Approaches to Network Collection for Internet and Health Services

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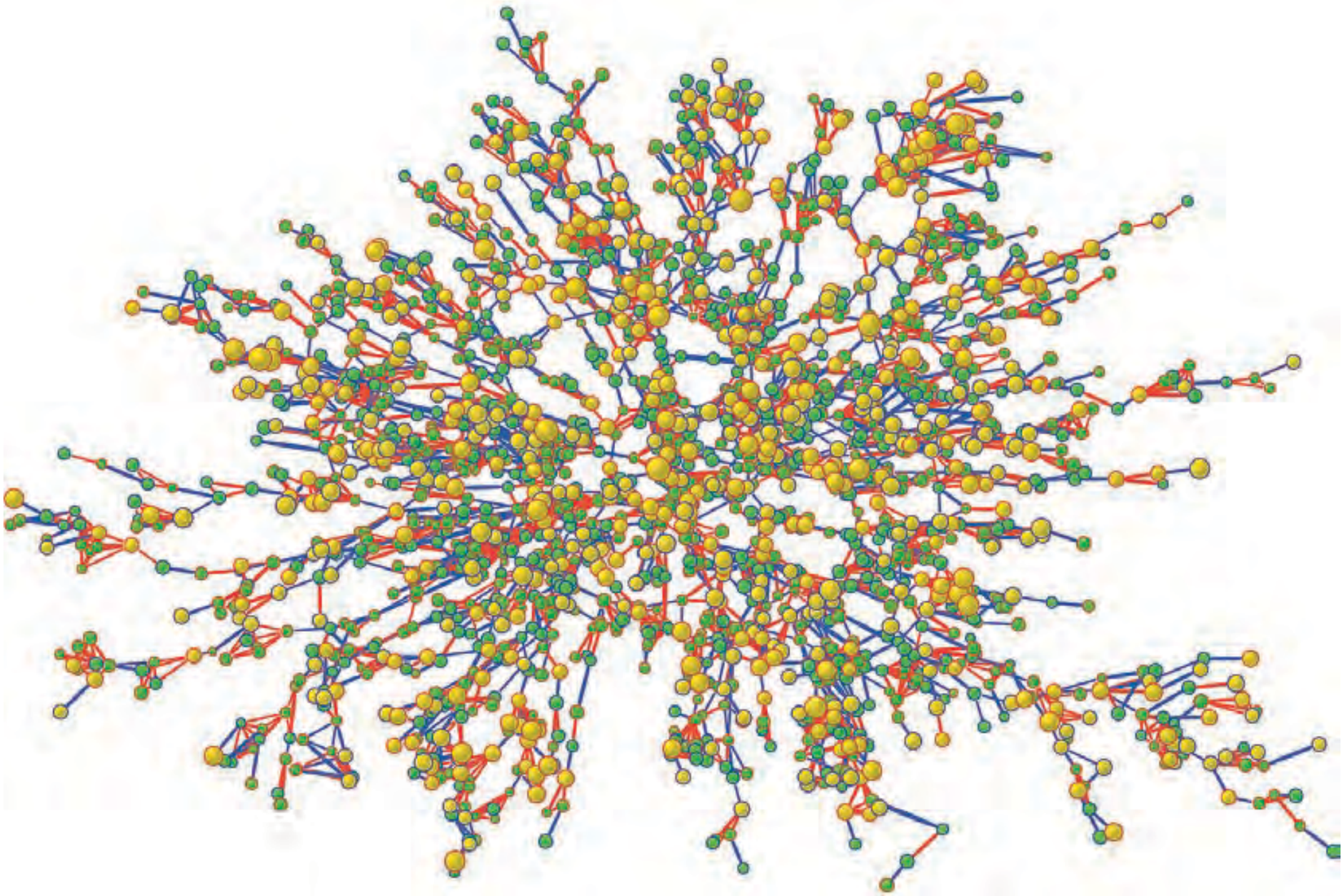
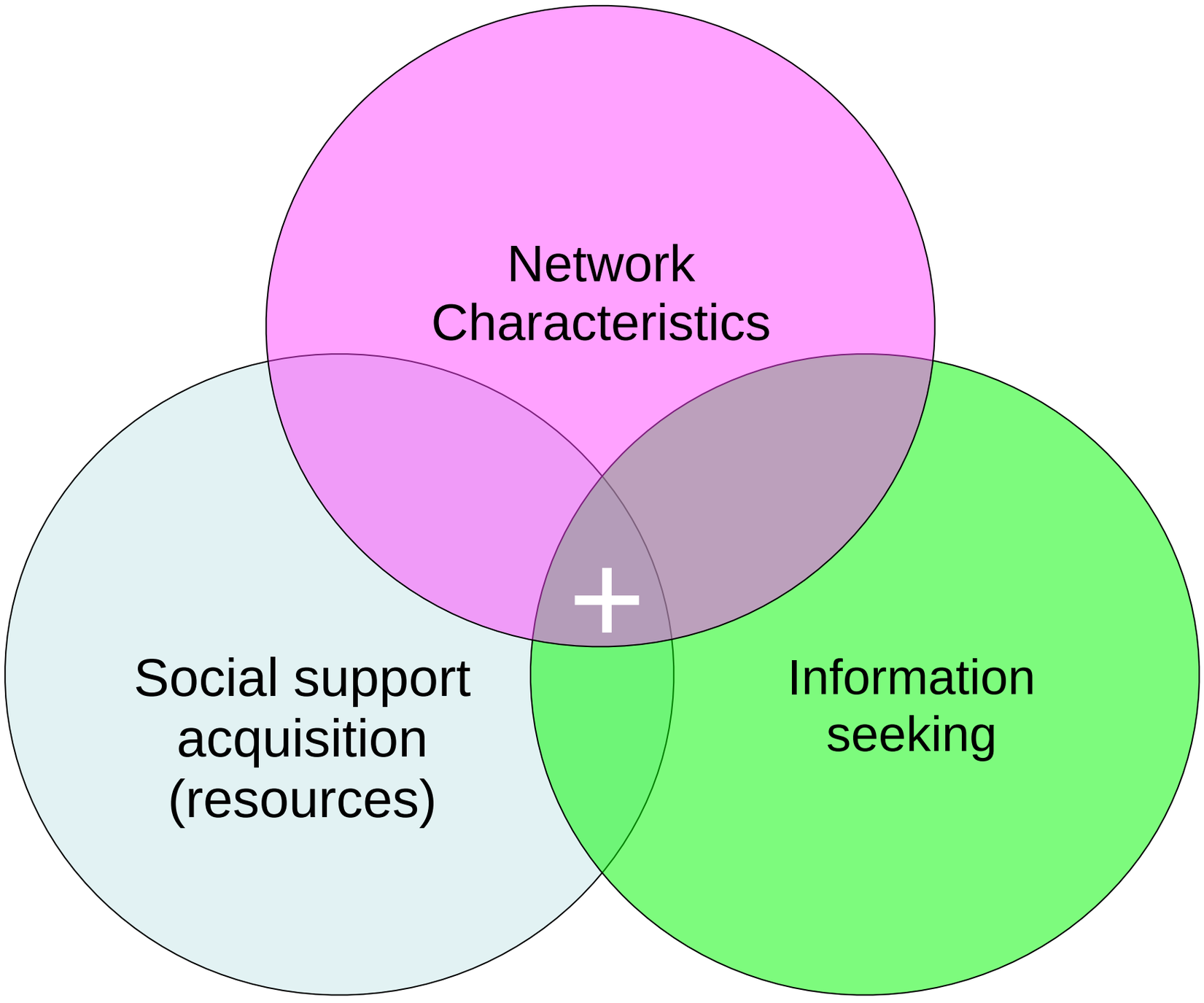


Networks relate to health outcomes such as obesity, STIs, and even life expectancy

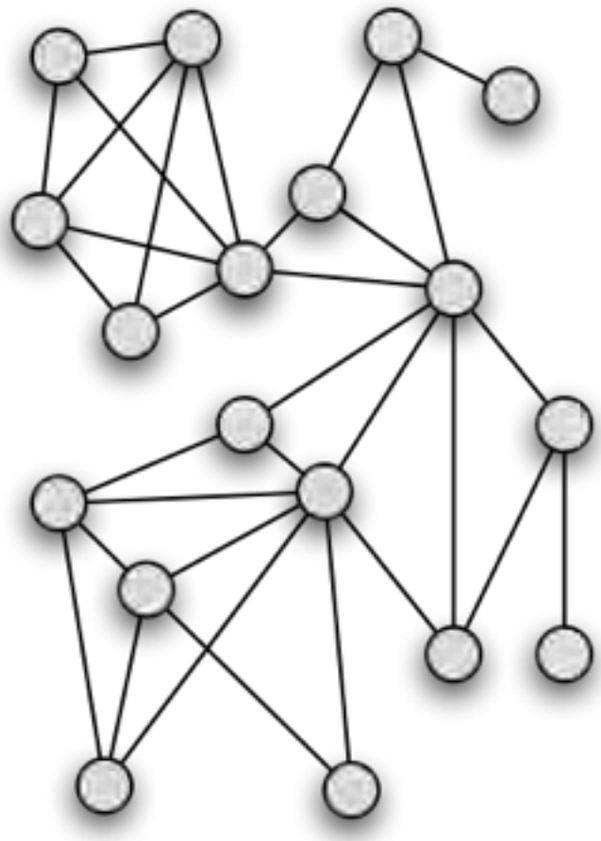
Source: Christakis & Fowler. N Engl J Med 2007;357:370-9.

