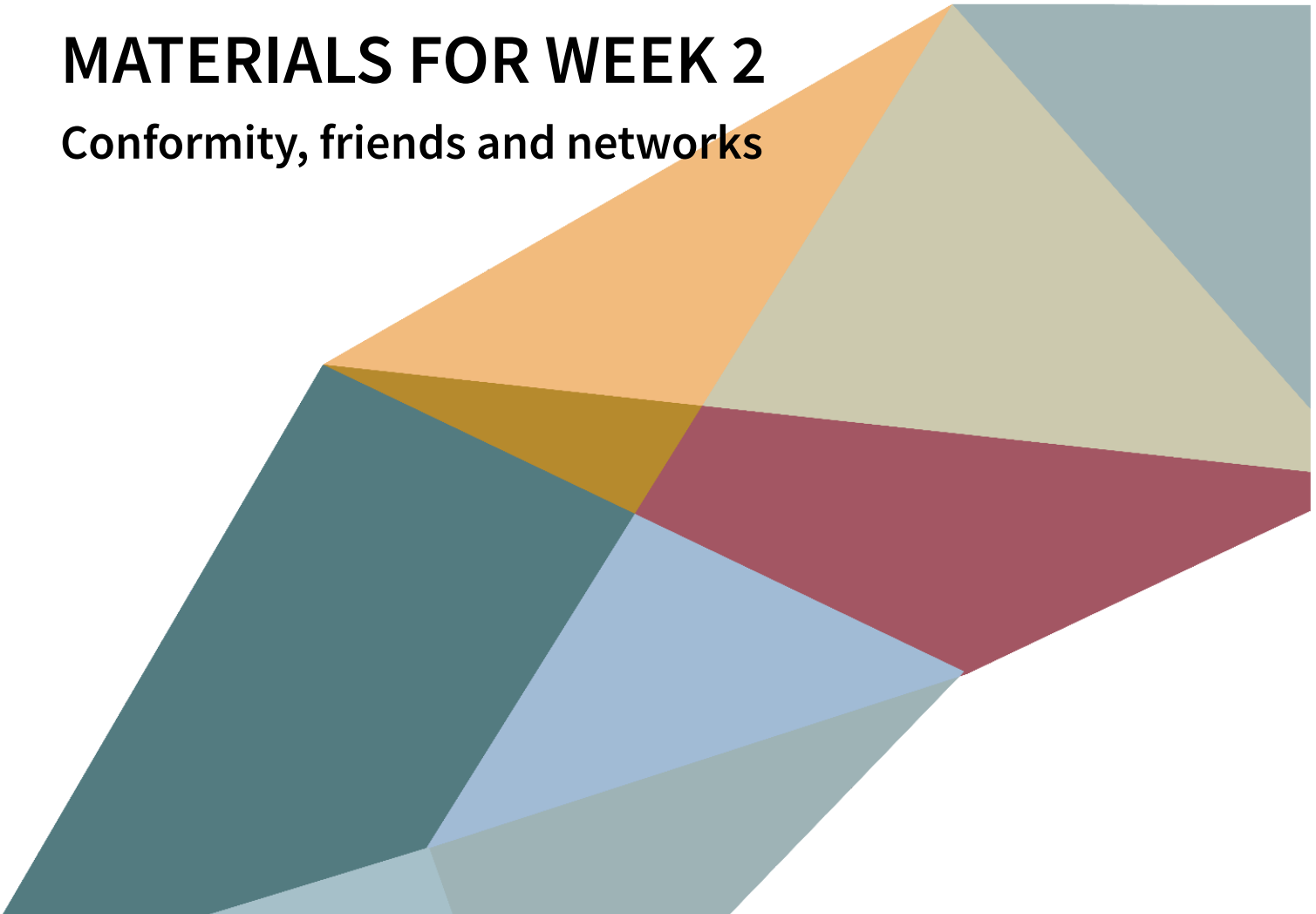
ACTISS
ACTION FOR COMPUTATIONAL THINKING
IN SOCIAL SCIENCES

INTRODUCTORY COURSE

People, Networks and Neighbours:
Understanding Social Dynamics

MATERIALS FOR WEEK 2

Conformity, friends and networks



INTRODUCTORY COURSE

People, Networks and Neighbours: Understanding Social Dynamics

MATERIALS FOR WEEK 2

Conformity, friends and networks

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OVERVIEW OF THIS WEEK'S MATERIALS

This week is about exploring how relations and networks impact social processes and it provides a quick glance at Social Network Analysis.

