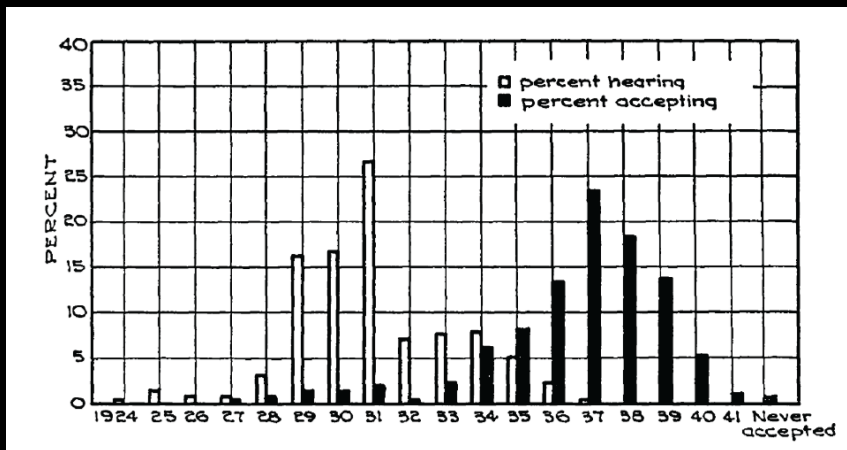


15-396

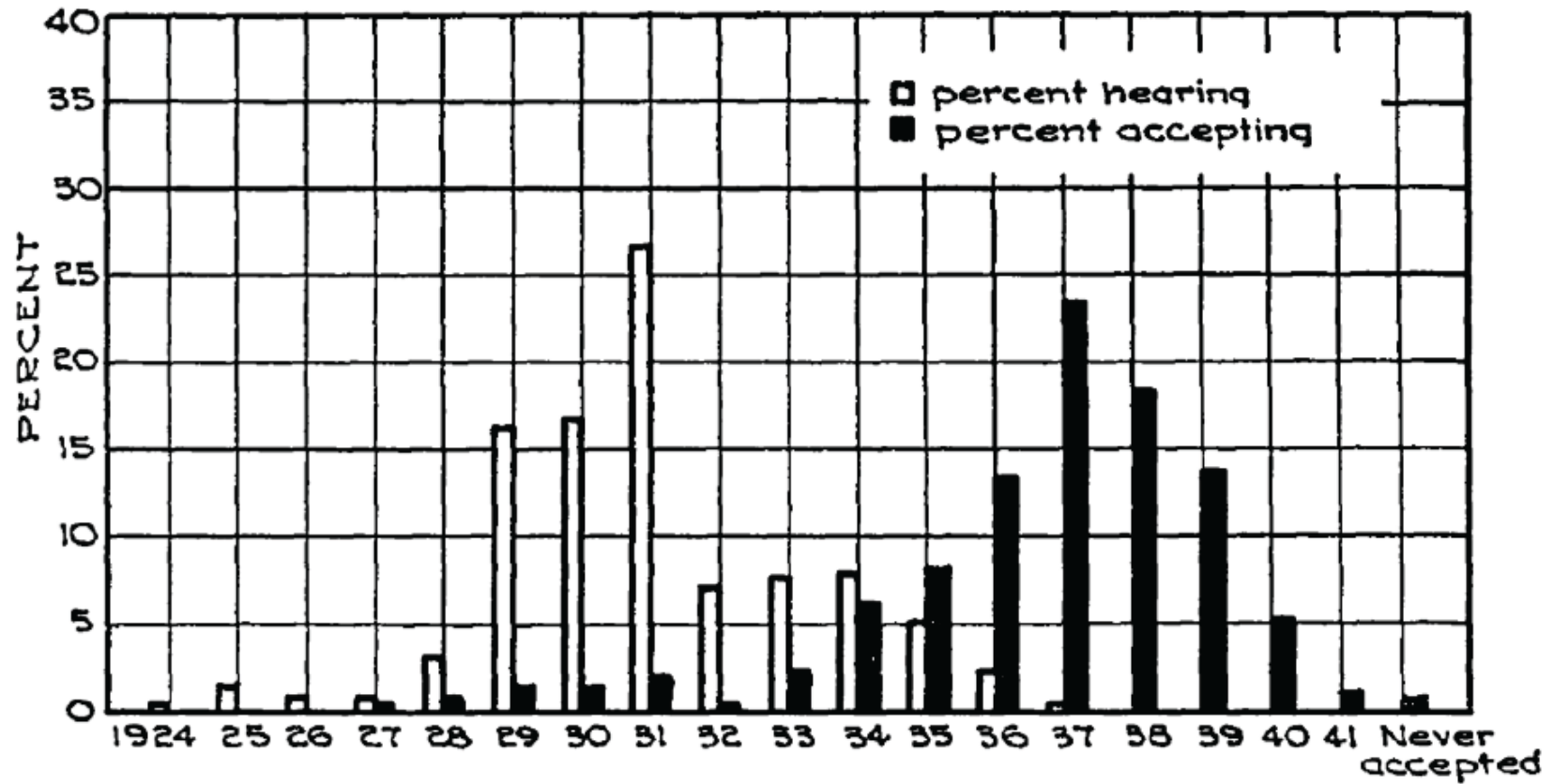
Science of teh Interwebs