Health Management in Context

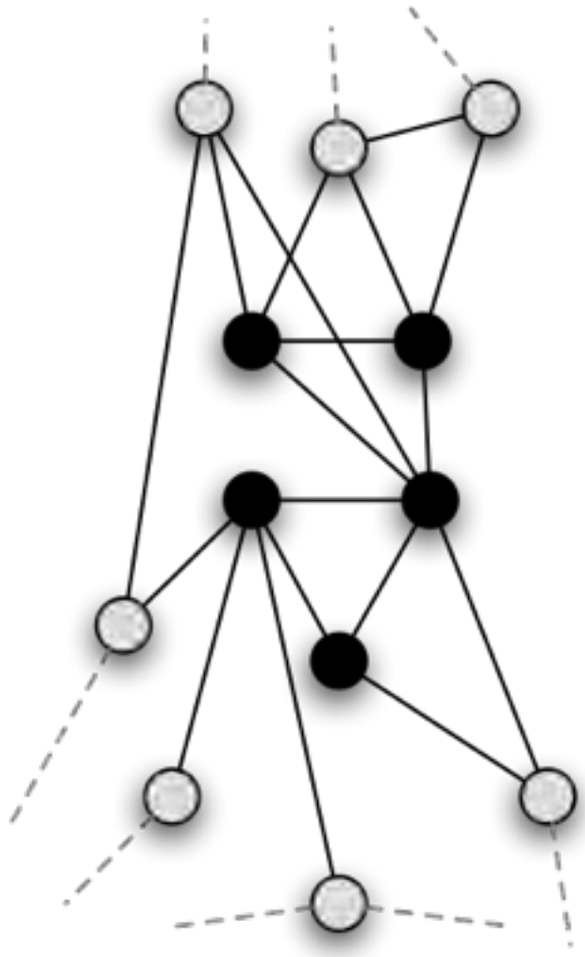


There are many types of networks

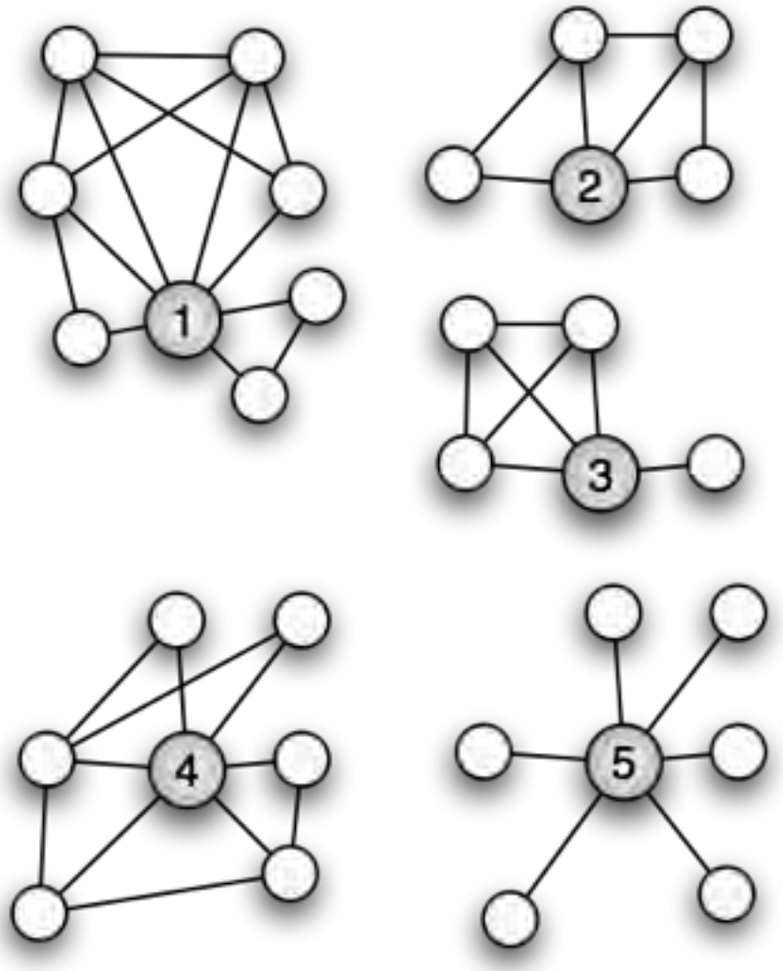
Whole Network

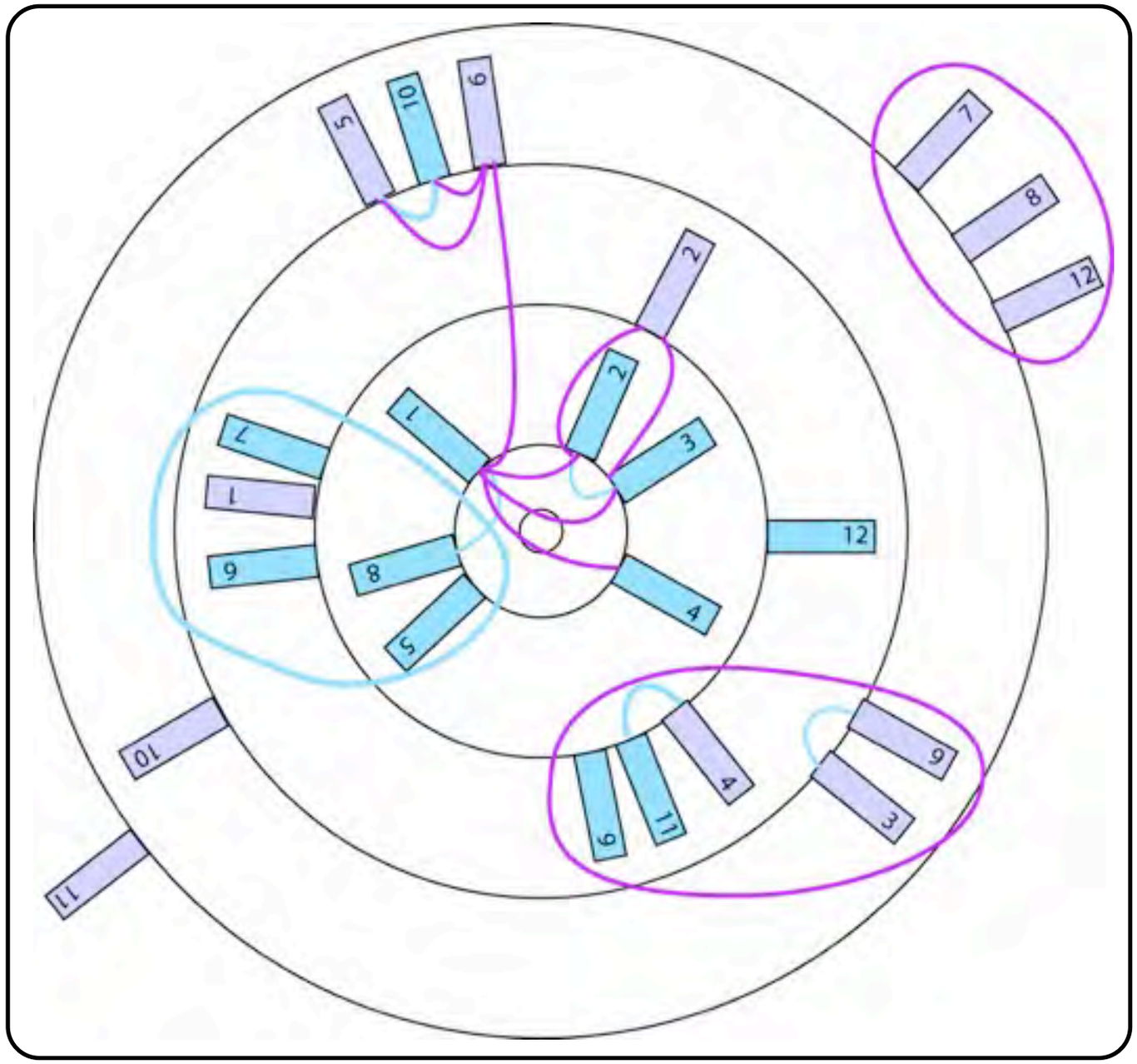


Partial Network

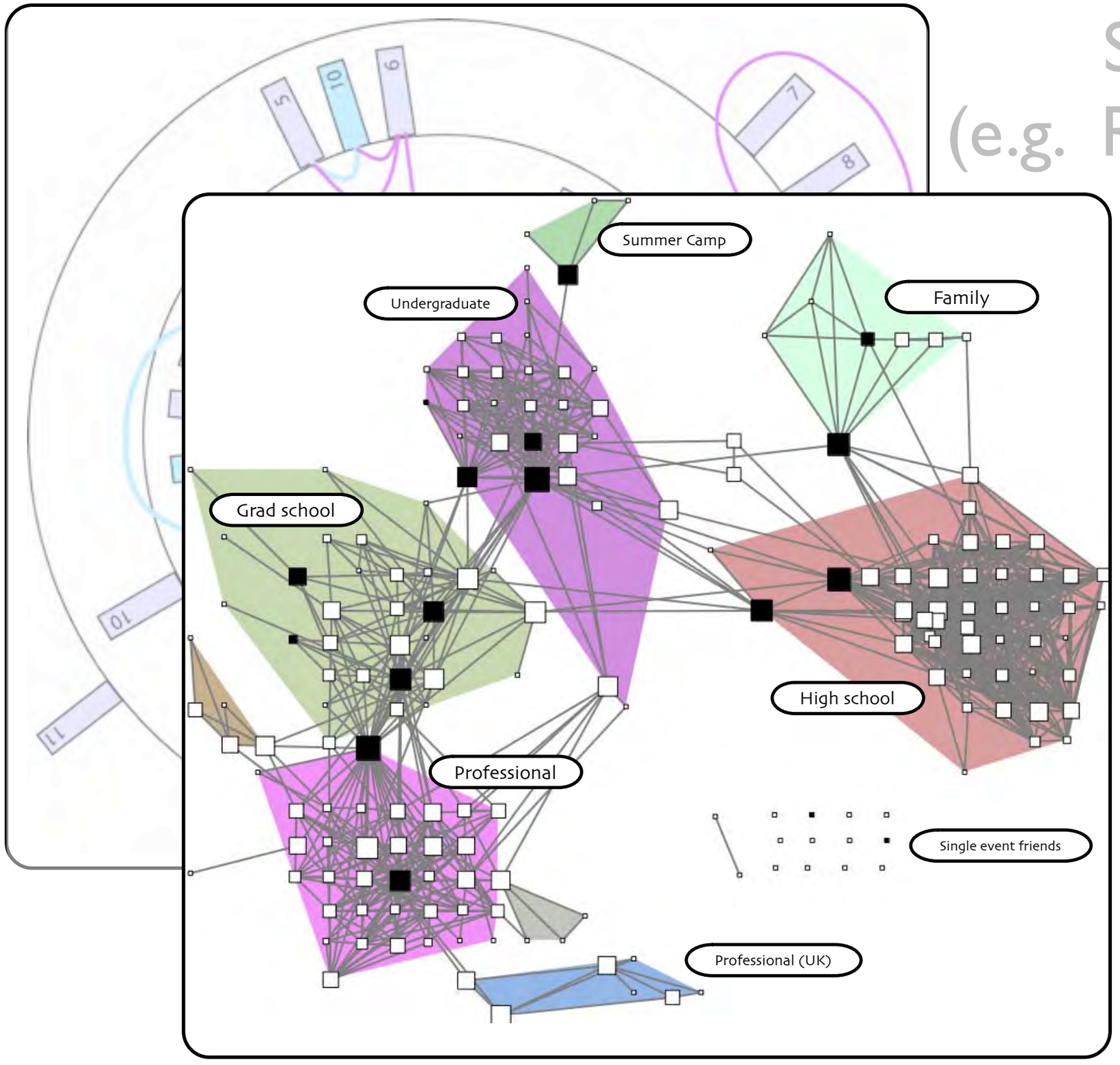


Five Ego Networks





Sociocognitive
(e.g. Recall by closeness)



