decreases with positive indirect (relations as info pipes)

If echo story true, then

Stability of positive reputation increases with positive or negative indirect (etiquette filter on info transmitted)
Stability of negative reputation increases with positive or negative indirect (etiquette filter on info transmitted)

Figure 3 in Burt, "Gossip and reputation" in *Management et Réseaux Sociaux*, edited by edited by Marc Lecoutre and Pascal Lievre (2008 Hermes-Lavoisier, English language version on my website).

Stability of Positive and Negative Reputations Increase with Either Positive or Negative Closure.

**Relations Are Balanced in Amplitude, not Direction;
Reputations Are Defined by Network Echo, not Bandwidth.**

	Predict Positive Reputations (N = 899)			Predict Negative Reputations (N = 797)		
	1	2	3	4	5	6
R ²	.59	.50	.59	.45	.50	.51
Average Number of Mutual Contacts Linking Employee this Year with Colleagues						
Number of Positive	.77** (28.1)	—	.66** (11.7)	.67** (21.2)	—	.21** (3.6)
Number of Negative	—	.71** (23.7)	.12* (2.2)	—	.70** (23.3)	.52** (8.7)

NOTE — These are regression models predicting reputation stability from this year to next using network variables measured this year. Stability is measured for an employee by the sub-correlation between reputation in adjacent years (vertical axis on page 44 of this handout). Average number of mutual contacts (horizontal axis on page 44) are here log scores to capture the nonlinear association. T-tests in parentheses are adjusted for autocorrelation between repeated observations (using "cluster" option in STATA), but they are only a heuristic since routine statistical inference is not applicable for sub-sample correlations as a criterion variable (footnote 1 in the source paper cited below).

* P < .05 ** P < .001

Table 1 in Burt, "Gossip and reputation" in *Management et Réseaux Sociaux*, edited by edited by Marc Lecoutre and Pascal Lievre (2008 Hermes-Lavoisier, English language version on my website).

Appendix VII: Groupthink and Escape from It

Irving Janis coined the term "groupthink" in 1971 when he used research on conformity within cohesive groups to explain prominent policy failures (1971 "Groupthink" Psychology Today Magazine, 1972 book Victims of Groupthink, Houghton Mifflin, expanded edition in 1982). The research from which he drew showed that pressure on individuals to conform to group opinion increased with network closure (strong ties inside, weak ties outside, as we discussed with respect to high-performance teams). Also see Levy, "The Nut Island Effect: When Good Teams Go Wrong." (2001, HBR).

Six behavioral symptoms that the members of a team suffer from groupthink:

Few Options — Team deliberations are limited to one or two courses of action without surveying alternatives.

No Iteration — Team doesn't re-examine assumptions in light of things learned during debate (e.g., Given the costs we've discovered, should we be outsourcing this rather than producing it ourselves? Given the benefits, should we be outsourcing this at all?).

No Re-Framing — Costs/benefits aren't discussed from alternative frames of reference (e.g., What would us taking this course of action signal to colleagues, or to people outside our business? Who beyond us would incur costs/benefits from us taking this course of action?)

No Due Diligence — Team makes no effort to get data with which costs/benefits could be better estimated.

Confirmation Bias — Team discusses in detail facts/opinions that support the felt consensus, but ignores facts/opinions that would raise doubts.

No Fall Back — The consensus policy seems so obviously correct that the team does not discuss how the consensus course of action could be affected by bureaucratic inertia, inadequate employees, political opposition, or foreseeable accidents. No contingency plan increases risk of failure.

Three measures to counter groupthink (in essence introduce brokerage, and see over on "unlearning"):

Encourage Critical Debate — State it as policy. Demonstrate it by accepting criticism of your own argument. Facilitate it by asking team members to be brokers between alternative arguments rather than advocates of one argument.

Encourage Critical Debate — Assign a key task to more than one individual or group to increase the odds of alternatives, and so debate, in team discussion of the task.

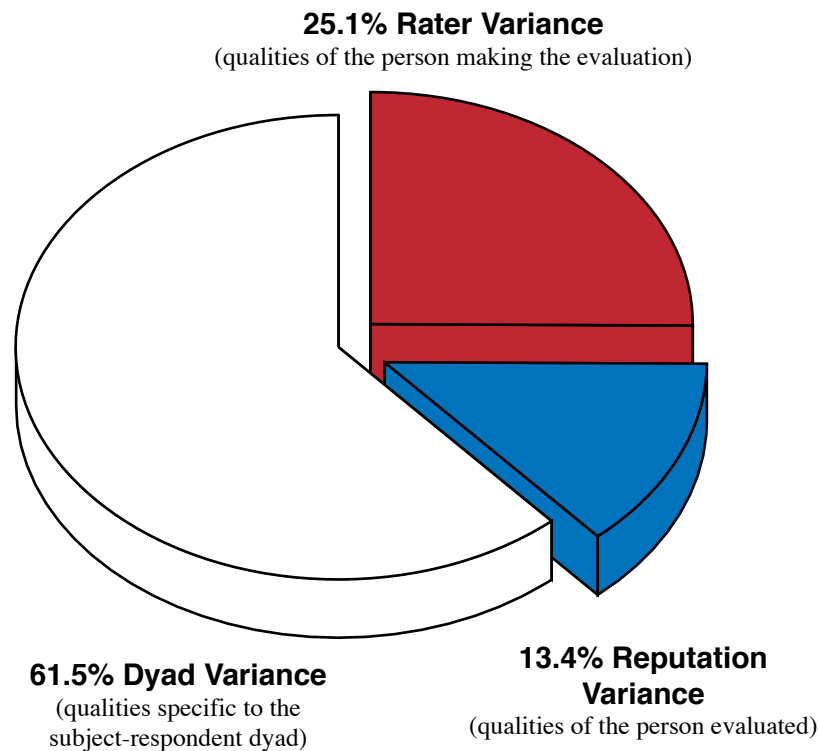
Encourage Critical Debate — For discussion of an important issue, assign the role of devil's advocate to an able person on the team (or invite an outside expert in to play the role).