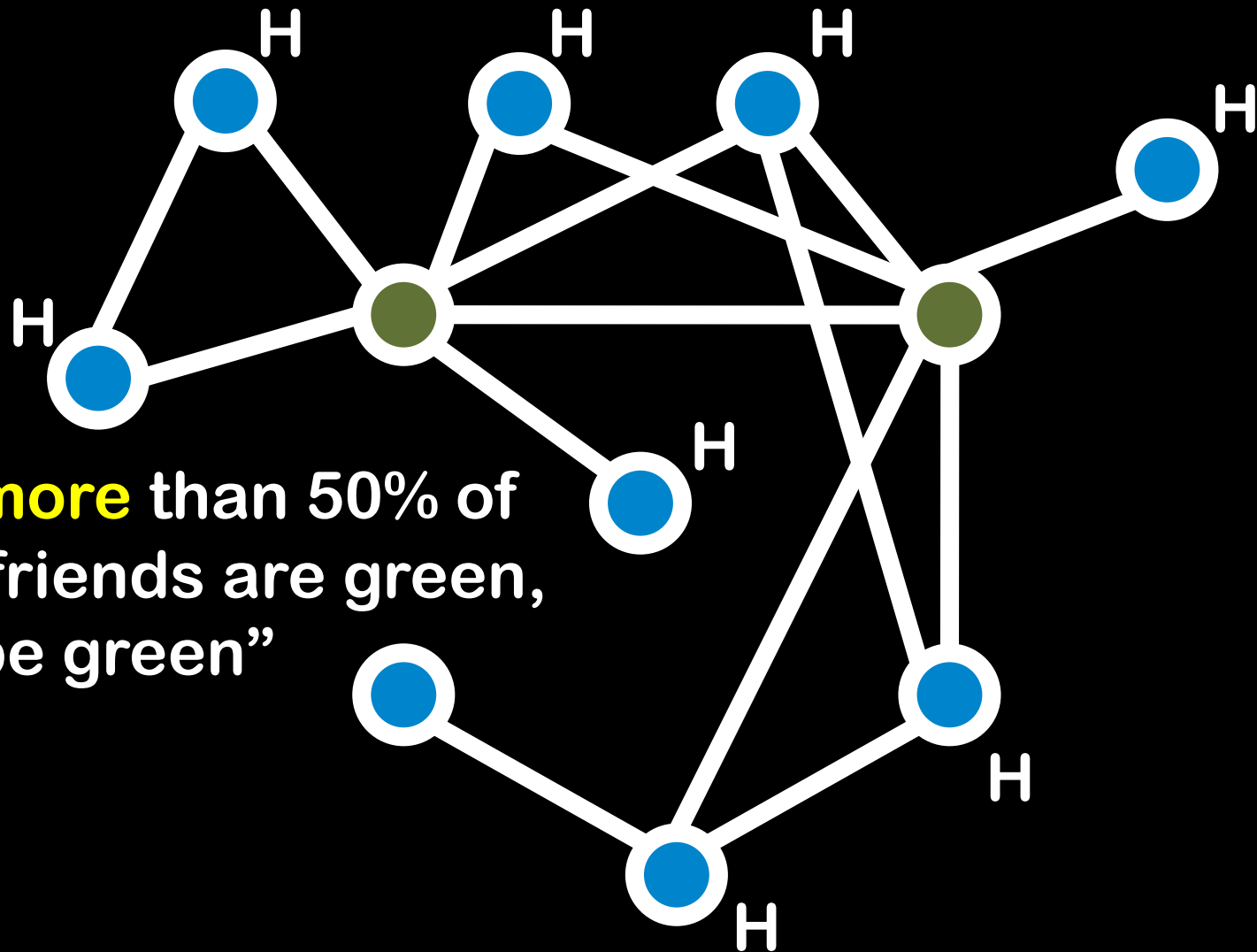
Thresholds and Collective Action

Lecture 7 (September 20, 2011)



