

CS-103 Road Map

- Today
 - Lab project part one due tonight 11:59pm
- Wed Dec 6
 - Return HW7, HW9
 - Course evaluations
- Fri Dec 8: No Lecture
- Mon Dec 11
 - Return HW10, Quiz 2
 - HW11 due 11:59pm
 - Lab project part two due 11:59pm

Quiz 2 Review

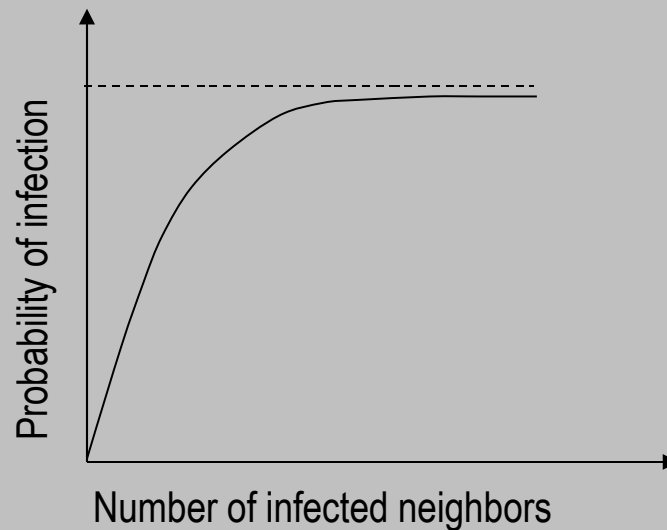
- Discuss how epidemics behave differently depending on whether a population is connected in a period lattice or small world network. Include a specific example of an infection (biological or social) and example networks that illustrate the difference between periodic lattices and small world networks.
- Extra Credit: Explain why percolation theory is a good way to model computer viruses

Biological vs Social Epidemics

- We usually try to prevent biological epidemics, and try to promote social ones
- Effect of number of infected neighbors is also different

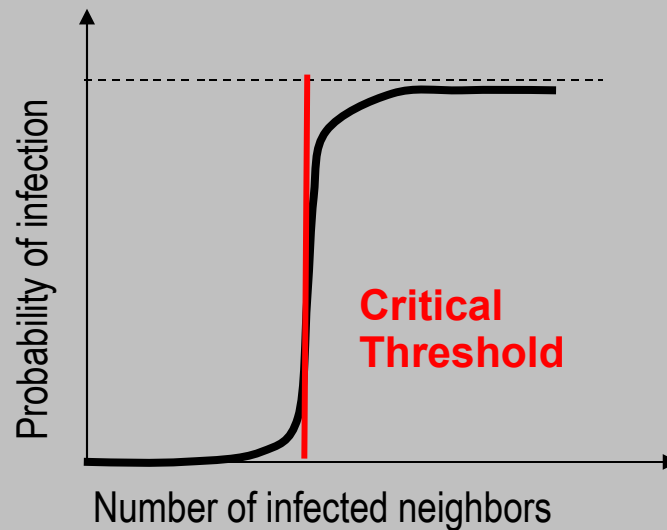
Biological vs Social Epidemics

- Biological: with each new infected neighbor, a susceptible individual is more likely to become infected



Biological vs Social Epidemics

- Social: the first few infected neighbors have no visible effect on a susceptible individual, until # infected neighbors crosses *critical threshold*



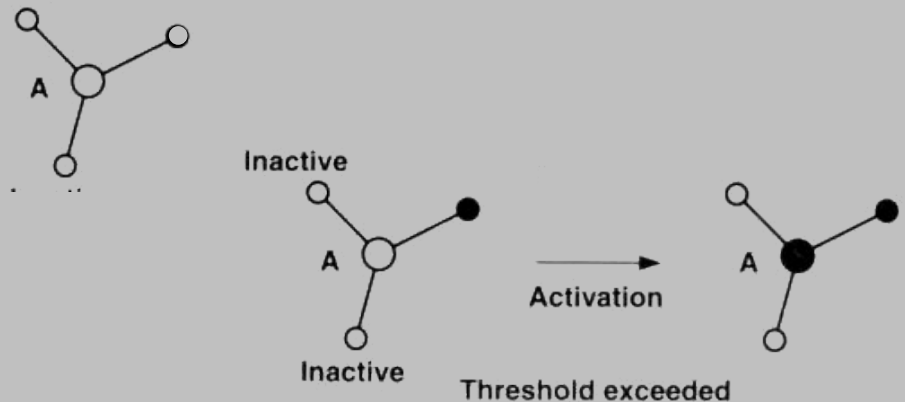
Social Epidemics and Critical Thresholds

- Critical threshold value comes from different kinds of externalities
 - Information
 - Coercive
 - Market
 - Coordination
- Different nodes have different critical thresholds
 - Early adopters
 - Regular folks
 - Old-fashioned stalwarts

