A network diagram with nodes and edges, overlaid on a pink geometric pattern.

DCS/CSCI 2350:
Social & Economic
Networks

*Are the nodes linked to each
other kind of the same?*

Homophily


Reading: Ch 4 of EK

Mohammad T. Irfan

1

Homophily

- What is it?
- How to measure it?
- How does it happen?
- Can we use it for something good?

A vertical network diagram with nodes and edges, overlaid on a pink geometric pattern.

2

What is homophily?

Principle that "We are like our friends"

- Age
- Place of living
- Occupation
- Income
- Interests
- Beliefs
- Opinions

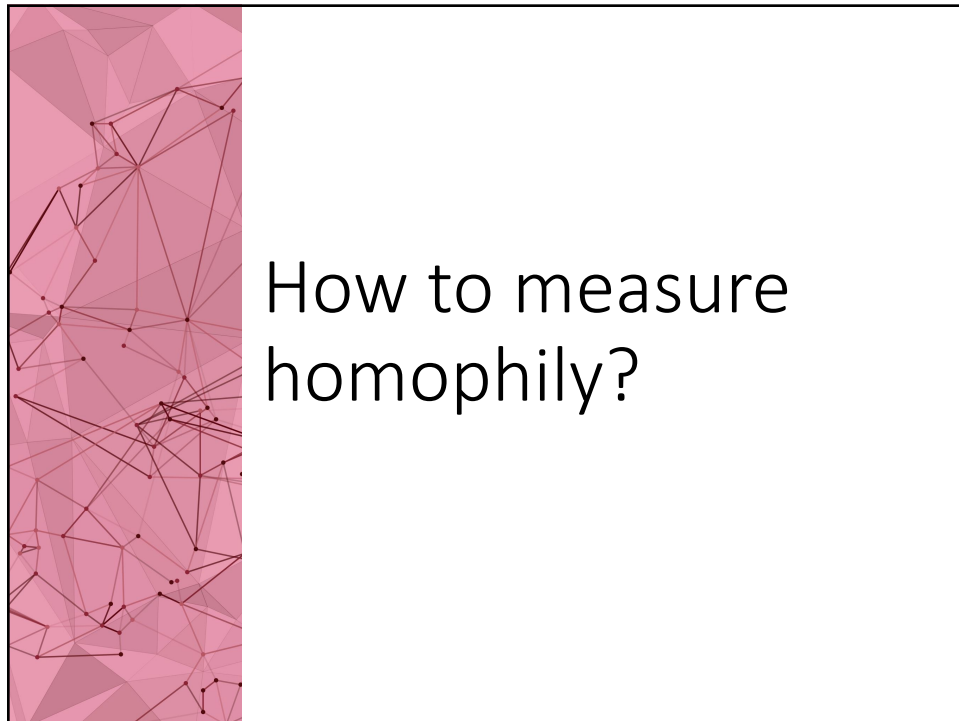
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What is homophily?