Keywords: social influence, social networks, social network analysis, computational social science, computational models

STRUCTURE OF THIS WEEK'S MATERIALS

Imitation and influence

In this activity we will discuss why we sometimes imitate other people's behaviour.

STEPS:

- Imitating and influencing others – ARTICLE
- Go with the flow – DISCUSSION

Grapevine protests - how protest spreads through social relations

In this activity, we will investigate how a protest may spread via friendship relations. We will also start looking at the way networks of relations influence our decisions.

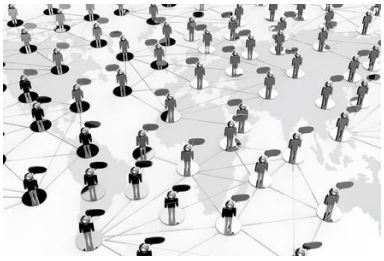
STEPS:

- With a little influence from my friends – VIDEO (03:29)
- Individual point of view – QUIZ
- Experimenting with the Grapevine protest – VIDEO (03:24)
- Turn everyone into a protester – DISCUSSION
- Shaping networks – QUIZ
- How protests spread through networks – ARTICLE
- Different networks lead to different results – DISCUSSION

Social Network Analysis and the networks around us

In this activity, we will discuss what Social Network Analysis is and explore the world of networks around us.

STEPS:



- Social Network Analysis – ARTICLE
- Questions about Social Network Analysis – QUIZ
- How many different networks are there? – POLL

Describing social dynamics

In this activity we will focus on measuring social dynamics, we will investigate the ways that the numbers grow and find out what a nonlinear process is.

STEPS:

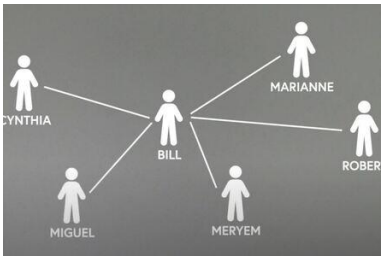
- How many people can you reach? – DISCUSSION
- How the numbers grow – VIDEO (03:33)
- A protest that grows exponentially – DISCUSSION
- Social Network Analysis in practice – ARTICLE
- Looking for surprising shapes – DISCUSSION

Social dynamics and computational models

In this activity, we will discuss why we need computational models to study complex processes and what is the added value of simulating social processes.

STEPS:

- Modelling epidemics – DISCUSSION
- Why do we need computers to analyse social dynamics? – ARTICLE
- Why model? – VIDEO (02:20)
- Wrap up Week 2 – ARTICLE



EDUCATIONAL MATERIALS

2.1. Imitating and influencing others - ARTICLE + VIDEO

Imitate © Storyblocks

Quite often the more people do something, the more prone we are to do it too. It’s neither good nor bad, this is just us, humans. There are many reasons for that. Sometimes we treat other people as a source of information on how to behave in a certain situation - just think about arriving in a foreign country where we don’t know the social rules that well - it’s easiest to just observe the others and follow them. At other times, even if we feel a bit weird while copying others' behaviour, we do it because we would feel uncomfortable sticking out. The adjusting or matching of one's behaviour to the behaviour of a group is called **conformity**.

Watch this 3-minute video:

Click on video to view the video

Now think about the way people influence each other. Please share your ideas about how and why we imitate other people's behaviour with the other learners.

2.2. Go with the flow - DISCUSSION

Three penguins © Storyblocks

Conformity is a human trait and it's neither good, nor bad. As we are social animals, we are often influenced by other people around us. Can you think of a situation where you decided to do something after observing other people - encouraged by the number of people doing it?