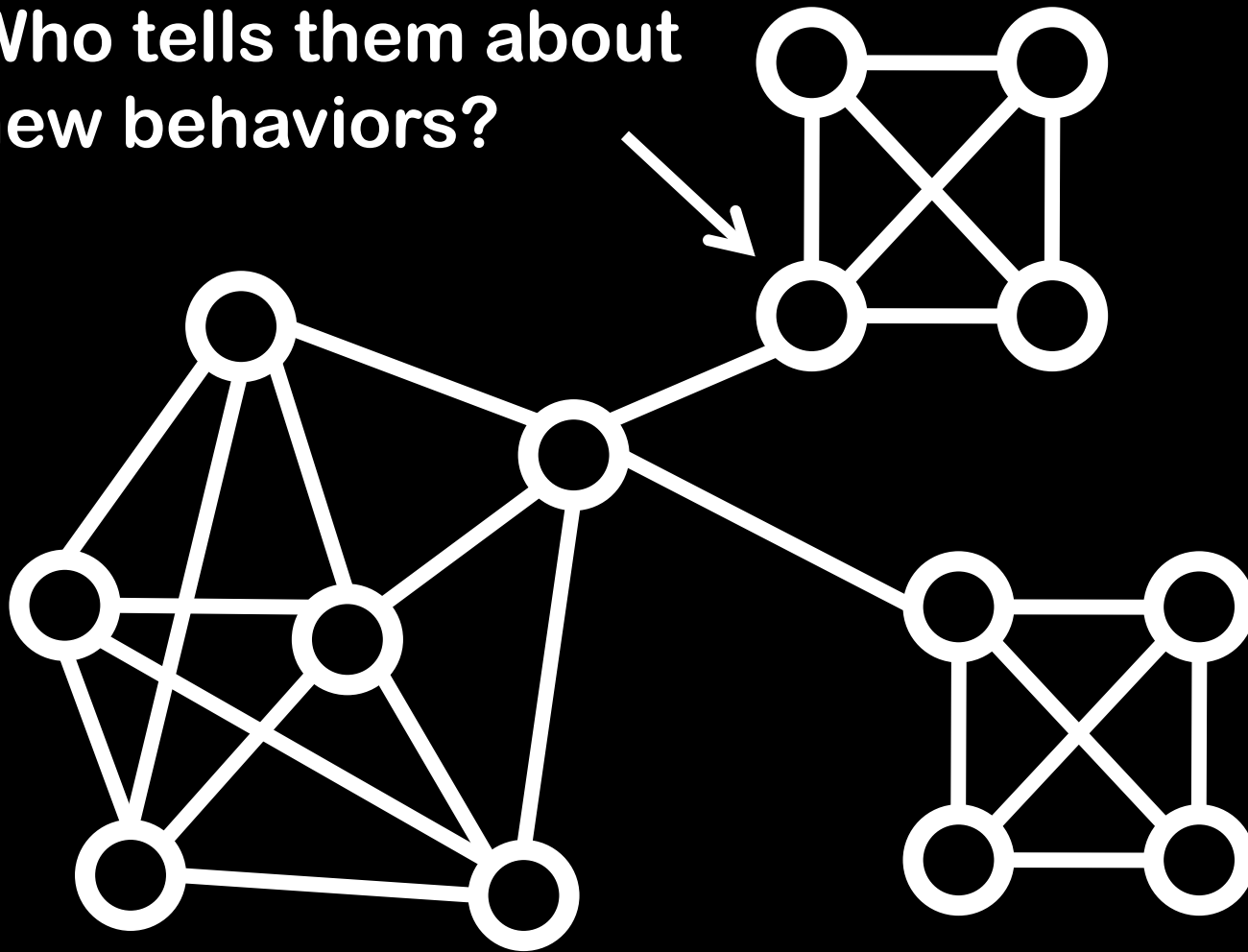
Hybrid Corn



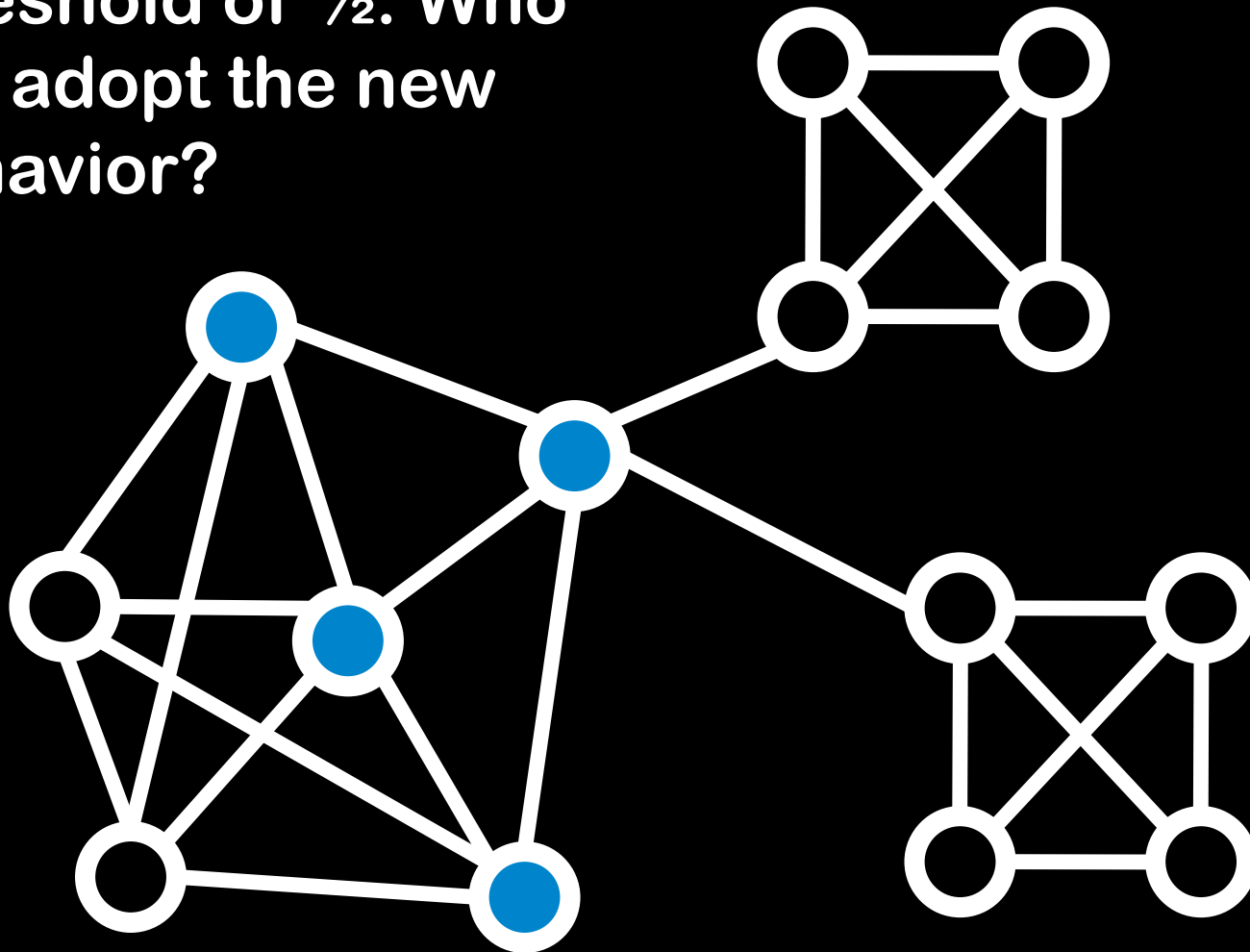


“If **more** than 50% of my friends are green, I’ll be green”