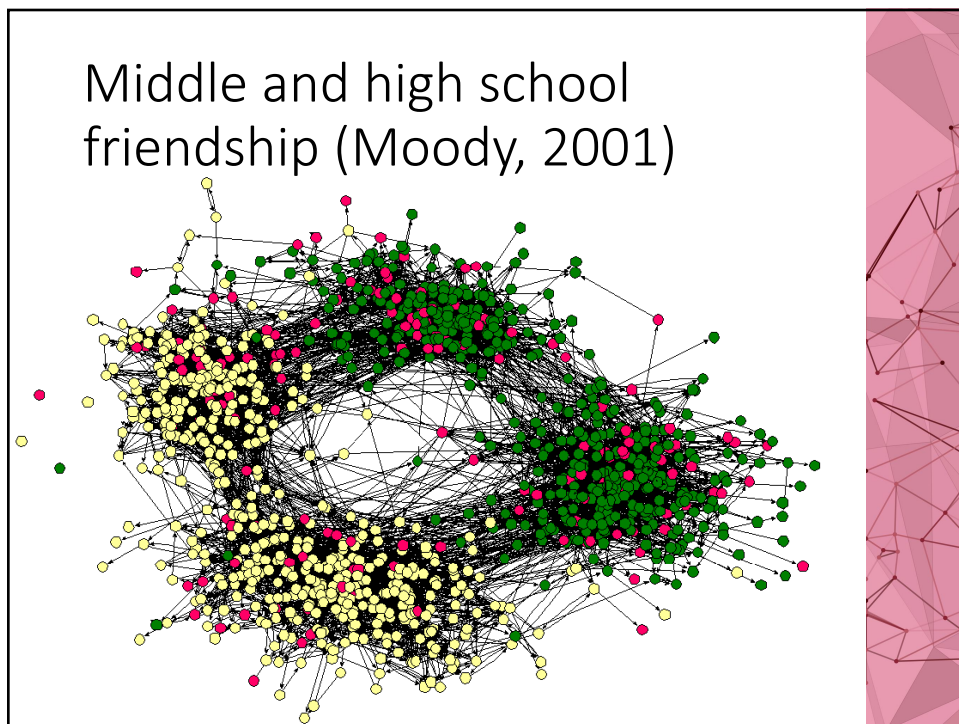
Deeper meaning

- Intrinsic vs contextual link formation


4



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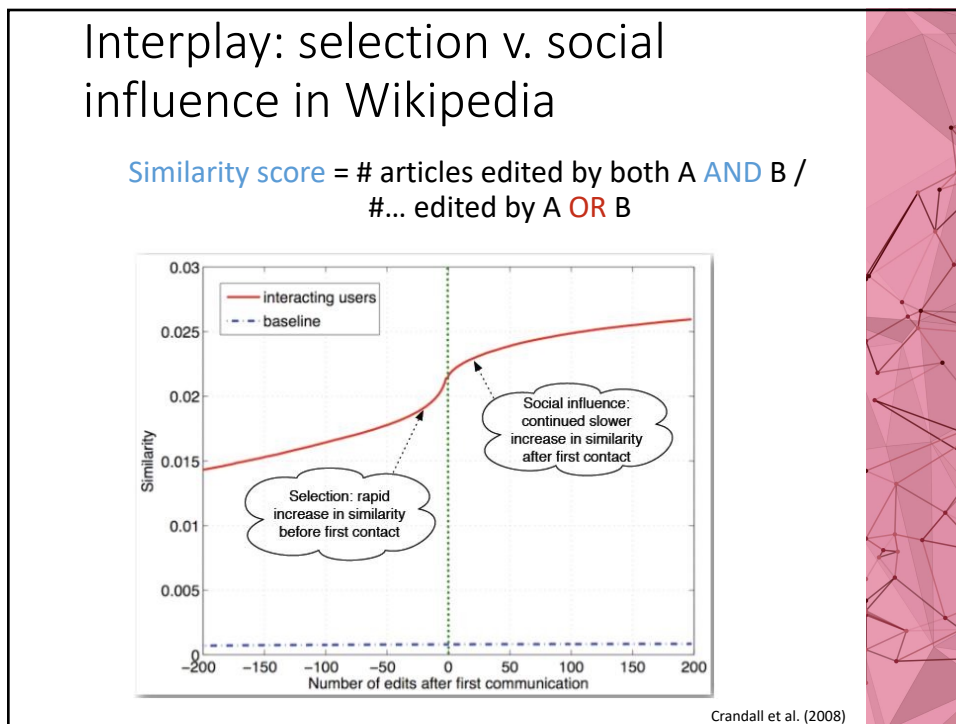


How does homophily happen?

Mechanisms of homophily

1. Selection
2. Social influence

7



8

Example

Teenage drug usage

Selection or social influence?

Cohen & Kandel (1977)

9

Network effect and intervention

- Goal
 - Change the behavior of a few nodes so that they influence many others to change as well
- Need: social influence

10

Other topics on context in network

- Affiliation network [OPTIONAL]

11



Can we “use”
homophily for
something good?

12

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THE TIMES MAGAZINE T MAGAZINE KEY PLAY

Are Your Friends Making You Fat?

By CLIVE THOMPSON
Published: September 10, 2009

EILEEN BELLOLI KEEPS very good track of her friends. Belloli, who is 74, was born in Framingham, Mass., which is where she met her future husband, Joseph, when they were both toddlers. ("I tripped her and made her cry," recalls Joseph, a laconic and beanpole-tall 76-year-old.) The Bellolis never left Framingham, a comfortable, middle-class town 25 miles west of Boston — he became a carpenter and, later, a state industrial-safety official; and after raising four children, she taught biology at a middle school. Many of her friends from grade school never left Framingham, either, so after 60 years, she still sees a half dozen of them every six weeks.