2.3. With a little influence from my friends - VIDEO

Click on video to view the video

In this video we will explore a process where people are deciding whether to join a protest or not based on what their friends are doing.

In the previous week, we analysed a simple threshold model and found out a couple of things: that it's not always the case that the lower the thresholds the bigger the demonstration, that the role of initiators is crucial and that any discrepancies in the order of thresholds might be problematic.

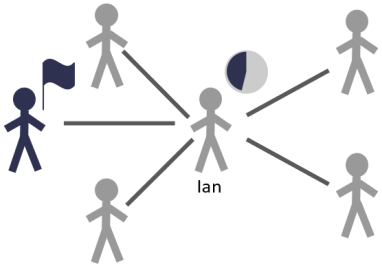
In the previous steps, we also found out that the concept of thresholds can actually refer to a broader category of social processes. And that we – as social animals – are actually generally inclined to copy other people's behaviours. We've seen some, even a bit surprising, examples in previous steps. In this video, we will explore the process from another angle.

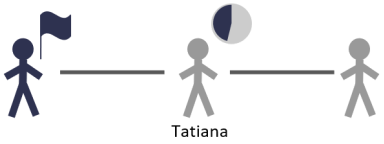
2.4. Individual point of view - QUIZ

In this step, you'll look at some small networks and investigate whether individual people would join the protest or not in certain circumstances (some of their friends are protesting).

QUESTION 1

Look at Ian and Tatiana. They both have the same threshold, equal to 40%, meaning that at least 40% of their friends have to join the protest in order for each of them to join it as well. But their friendship networks look different, Ian has more friends than Tatiana. Only one of Ian's friends is protesting and the same goes for Tatiana. What will they do?





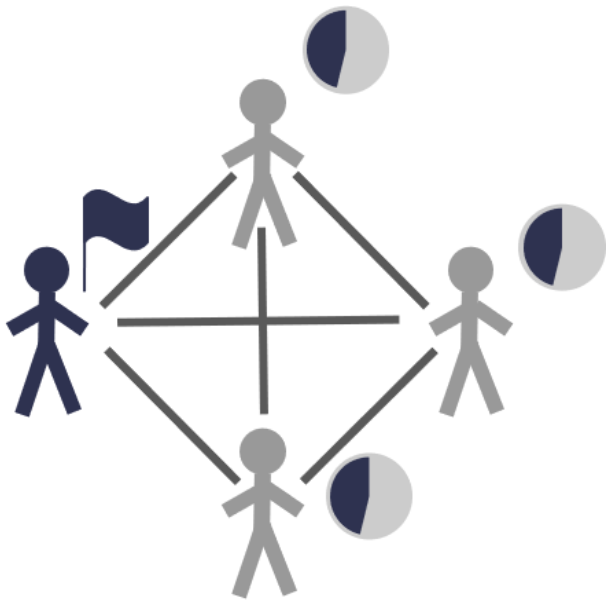
Ian will join the protest and Tatiana will not.

They'll both join the protest.

None of them will join the protest.

Tatiana will join the protest and Ian will not.

QUESTION 2

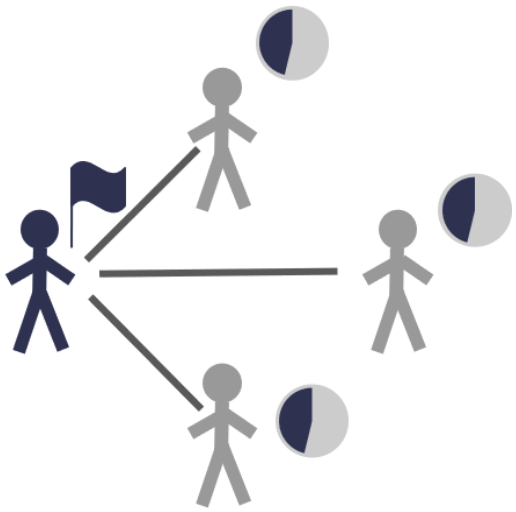


One person in this group is an initiator - will the others (everybody has the same threshold=40%) join her?