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Trace data
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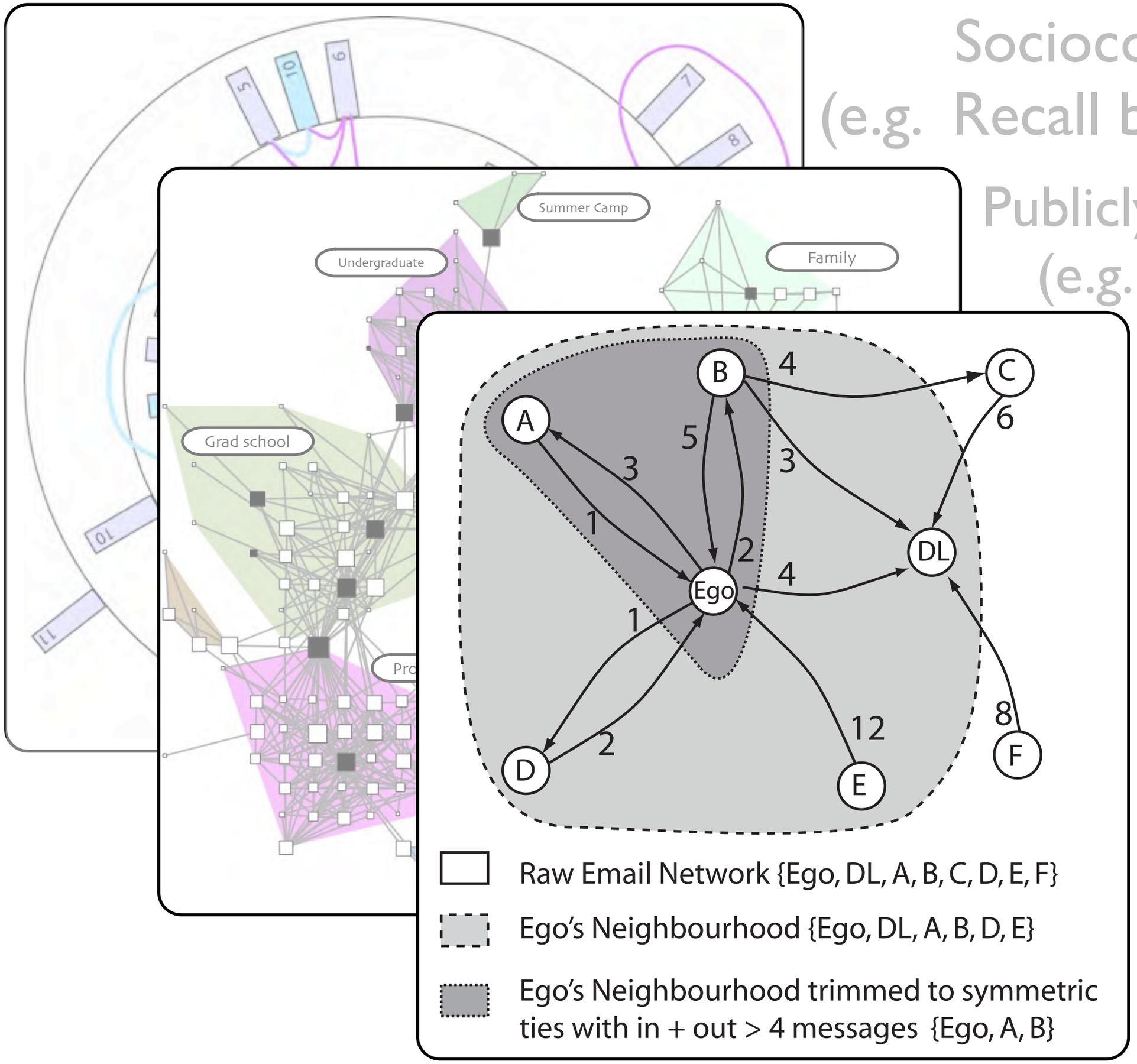
bulletin
boards)



Networks can show prominence

Generally referred to in centrality. There are many types:

Degree - links in & out
Betweenness - shortest paths
Power - high degree friends
Closeness - easily reachable