I visited the Bellolis at their home in Framingham last month, and when I asked Eileen about her old friends, she jumped up from her rose-colored rocking chair, ran to her cabinet and pulled down a binder filled with class photos and pictures from her school reunions. Every five years, she told me, she helps organize a reunion, and each time they manage to collect a group of about 30 students she has known since elementary and junior high school. She opened the binder and flipped through the pictures, each one carefully labeled with a name on the back. (The

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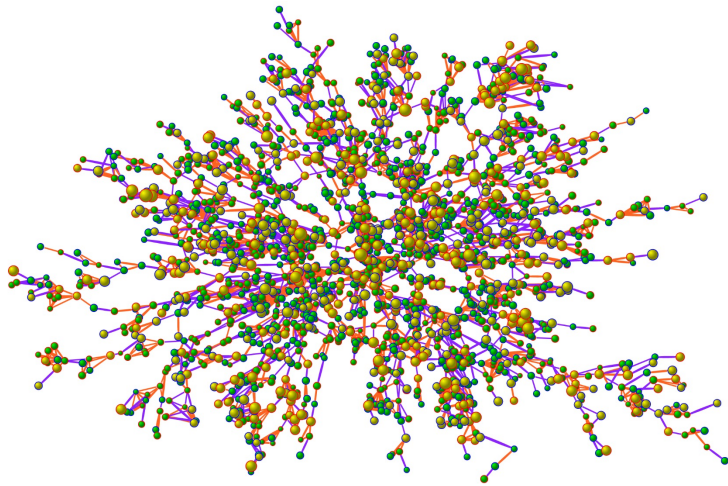
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Christakis & Fowler (2007): Obesity

Strong evidence of social influence in 32 years of data



15

The New York Times **Science**

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ENVIRONMENT SPACE & COSMOS


Study Finds Big Social Factor in Quitting Smoking

By GINA KOLATA
Published: May 22, 2008

For years, smokers have been exhorted to take the initiative and quit: use a [nicotine](#) patch, chew nicotine gum, take a prescription medication that can help, call a help line, just say no. But a new study finds that stopping is seldom an individual decision.

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Oscar Hidalgo/The New York Times

Bonifacio Torres enjoys a cigarette alone in New York, but many smokers find they give up smoking as part of a group.

Multimedia

Smokers tend to quit in groups, the study finds, which means [smoking cessation](#) programs should work best if they focus on groups rather than individuals. It also means that people may help many more than just themselves by quitting: quitting can have a ripple effect prompting an entire social network to break the habit.

The study, by Dr. Nicholas Christakis of Harvard Medical School and James Fowler of the University of California, San Diego, followed thousands of smokers and nonsmokers for 32 years, from 1971 until 2003, studying them as part of a large network of relatives, co-workers, neighbors, friends and friends of friends.