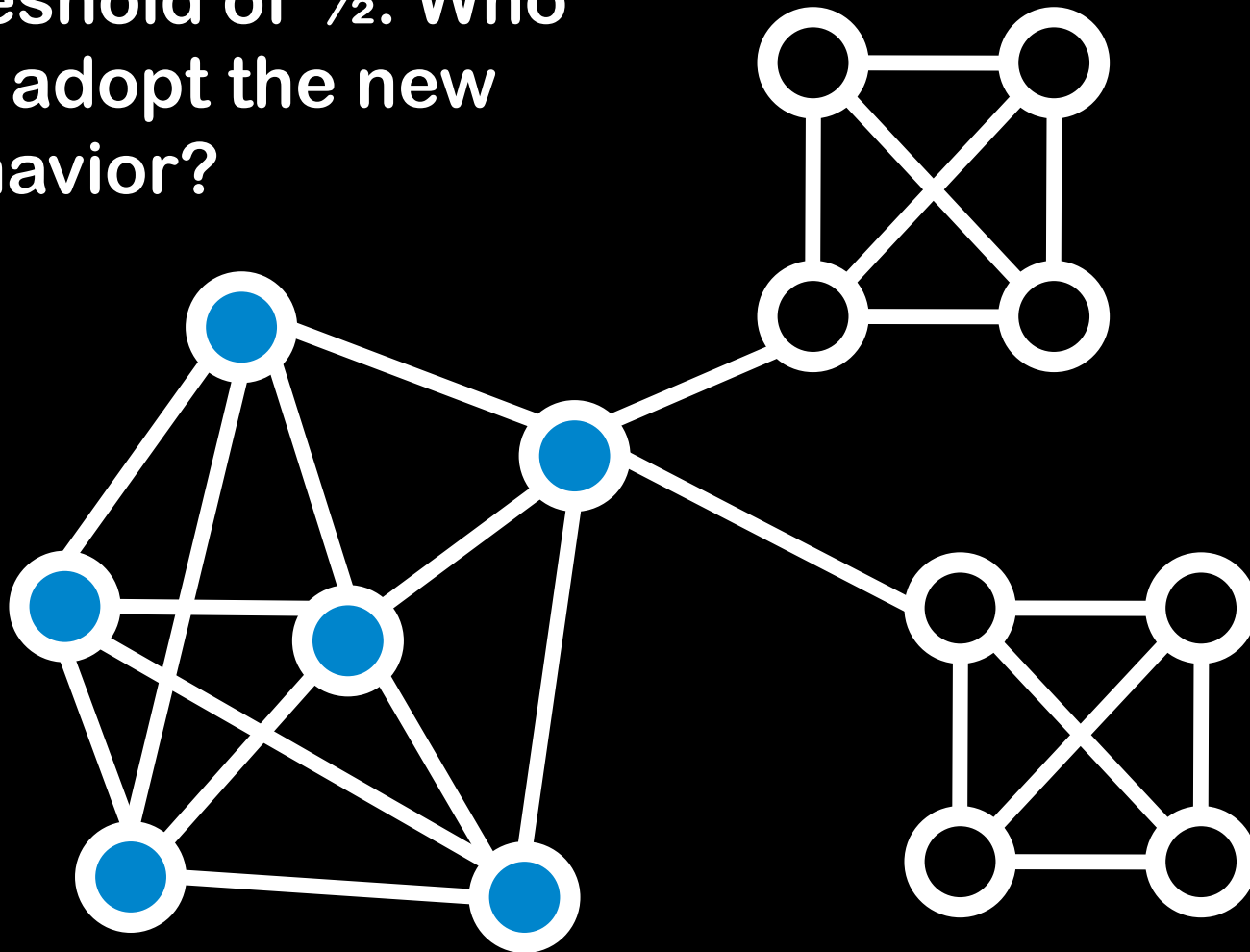
Who tells them about new behaviors?



Suppose nodes have a threshold of $\frac{1}{2}$. Who will adopt the new behavior?



Suppose nodes have a threshold of $\frac{1}{2}$. Who will adopt the new behavior?