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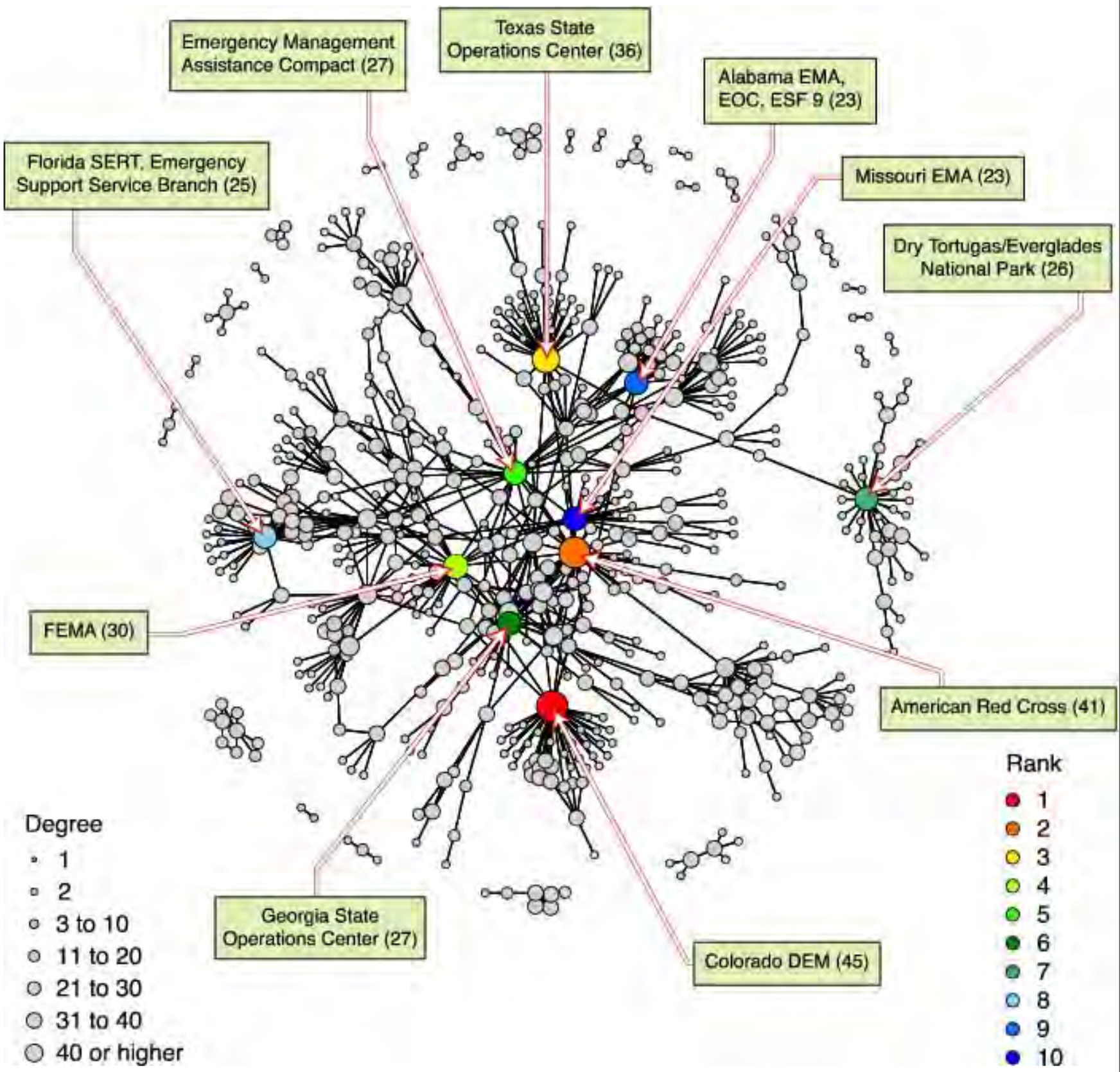
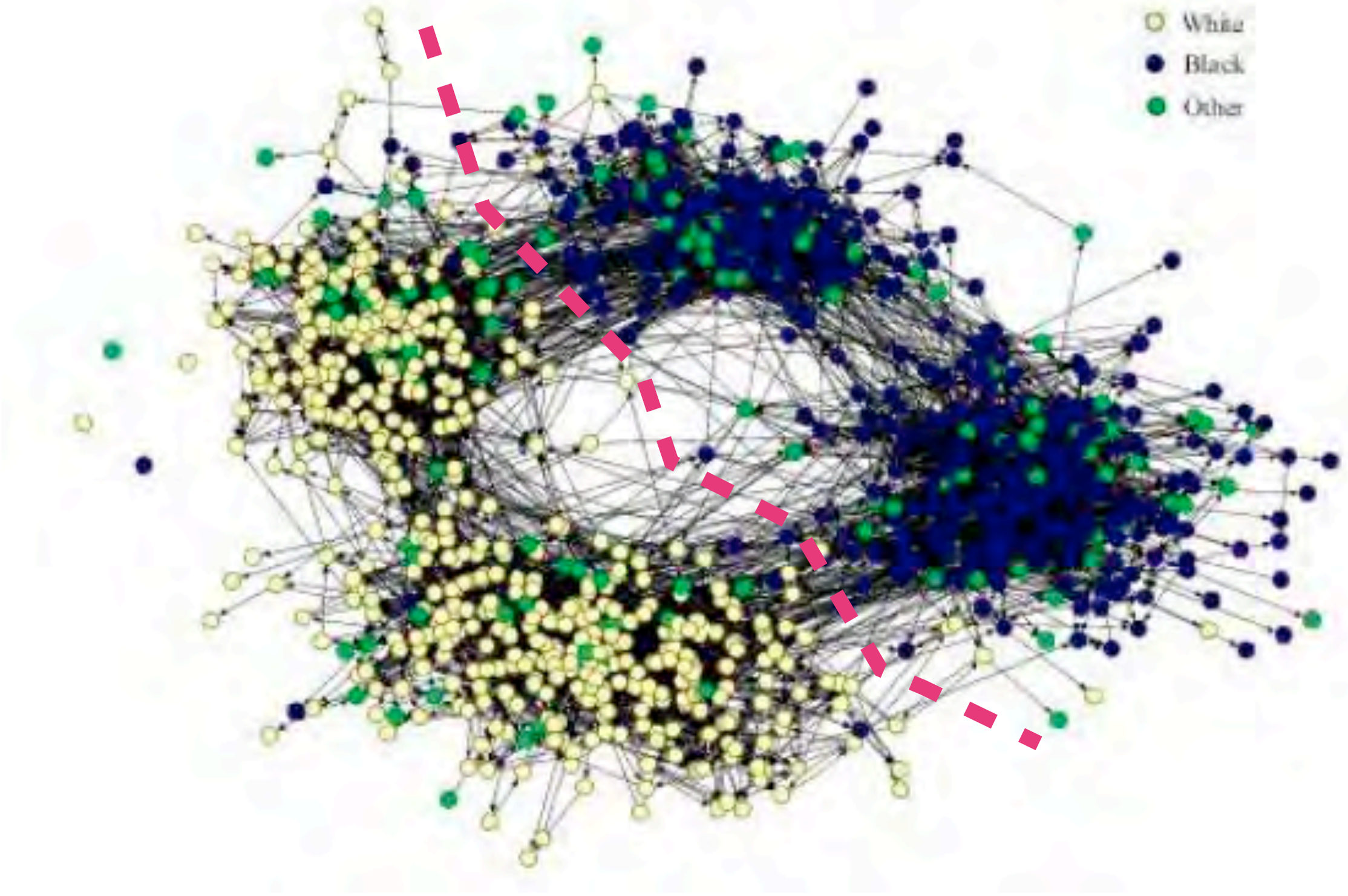


Source: Carter Butts

Whole networks cluster



Source: Jim Moody. Add Health data

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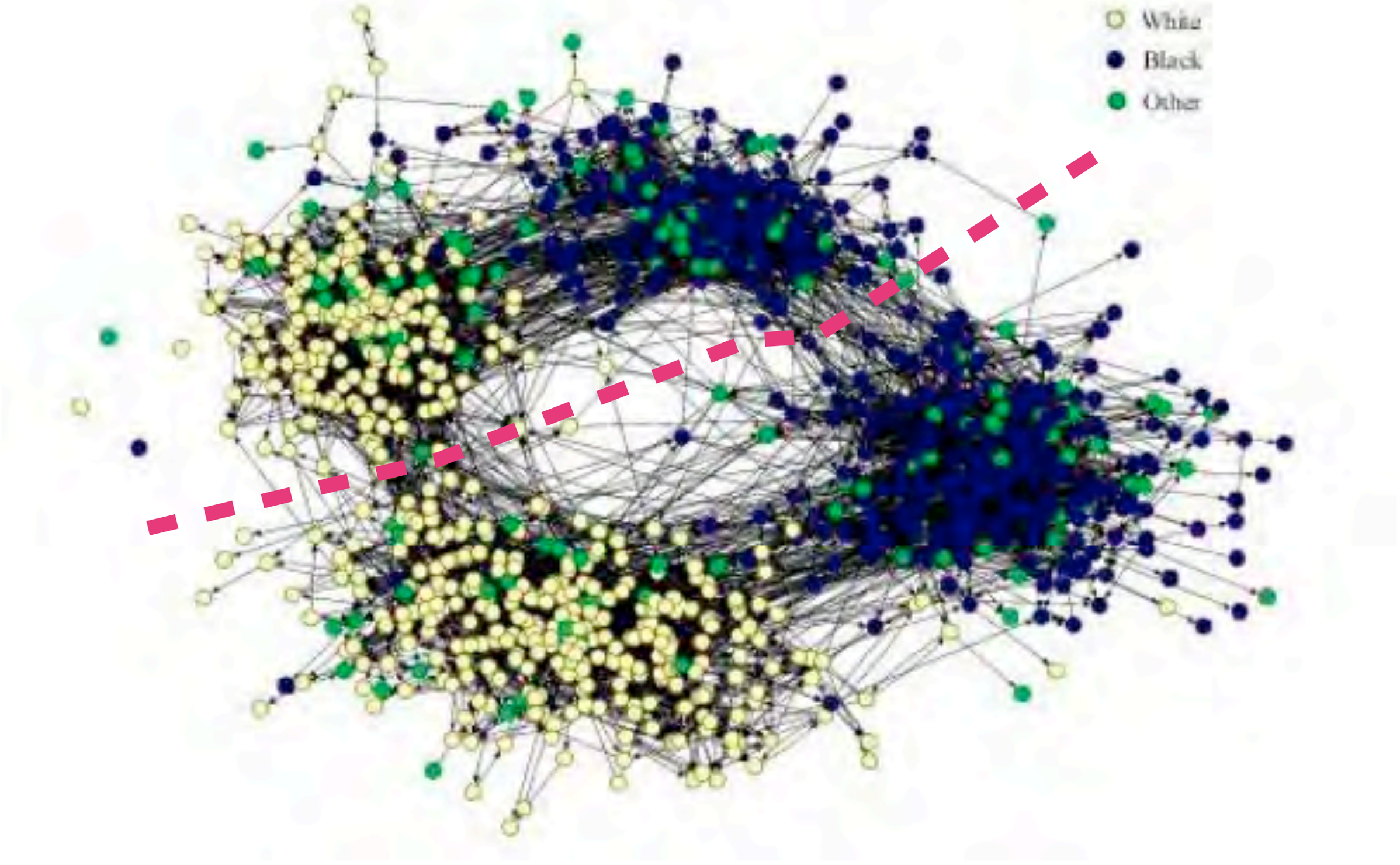