Yes

No

QUESTION 3

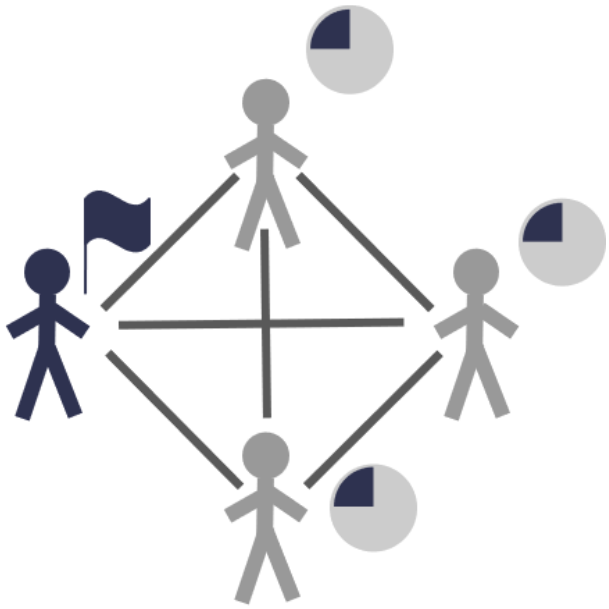


One person in this group is an initiator - will the others (all have the same threshold=40%) join her?

Yes

No

QUESTION 4



One person in this group is an initiator and the others have a threshold=25%. Will the others join her?

Yes

No

Correct answers:

Q1:Tatiana will join the protest and Ian will not.

Q2: No

Q3: Yes

Q4: Yes

2.5. Experimenting with the Grapevine protest - VIDEO

Click on video to view the trailer

In this video we will take one step further with the Grapevine protest: we will look at the whole network of relations between its inhabitants and examine how the process would unfold. We will consider the shape of the whole network, not only the relations of one person.

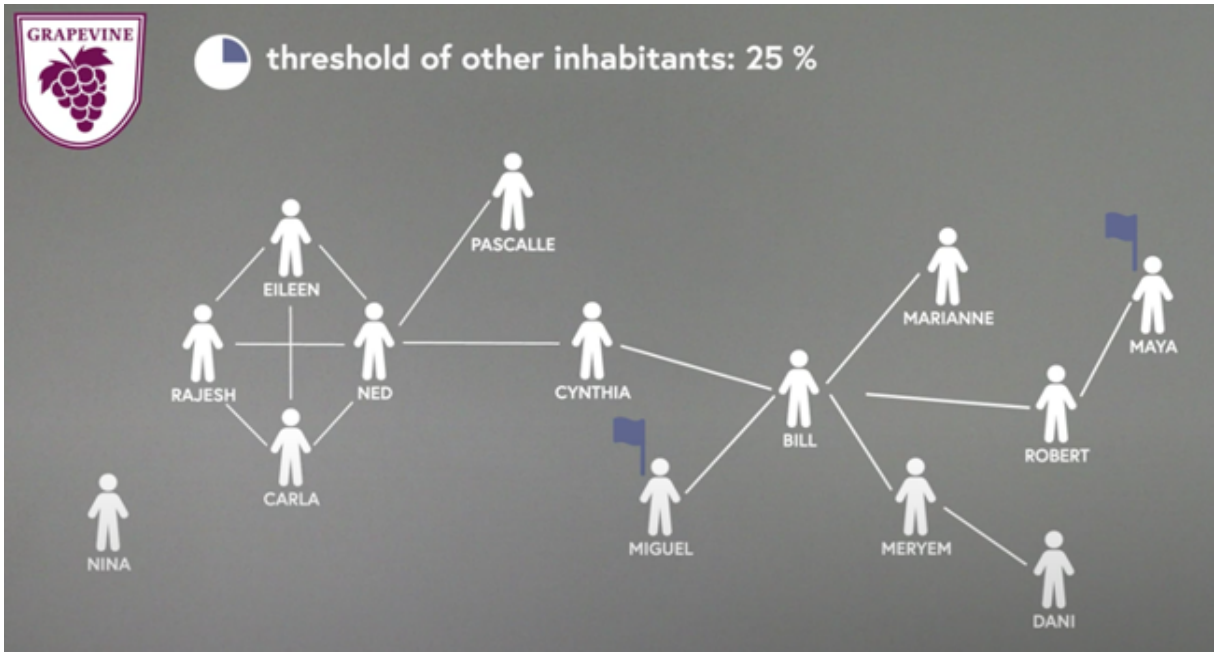
2.6. Turn everyone into a protester - DISCUSSION/EXERCISE