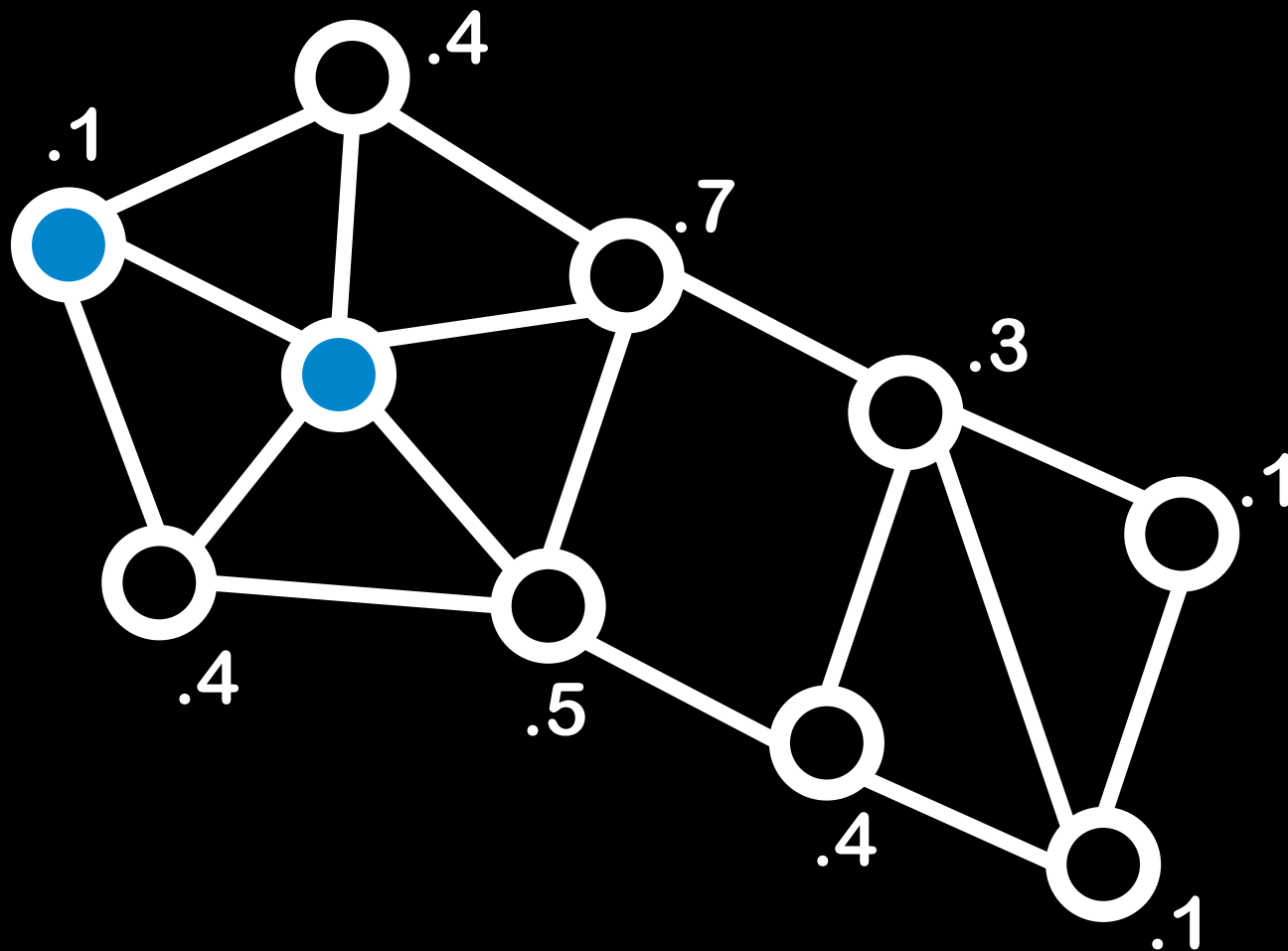


Bridges and local bridges are powerful ways to convey awareness of new things, but they are weak at transmitting behaviors that are in some way risky or costly to adopt

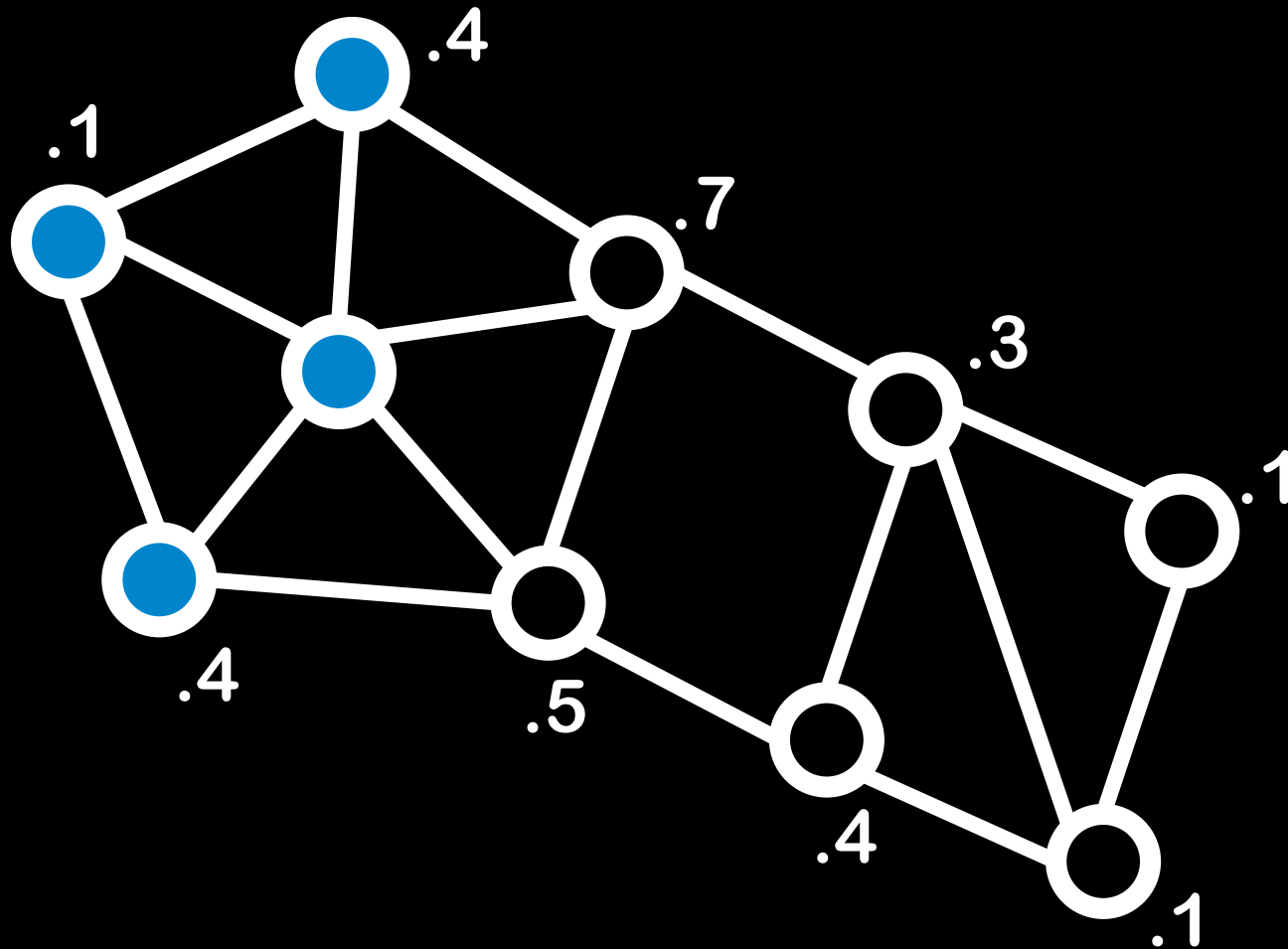
Weak ties are able to spread awareness of a joke or an on-line video with remarkable speed, but political mobilization moves more sluggishly, needing to gain momentum within neighborhoods and small communities.