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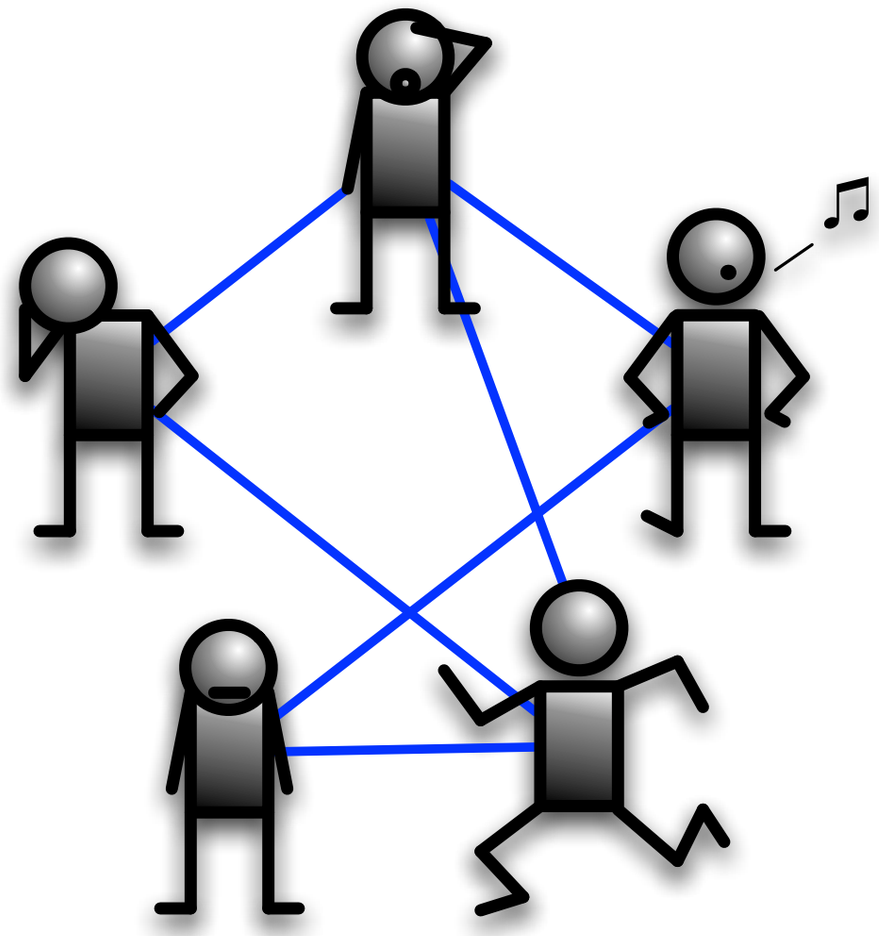
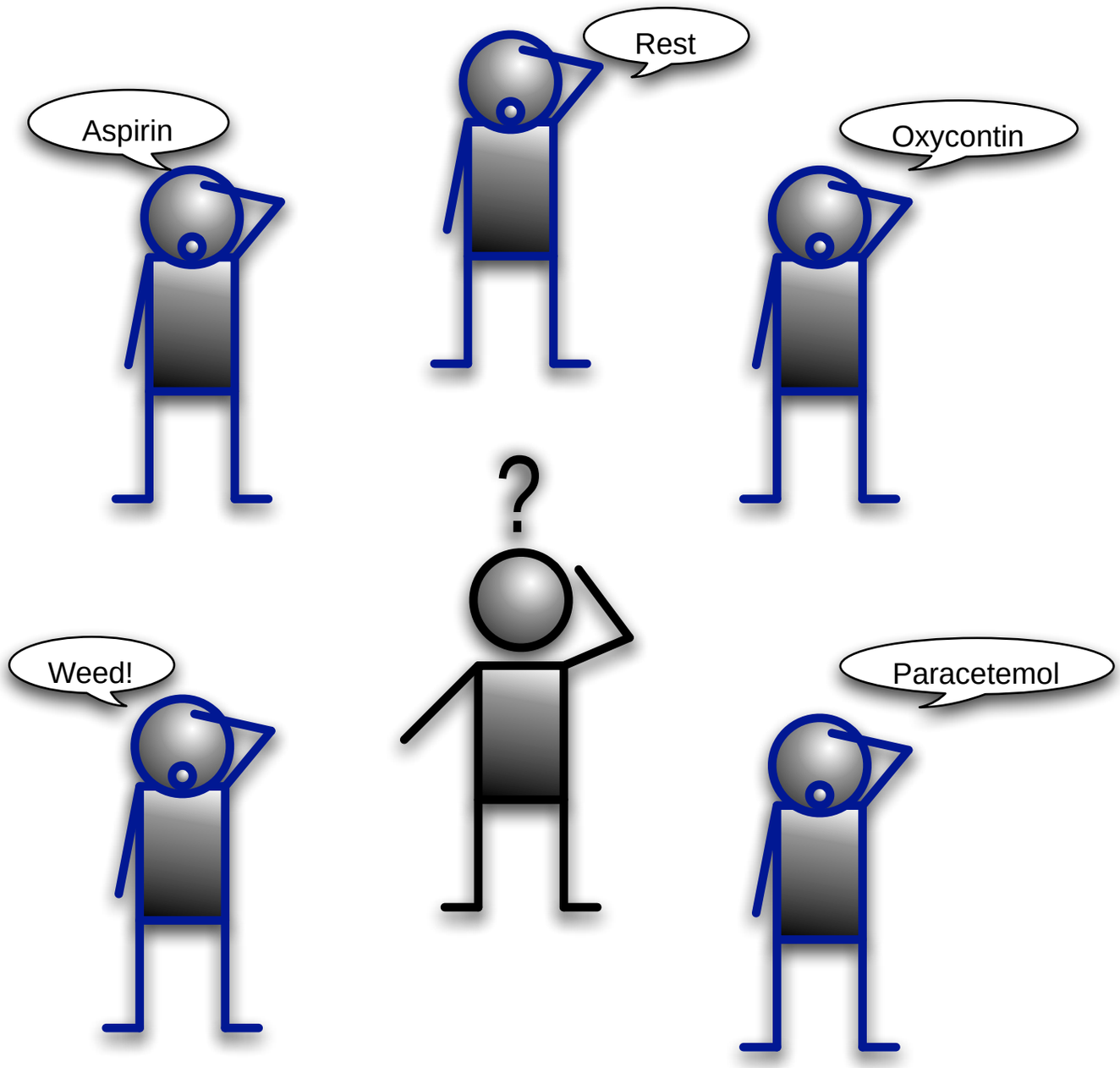
Different networks have different consequences

Issues with Networks I:

Standard social network analysis is done on nodes of like type. However, information is flows through multiple kinds of actors, all of whom are relevant to the individual



Issues with Networks II:



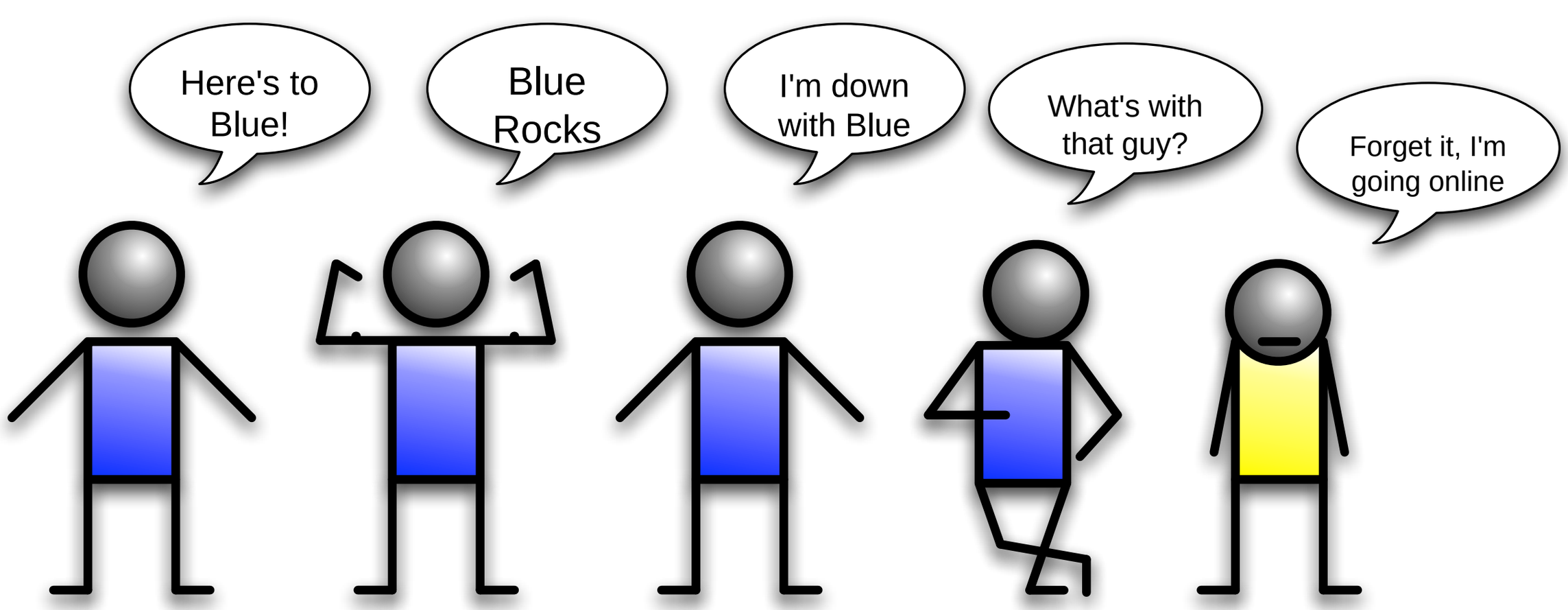
Even within the standard network paradigm, we frequently assume "the strength of weak ties" and the "value of variety", where accessing more information is useful.