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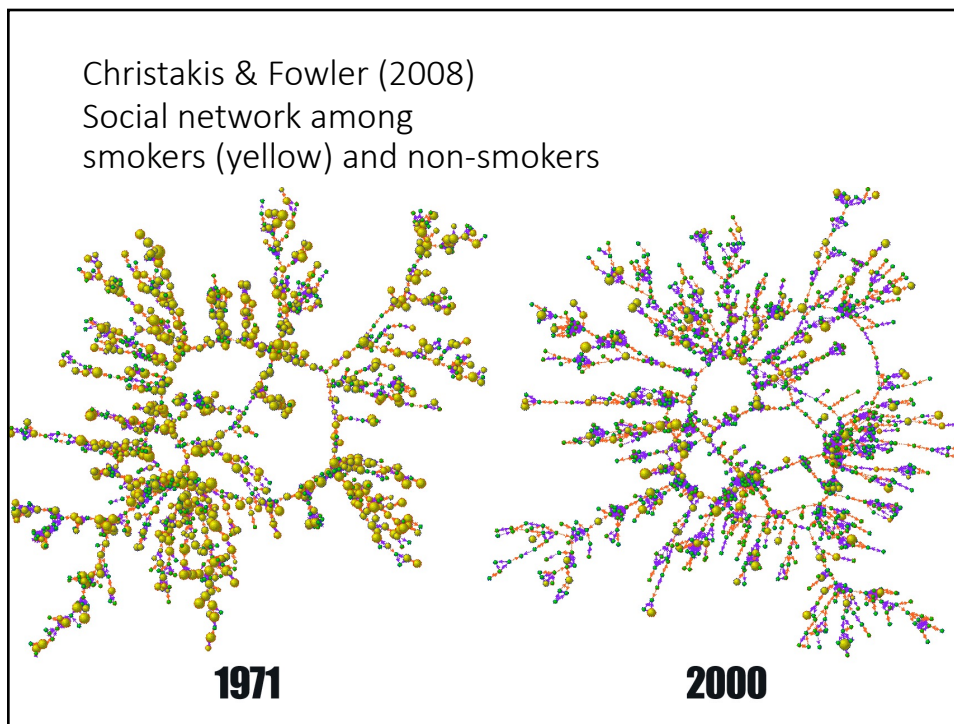
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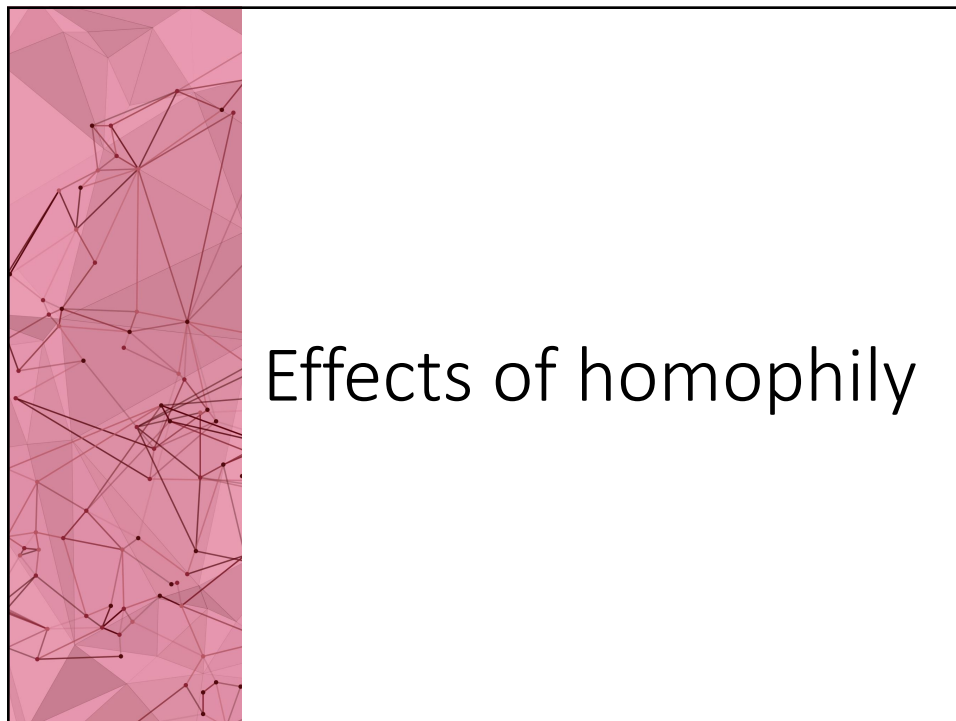
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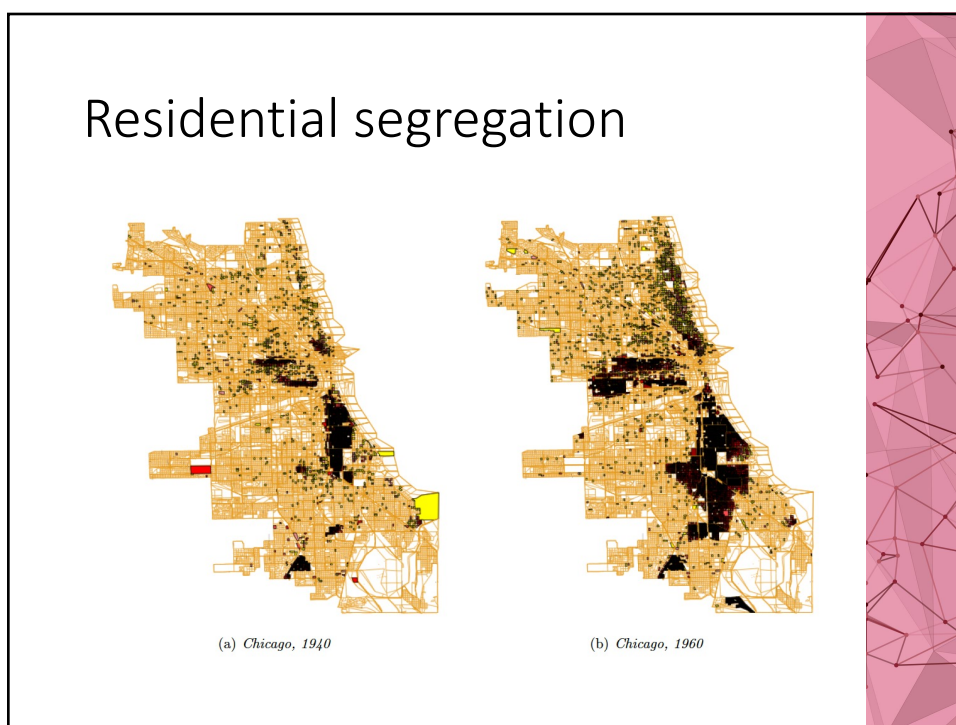