Protest © Alex Radelich on Unsplash

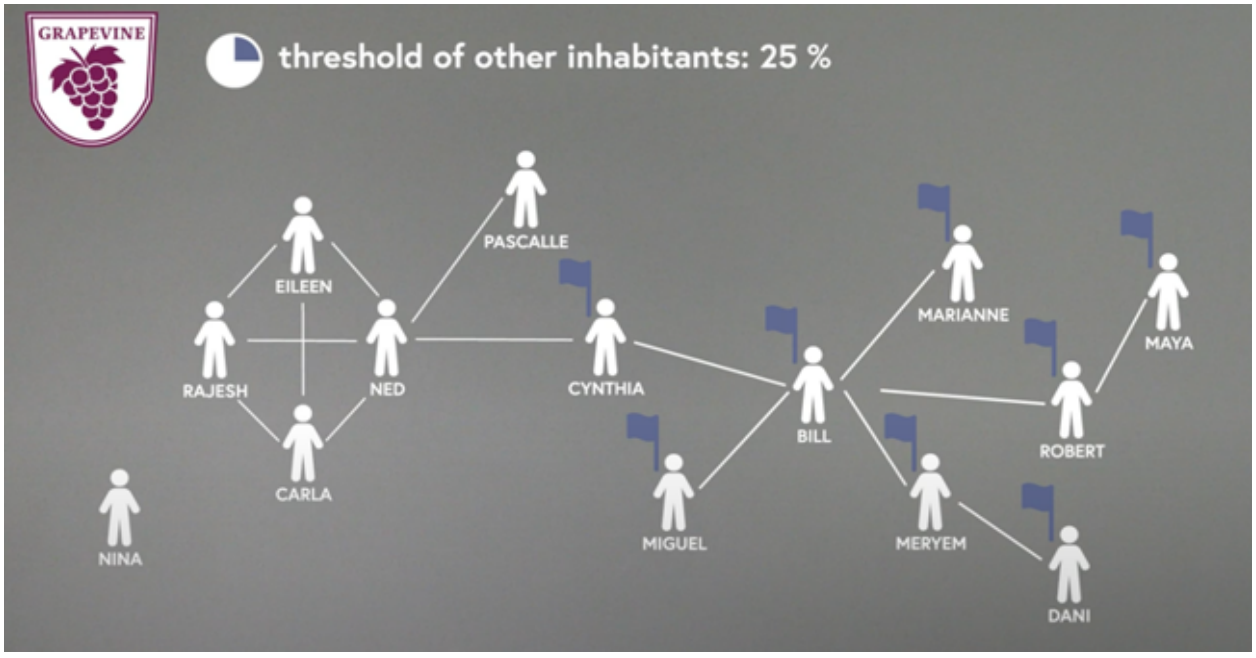
Let's go back to Grapevine in its original shape for a second and have a closer look at the cluster on the left. What could we do without changing the thresholds in order to make Eileen, Rajesh, Carla and Ned go? Could you think of what link to add in order for this group to join the rest? Or maybe which link to cut out? You'll have a chance to check it in the exercise.

In this exercise, your task is to investigate the Grapevine protest example and think about the changes in the network that would result in less or more people joining in the protest.

Our starting point was:



And the result was that 8 people were protesting and 6 people were not.