Job hunting (the basis of SOWT) is different from health info.

Issues with Networks III:

Individuals coping with sensitive issues such stigmatized and uncommon illnesses may not find adequate support from otherwise dense, supportive networks.

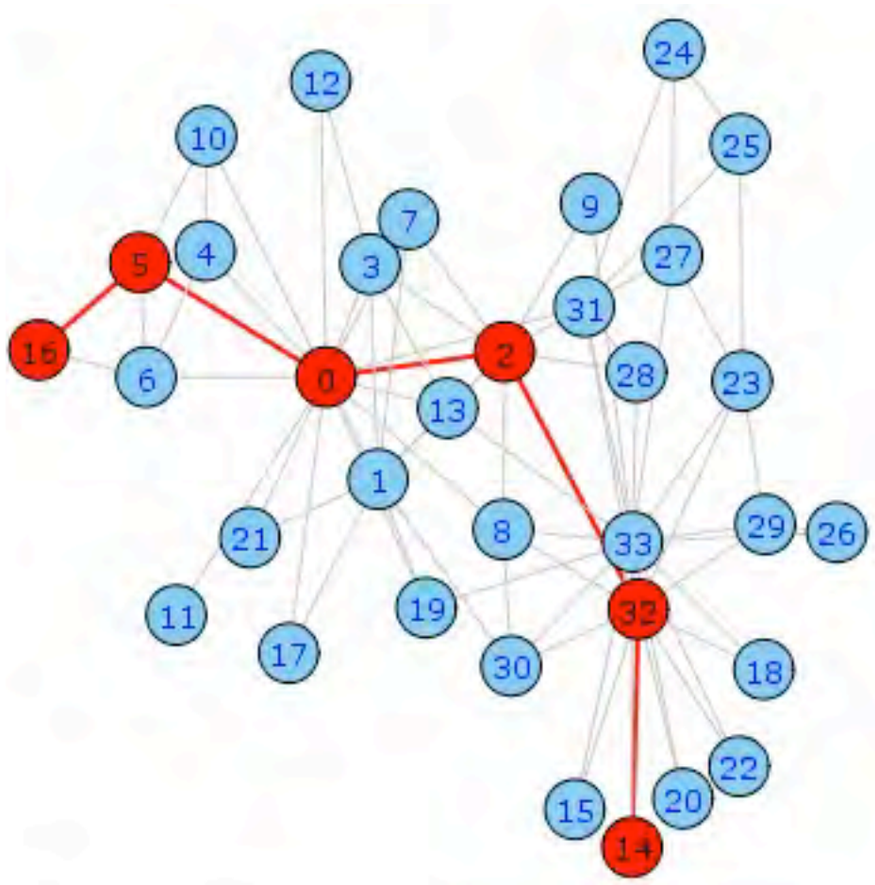
This depends on the nature of the network as much as the structure.



What kinds of networks facilitate **information seeking** for **Health** and **Medical Issues**?

Information seeking

- Information flows through and is contextualized by networks.
- However, Internet-based information is appealing because of availability, interactivity, anonymity and potential to transform relationships.
- Information influences relationships with self, health, medical professionals, network members.
- Not all information flows in the same way or to the same people.



Differentiating Health and Medical Information

Health information

- Information about the body and/or the self
- Historically devalued by medical expertise
- Includes: lifestyle, wellness, and self care
- Issues that require "care"

- Dense networks facilitate common health behaviour (good and bad)
- Diverse networks allow adoption of new health practices

Medical information

- Relegated to medical books and supplied by professionals
- Historically privileged as source of well-being.
- Includes: stigmatized concerns, mental health, chronic issues
- Issues that requires "treatment"

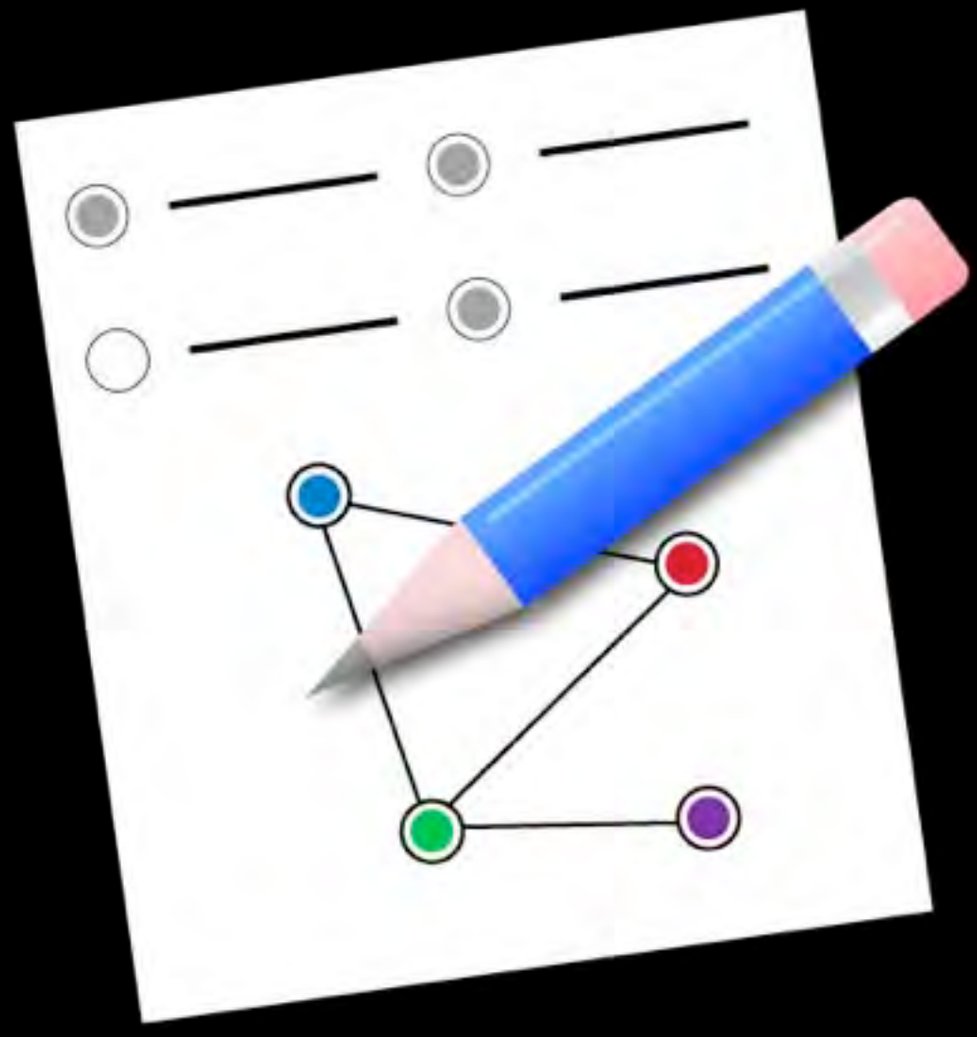
- Dense Networks of similar type support, of different type misunderstand
- Diverse networks allow local disclosure

Data: Connected Lives

- Multi-stage research project in Toronto (and Northern Ontario) investigating ICTs and sociability.
- Data comes from East York (Toronto) surveys and interviews.
- 350 households survey. Broadly comparable to census tract data.
- 25% convenience sub-sample (n=86) for interviews.
- Slightly older and less likely to be single than in the population at large.

Capturing Health Management

- Hours of Internet use (general, health-specific) *from survey*
- Health Assessment *from interview*
- Network Data *discussed above*
- Support data *via the network*



Results

"How would you classify your most recent health issue?"