McAdams observed that strong ties, rather than weak ties, played a much more dominant role in recruitment to Freedom Summer on college campuses in the 1960s.

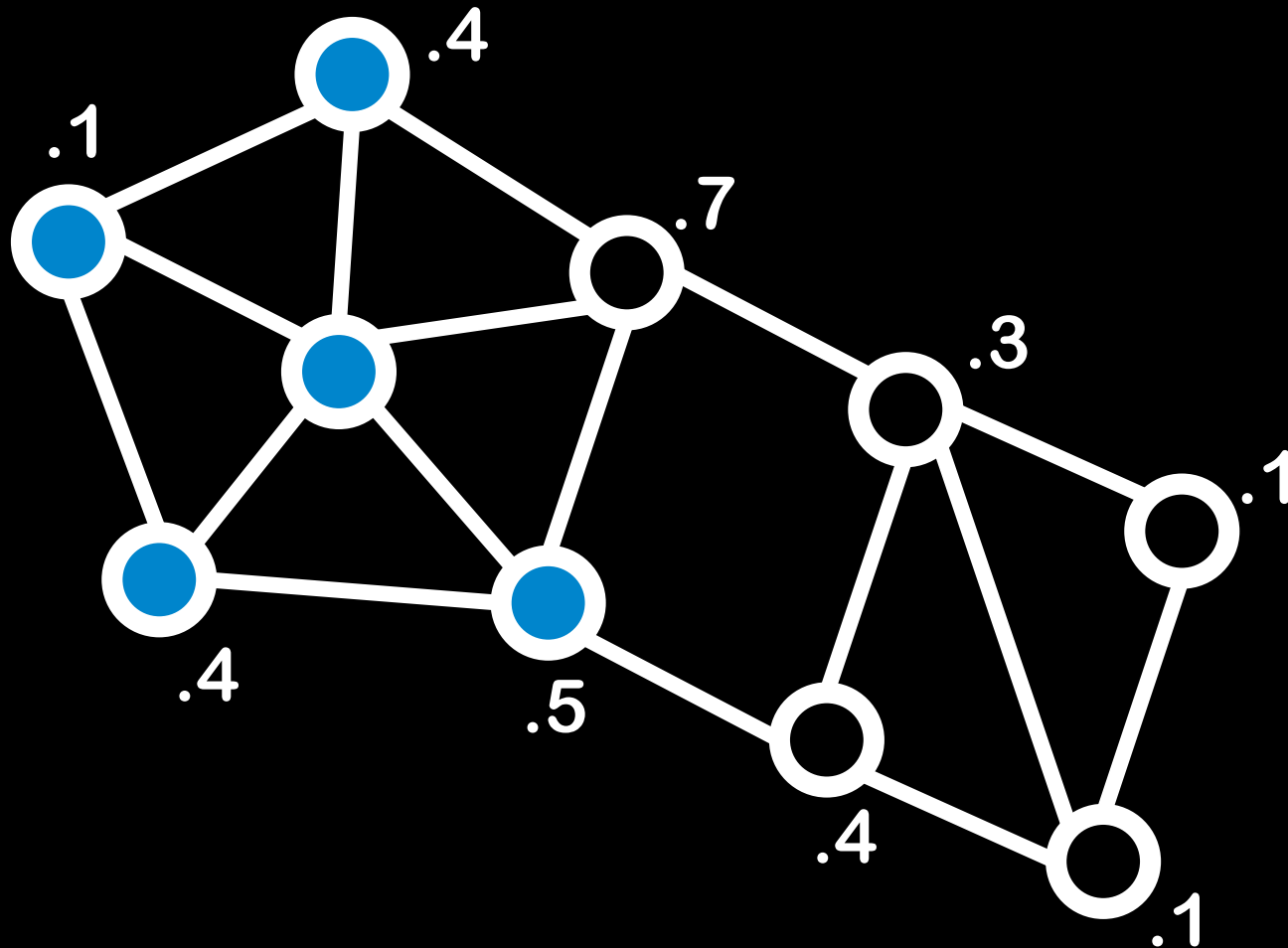
Different Thresholds