Now over to you. Start with the starting point network. Everyone apart from the initiators has a threshold equal to 25%. You can cut out or add up two links anywhere in the model (if you're working on a computer you can print out the network and experiment on it).

Now try to achieve the following:

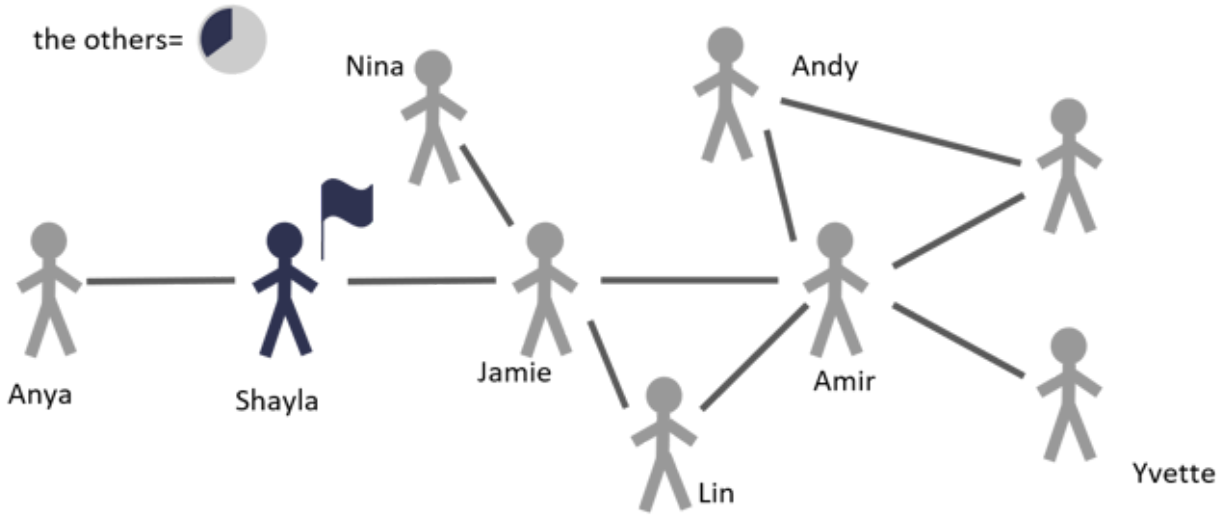
1. **Could you make everyone go by adding two links or removing two links? How?**
2. **Could you make the process stop in the beginning by adding two links or removing two links, so that apart from Maya and Miguel nobody would go? How?**

2.7.Shaping networks - QUIZ

With these questions, you will investigate how protest spreads in two small networks and how the positioning of the initiator affects the whole process.

QUESTION 1

You can see a network of people. Shayla is the initiator. Everyone else has a threshold equal to 33%. Think about the whole process - who will join first, who will join next and what will the final result be? Which of the sentences are true?



Nina will join the protest.

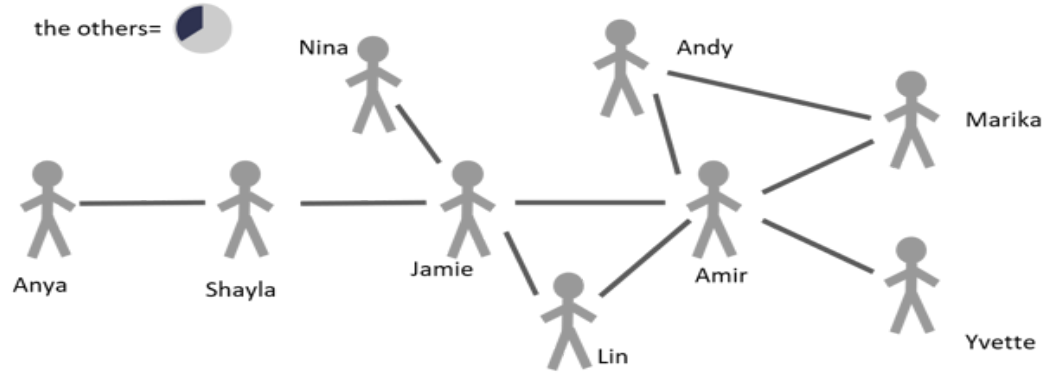
Anya will join the protest.