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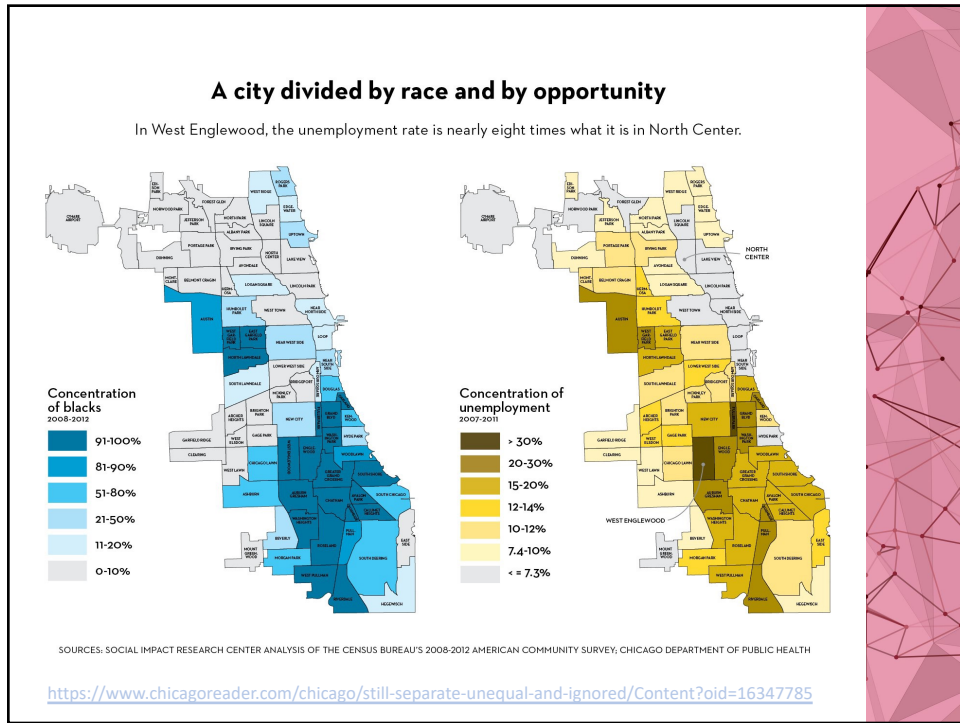
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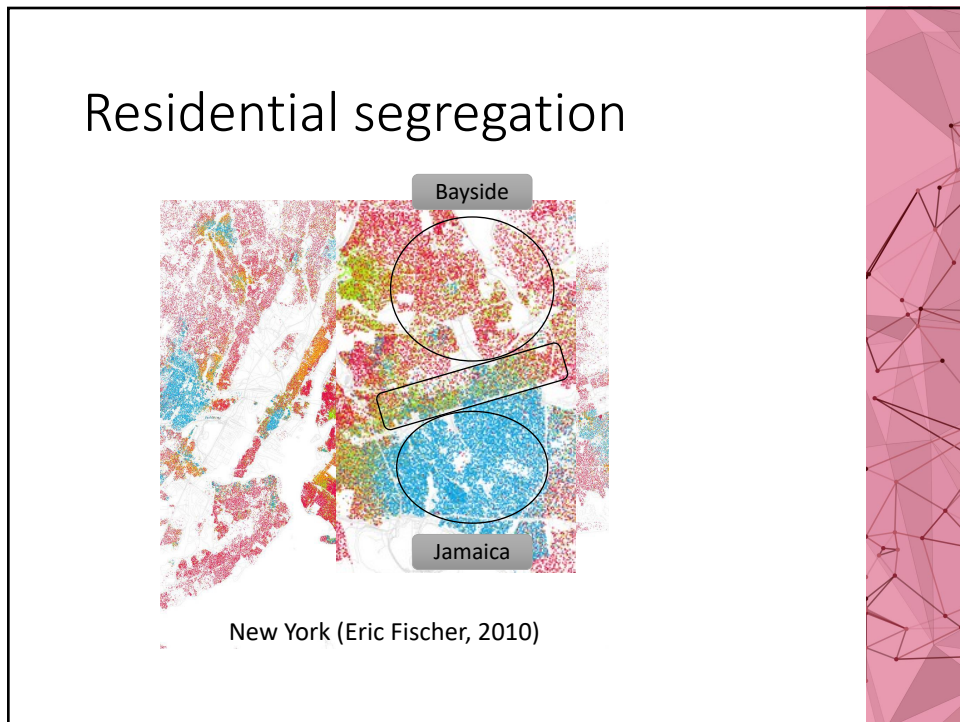
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