Vulnerable Nodes

- ***Vulnerable*** node will be infected if just one more of its neighbors is infected
 - Could be early adopter
 - Could be surrounded by infectives
- Nodes that are not vulnerable are ***stable***

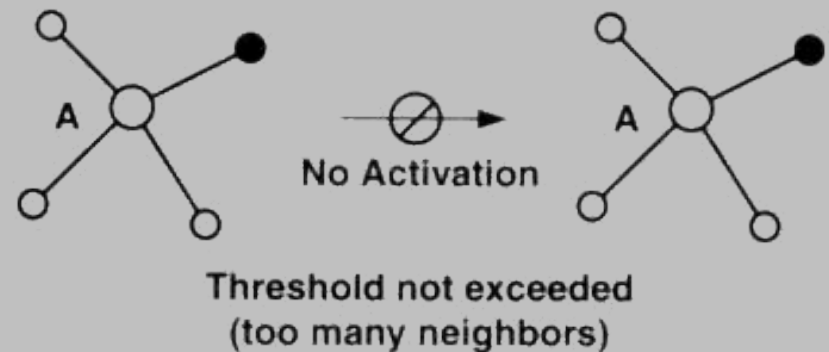
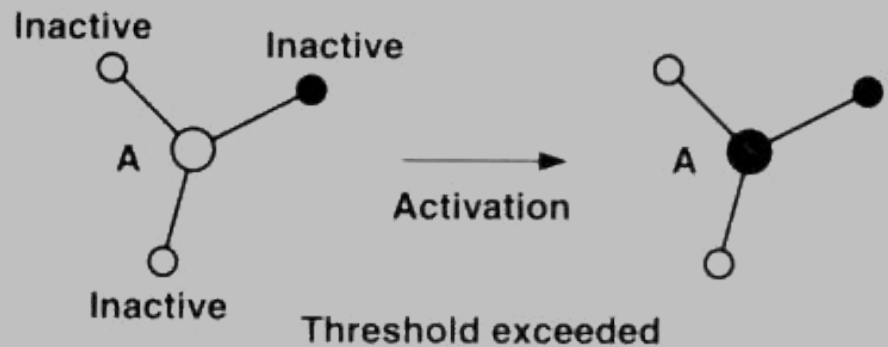
- Example:
vulnerable node
with threshold $1/3$



Activation Threshold

Example:

Threshold = $1/3$

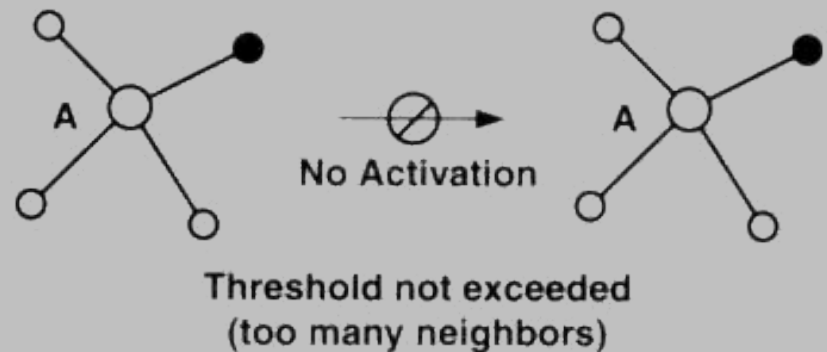
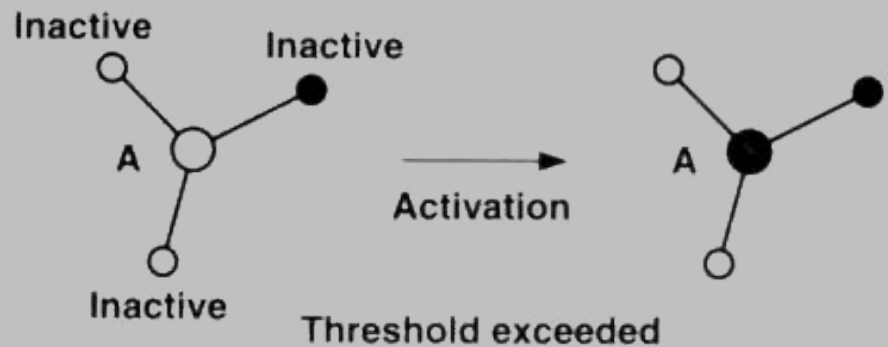


Activation Threshold

Example:

Threshold = $1/3$

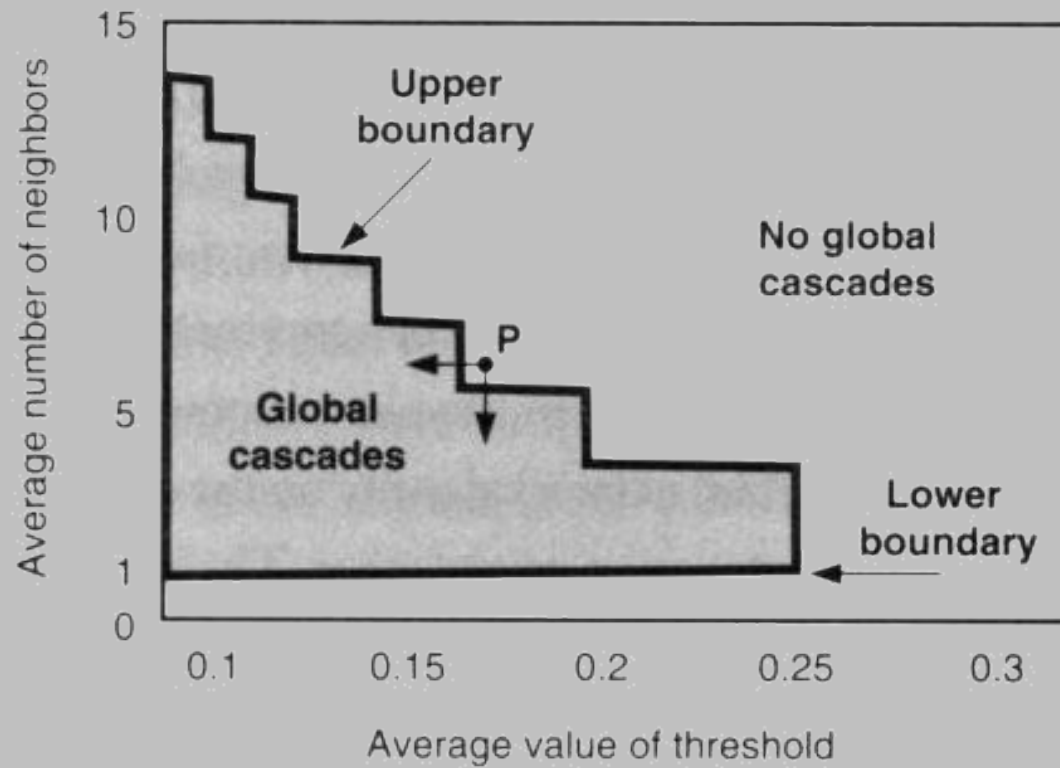
**What would happen
in biological epidemic?**



Key Point

- Because of externalities, nodes with many neighbors are more likely to be stable (less likely to be vulnerable, less likely to change) in a social epidemic

Global Cascades



HW11: Due Mon Dec 11

- Part One: Blog recommendations

Boston University CAS CS-103 | HW11

[Home](#) [Edit page](#) [New page](#) [Comments](#) [Files](#) [Log out](#) [Add features](#) [Settings](#) [Help](#)

Which blogs are recommended by each of the students in CS-103? See below. This list is initially nothing but a list of "Last_Name recommends...". For HW11 it is your job to add **at least three** of your classmate's blogs to your (initially empty) list of recommendations. In order to do this, you must first register on PBWiki.

When you add a blog to your list of recommendations, please follow these steps:

1. Edit this very wiki page
2. Go to the row with your name at the start
3. At the end of your row, add a link to the URL of the blog you are recommending. (Order within your row does not matter; and your list may grow longer than can fit in one line of the screen.)
4. The label of the link (text appearing on screen) should be the last name of the author of the blog you are recommending

Please **Do not edit anyone's recommendation list but your own** and **Do not recommend any blogs other than CS-103 blogs**. Note that all the CS-103 blogs and last names of students are already provided for you in the initial content of this page.

On Monday Dec 11 in lecture, we will see whose blog has the most *incoming* recommendations. That person will be awarded a free homework drop. Ties will be broken by maximum number of *outgoing* recommendations.

[Aleksi](#) recommends
[Amin](#) recommends
[Baranski](#) recommends
[Barber](#) recommends
[Bizarro](#) recommends
[Bliss](#) recommends
[Chin](#) recommends
[Cicarella](#) recommends

QuickStart **Recent Activity** **SideBar**

- [Create a new page](#)
 - Create a classroom
 - Create a syllabus
 - Create a group project
 - Use another template
- [Take a tour](#) [\[edit\]](#)

HW11: Due Mon Dec 11

- Part One: Blog recommendations
- Part Two:

Consider “social epidemics” as we explored them in HW9 (also called “information cascades” in *Six Degrees*).

Use of the Internet is one of the most explosive social epidemics in American history—second only to color TV in the speed with which American homes adopted it.

Do you think that America’s use of the Internet makes it (1) easier, or (2) harder, for new social epidemics to occur in this country, in comparison to before the Internet was popular?

Choose a position and write a short essay supporting your position. Your essay will be graded based on having:

1. A clear and well-founded argument, including acknowledgement of possible arguments for the opposing viewpoint and rationale for your choice in the face of these counter-arguments
2. Concepts from our class lectures and discussions about the **social web**, **epidemics**, and **externalities**