Jamie will join the protest.

Amir will join the protest.

QUESTION 2

You can see the same network of people. Everyone has a threshold equal to 33%. Now you can pick one person as an initiator. Who would you pick in order for the protest to spread as much as possible so that everyone would eventually join in? Please select all correct answers.



Select all the answers you think are correct.

Lin

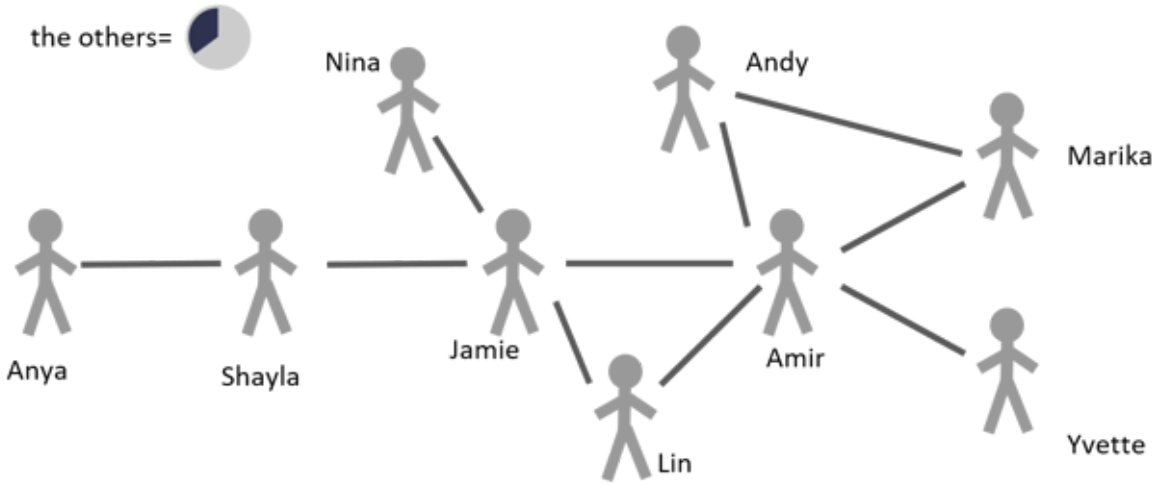
Jamie

Amir

Marika

QUESTION 3

You can see the same network of people. Everyone has a threshold equal to 33%. You can pick one person as an initiator. Who would you pick in order for the protest not to spread at all? Please select all correct answers.



Select all the answers you think are correct.