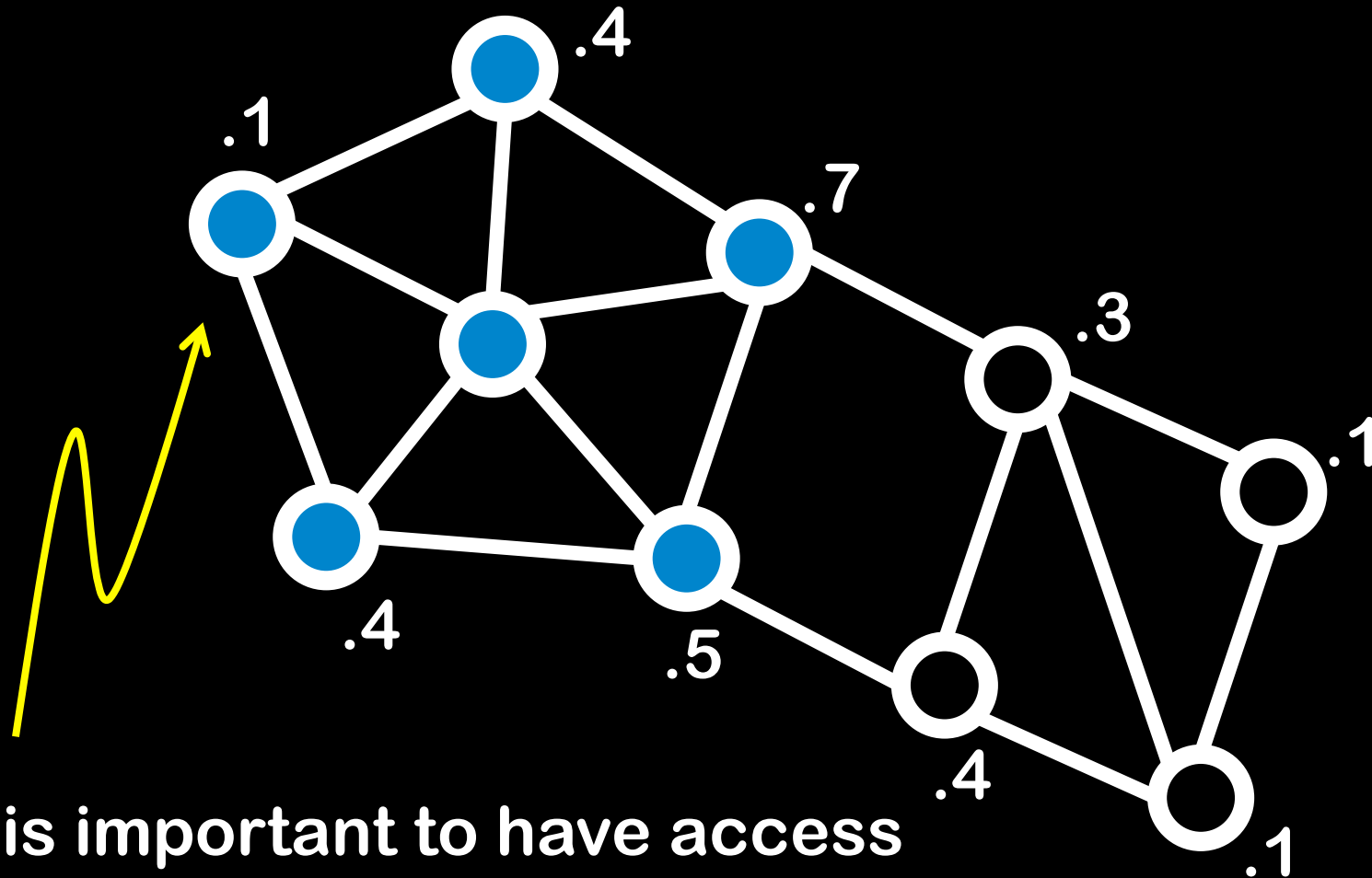
Different Thresholds



Different Thresholds

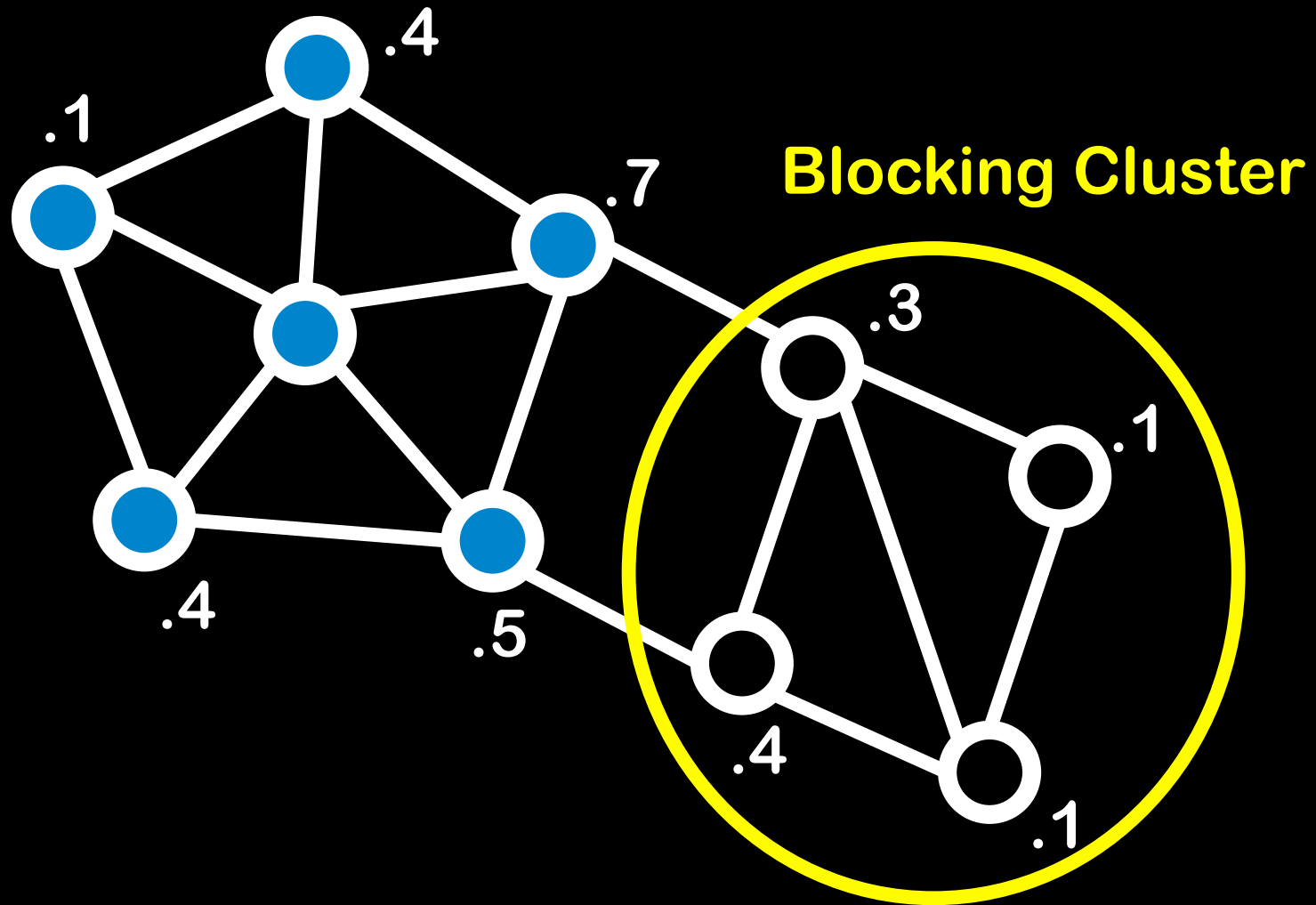


Different Thresholds



It is important to have access
to **influential** people

Why was there no cascade?