IDEO caution against Devil's Advocate — Can kill off promising new ideas. Assign IDEO roles to individuals to ensure that an idea is viewed from diverse perspectives (The Ten Faces of Innovation, 2005, Tom Kelley & Jonathan Littman).

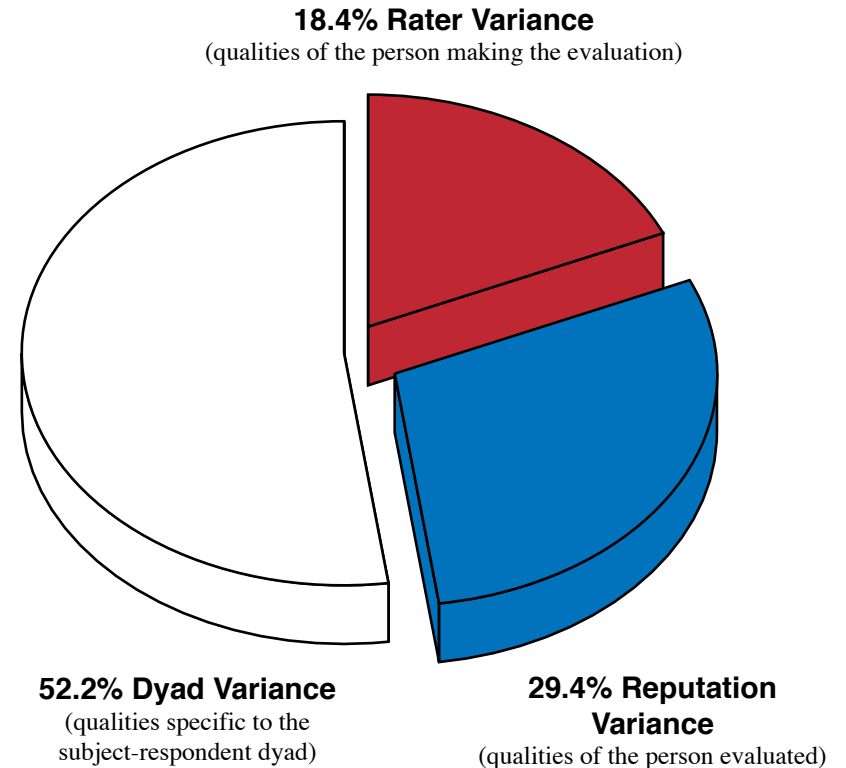
Appendix VIII: Sources of Variance in 360 Evaluations

Most of the variance in evaluations is about the way two people work together, not their averages as individuals.

The below pie charts describe the variance explained in regression models predicting ego's evaluation of alter from ego's average rating of colleagues [rater variance] and alter's average rating from colleagues [reputation variance].



Banker Relationships
(N = 12,640)



Staff Officer Relationships
(N = 2,304)

and Good versus Bad is the Primary Dimension to Evaluations

I focus on good versus bad as a reputational quality that assuages audience concerns about a would-be broker. The focus is in contrast to studying reputation in terms of specific behaviors for which a person is known. Statistically significant correlations are likely to occur with details of reputation for specific behaviors, but it will be difficult to generalize the correlations into construct-validity hypotheses about reputation because of the diversity that studying details allows and wide confidence intervals around current measures of reputation. My focus on good-bad is based on the knowledge that good versus bad is the primary dimension to human evaluation in general. There are other dimensions, but good-bad is the primary one. In the interest of replicable results, I focus on the primary dimension for the time being.

Initial evidence for the primacy of good-bad was given in Osgood, Tannenbaum, and Suci (1957, *The Measurement of Meaning*) based on factor analyses of semantic-differential data from diverse populations. They find three recurring dimensions to evaluations of words and phrases: a good-bad contrast (termed the primary "evaluation," 69% of common variance), a strong-weak contrast (termed "potency," 15% of common variance), and an active-passive contrast (termed "activity," 13% of common variance). Note here that dimensional analyses of network data show managers distinguishing relations primarily on a good-bad dimension of closeness and secondarily on a personal-impersonal dimension (e.g., Burt, 2010:287). Osgood et al. (1957:38) emphasize that the good-bad contrast, "plays a dominant role in meaningful judgments, here accounting for almost 70 per cent of the common (extracted) variance, and this impression will be confirmed in subsequent studies to be reported."