Lifestyle: n=59	Chronic: n=11
Health score = 7.9	Health score = 6.6
Weight loss and exercise	Arthritis, diabetes, hepatitis C
0.7 hours (home) and 0.4 hours (work) online for information	**3.7** hours (home) and 0.5 hours (work) online for information
16 vc ties; 25 sc ties	18 vc ties; 22 sc ties
Acute: n=3	**Mental Health: n=7**
Health score = 9.3	Health score = 8
Heart surgery, cancer, dental issues	Depression, attention deficit disorder, anxiety
0 hours (home) and 0 hours (work) online for information	0.8 hours (home) and 0 hours (work) online for information
5 vc ties; 11 sc ties	11 vc ties; 10 sc ties

Searching for health information

"I'm sure I Googled it, cause that's become a verb now. I usually type in Canada; I would've put nutrition. … I remember searching for nutritionist information once and finding Ontario Canadian Website – I think Ontario Nutritionists…. (880)"

"you know probably Google or Merck Manual or something like that. You know if I have a medical condition that I know about and I just want more information about it, I would look online… (432)"

"Medical things I tend to look up myself, you don't want your friends to think you are a hypochondriac (366)"

Classification of Health Management Measures

Sick

- Health score
- Medical issue

Savvy

- Computer use
- Attitude

Solo

- Network characteristics

What happens if you’re all three (Sick, Savvy AND Solo)?

- Mr. Diabetes (343)
- Mr. Frostbite (561)
- Ms. Hep C (608)

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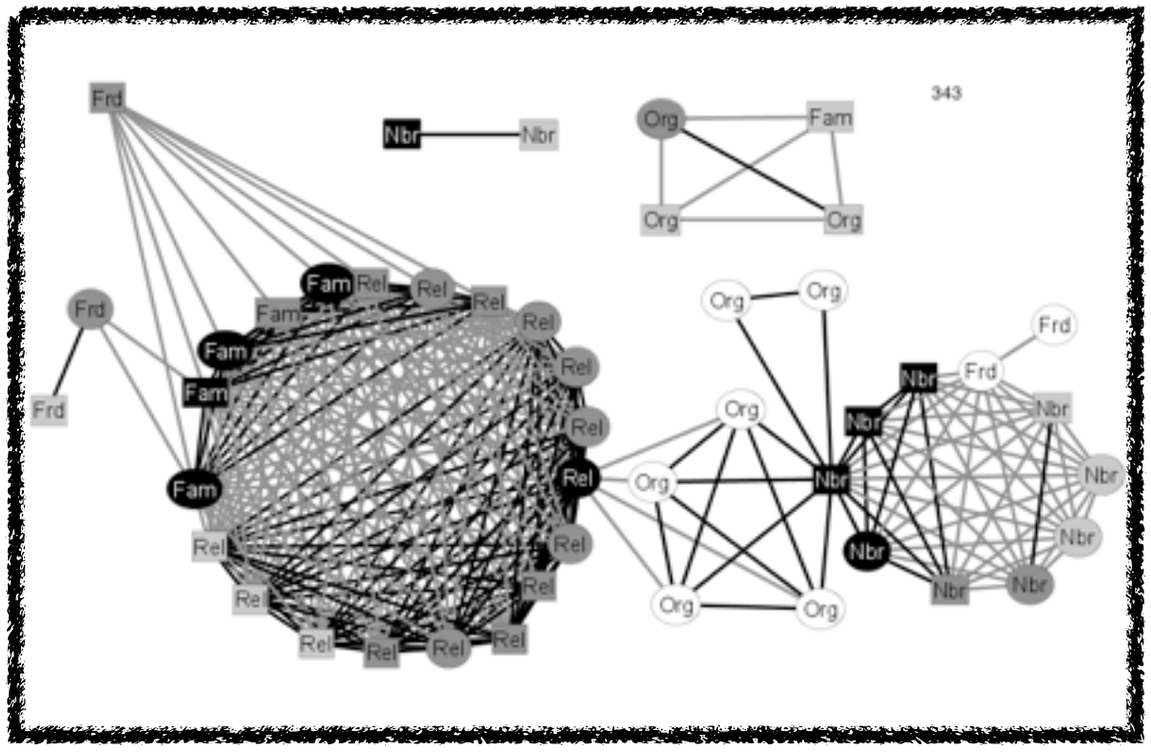

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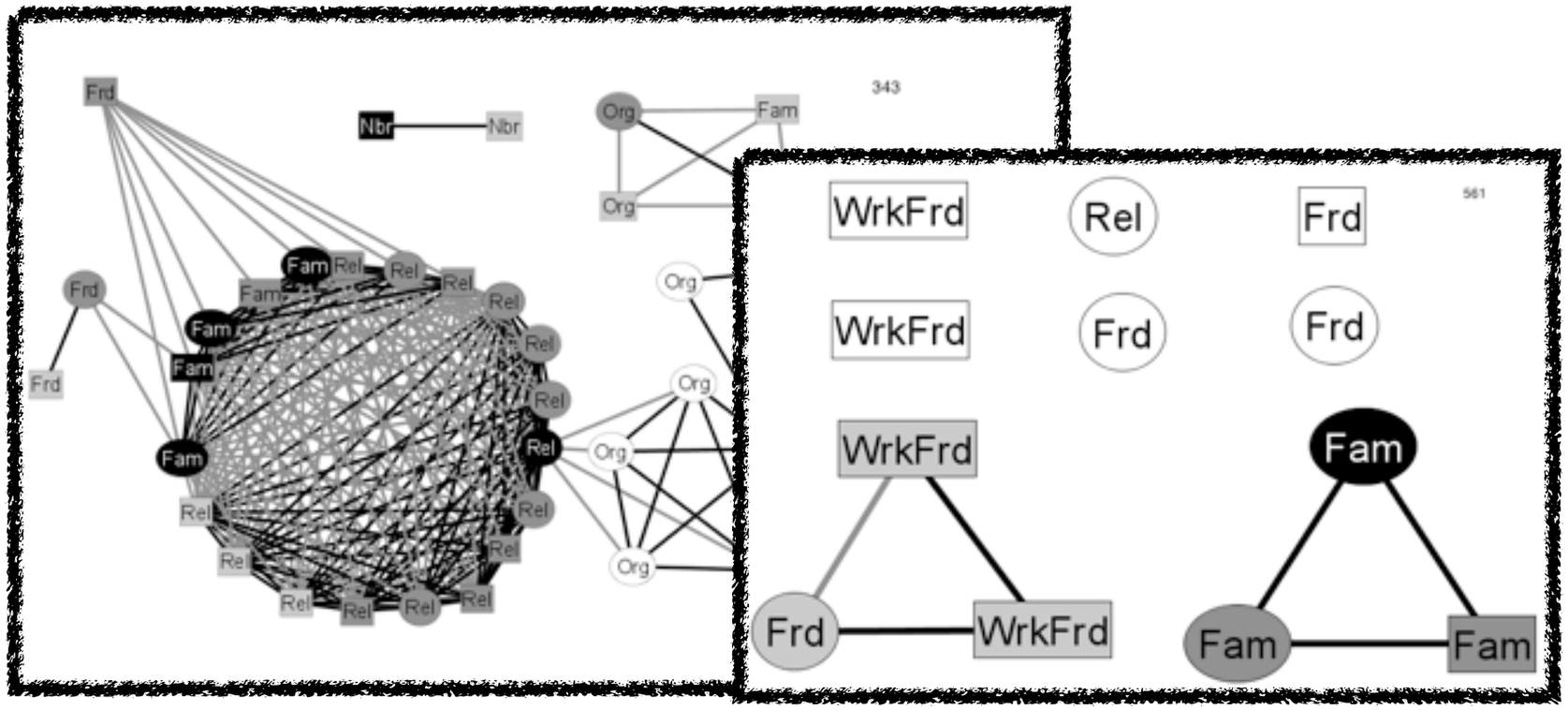

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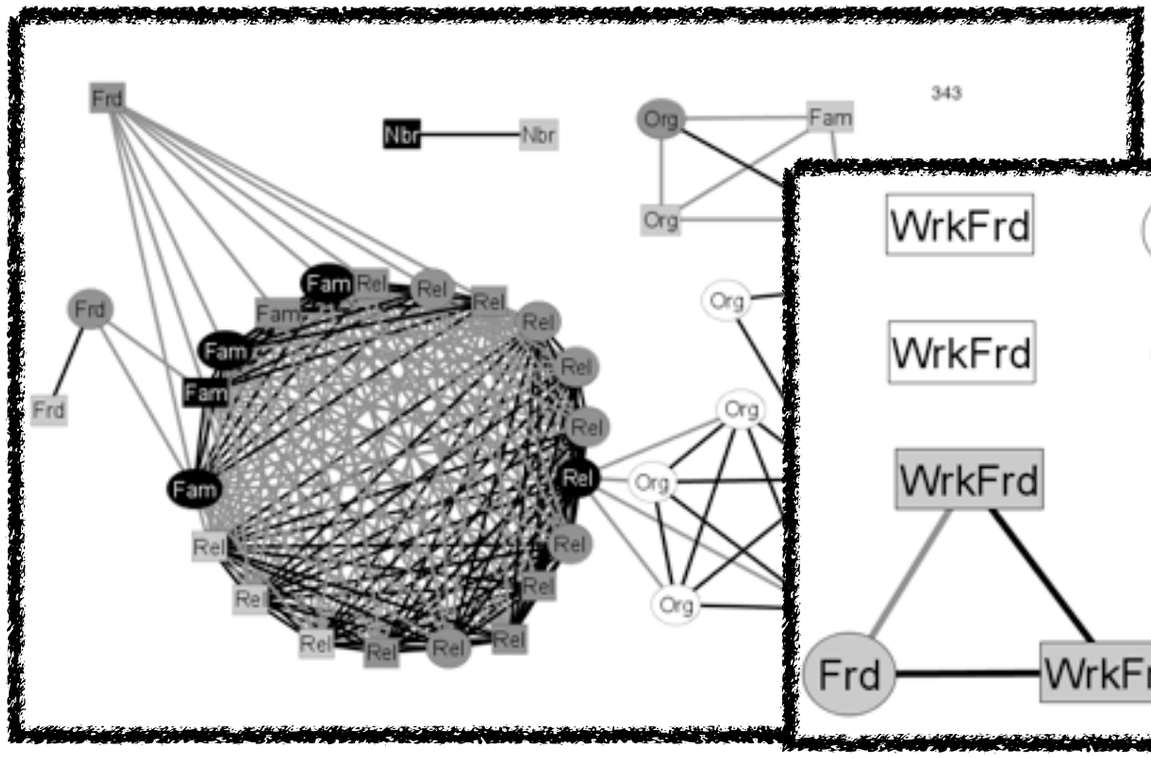