A **blocking cluster** is a set of nodes for which each node v has more than a $1-q_v$ fraction of its friends also in the set

Theorem: An initial set of adopters will cause a cascade if and only if the remaining network does not contain a blocking cluster

**How should we
organize a revolt?**

You live in an oppressive society

You know of a demonstration against the government planned for tomorrow

If a lot of people show up, the government will be seriously weakened and everyone in society will benefit

If only a few people show up, the demonstrators will be arrested (or worse), and it would have been better had everyone stayed at home

You should only do something if you believe you are in the majority!

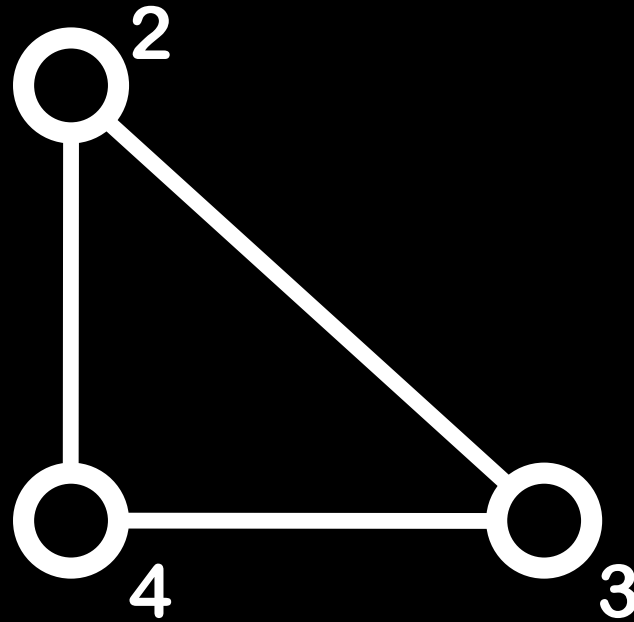
Dictator Tip: Pluralistic Ignorance (erroneous estimates about the prevalence of certain opinions in the population) is your friend

Survey conducted in the U.S. in 1970 showed that while a clear minority of white Americans at that point favored racial segregation, significantly more than 50% believed that it was favored by a majority of white Americans in their region of the country

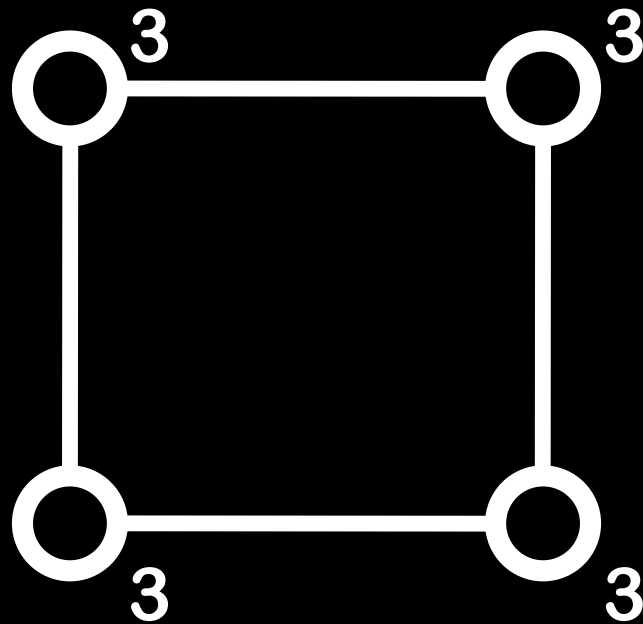
Model

Personal threshold k : “I will show up to the protest if I am sure at least k people in total (including myself) will show up”

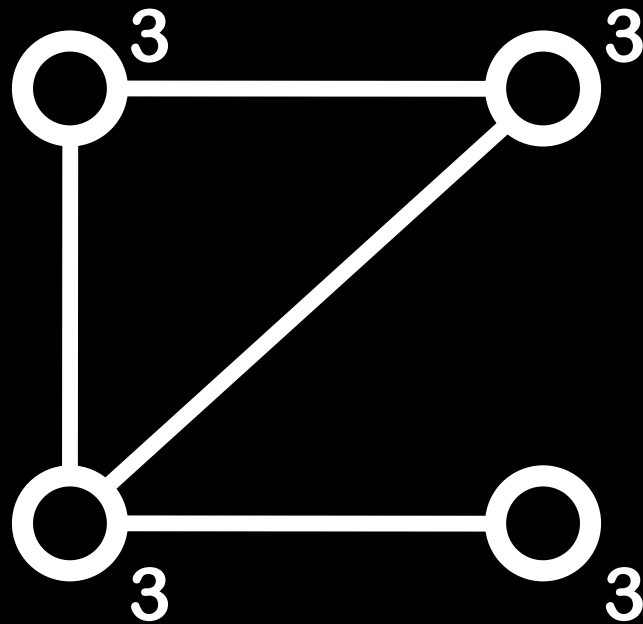
Each node in the network knows the threshold of all their friends



Nobody shows up to the protest



Nobody shows up to the protest



A protest occurs

Apple 1984

g2g

ttyl