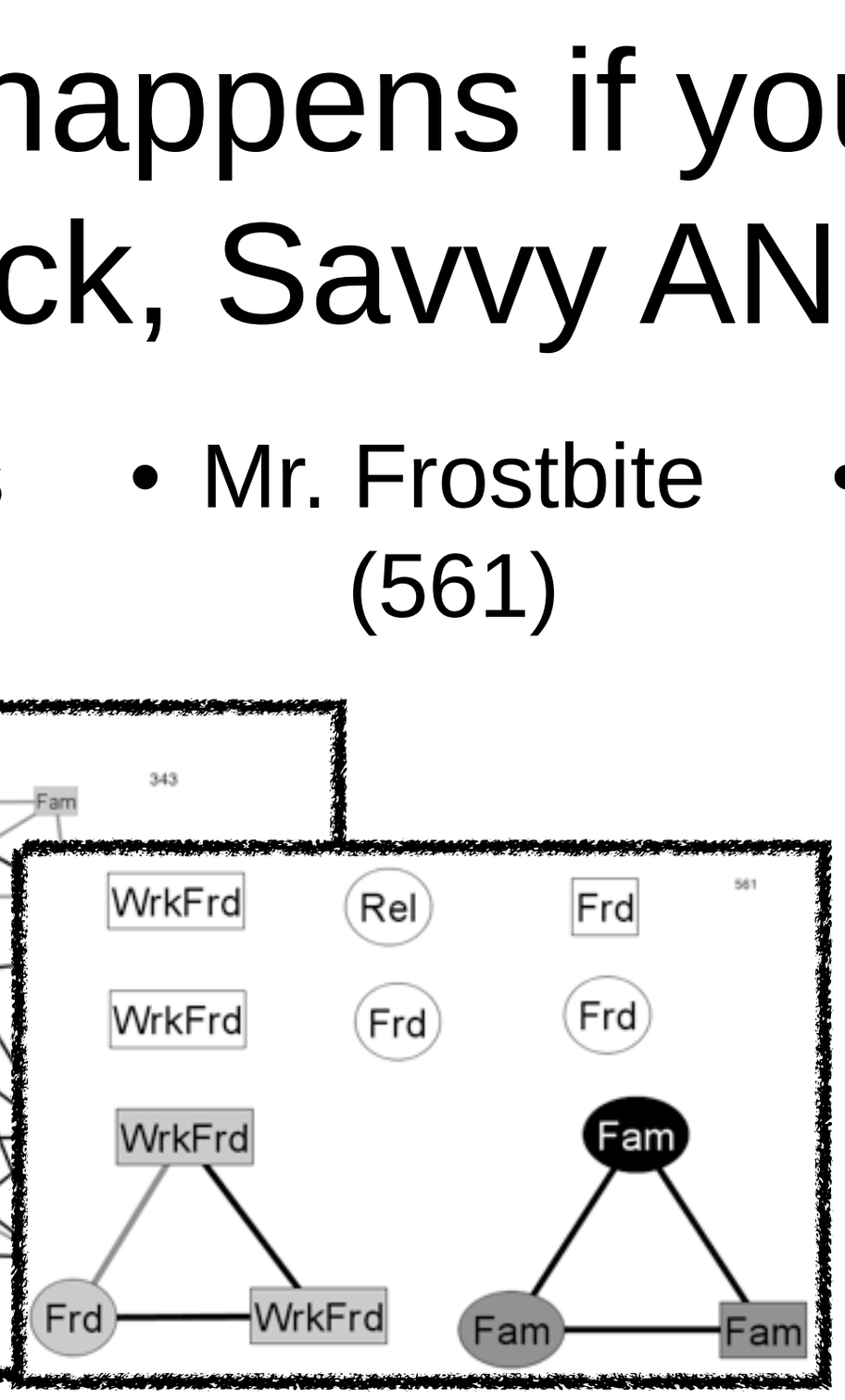

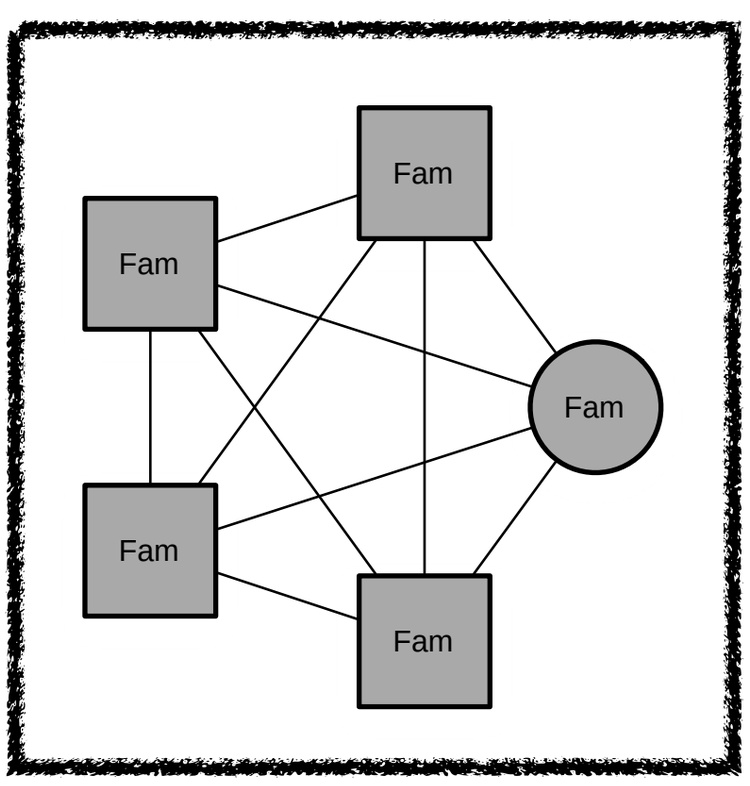

Mr. Diabetes (343)

- He is a 34 year old married civil engineer with 2 young children. Has been online since 1994 and uses his home based Internet computer about weekly. He searches for health information online and connects with others who have diabetes.
- “Because I’m diabetic, so I’ve visited seven or eight times Google. Then I write down the diabetic treatment.

Mr. Frostbite (561)

- He is a 42 year old married man with no children who moved to Canada within a year of the interview. He uses his Internet connected home computer about daily.
- “I was just clicking on the condition, a search, and then narrowing the search, until I found a forum. Forums with people, because you find a tht a professional or a doctor, his terminology aren’t the type of terms I might use”

Ms. Hep C (608)

- She is a 58 year old woman, married no children. Lived in Canada 8 years, moved from US for better medical system. Uses the Internet about daily and has been online since 2002.
- Her management of a chronic health issues involved doing research online and contributing to an international database. She wants to know as much as possible and has professional mechanisms for trusting the sources and treatment options.
- “I would go to any FDA site where they’re doing research and start in clinical trials and then from there you get your key words again”

“Who in your network do you go to for health information?”

10% of those interviewed do not mention a network member that can provide information

42% of that 10% mention an external source, either their doctor, or the Internet

25% of total sample mention someone outside of their network, either a doctor or the Internet

Summarizing the analysis

- Information flows through networks and media in different ways. Medical and health information are sought out in ***different ways***.
- People can ***add to their*** ‘information gathering network’ from those outside the personal network when necessary.
- The Internet itself is considered a ***unique social tie*** that brings with it support and information. This is especially the case for medical information.
- This means we should expect different kinds of social media to facilitate different kinds of information flows, and one network (or online network site) ***will not fit all***.

Summarizing network techniques

- What we learn about social structure will depend on the technique and the type of relationships analyzed.
  - –Some network types:
    - Whole, partial,ego-centered
  - –Some relation types:
    - cognitive, trace, articulated
- Networks can show clusters of activity, prominent actors and flows of information

Final thoughts

- Different network structures yield different outcomes and different needs.
- In health, these needs can refer to lifestyle/ wellness and medical information
- Some people use media as a compliment to their personal network, others use it as an alternative.
- We should match the network to the need, rather than assume we need a network.

Thank You

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