Lin

Jamie

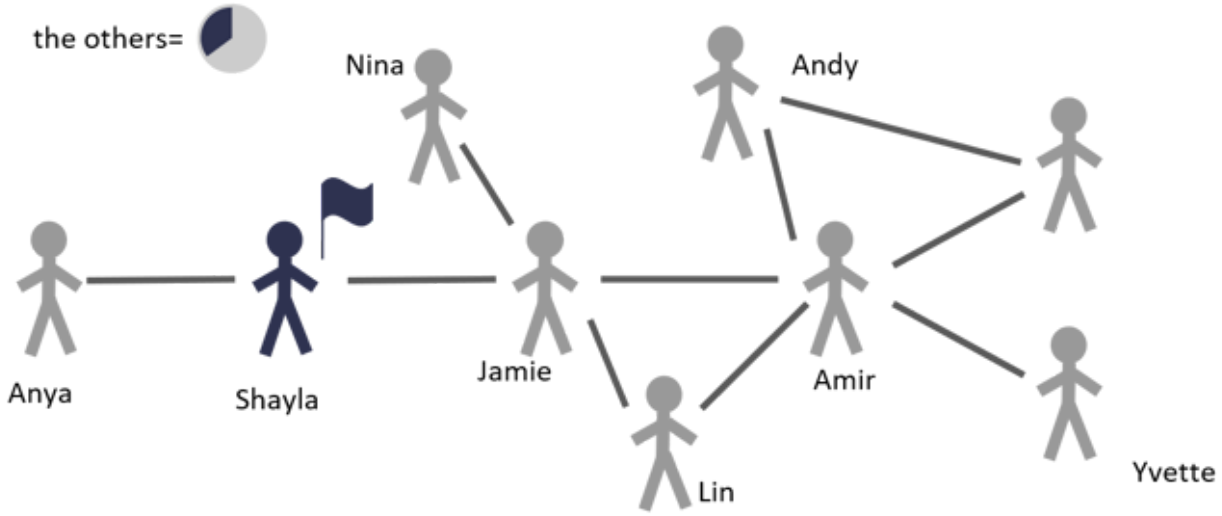
Andy

Nina

QUESTION 4

Look at the group that we've seen at the beginning, again, with Shayla as the initiator (and the result that only 2 persons are protesting: Shayla and Anya). This time think about the changes in

the network that could make more people join the initiator.



Which of the statements are true? Please select all correct answers.

Select all the answers you think are correct.

If we add a link between Nina and Shayla, more people would go to the protest

If we cut out a link between Jamie and Lin, more people would go to the protest

if we add a link between Nina and Andy, more people would go to the protest

If we cut out a link between Lin and Amir, more people would go to the protest.

Correct answers:

Q1: Anya will join the protest.

Q2: Jamie, Amir, Marika

Q3: Lin, Nina

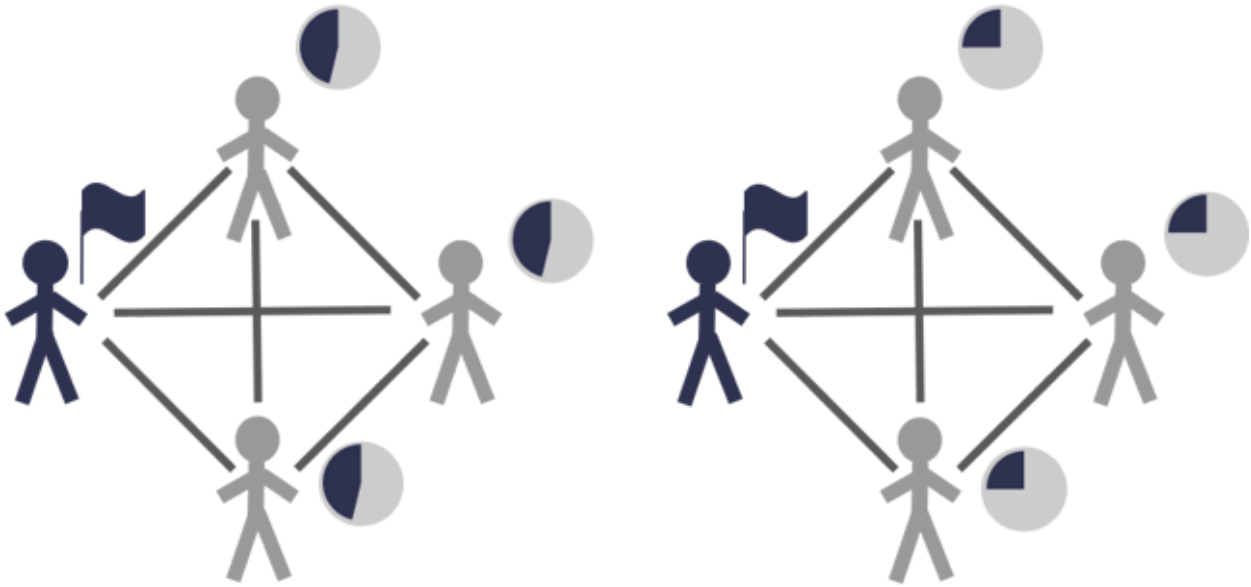
Q4: If we add a link between Nina and Shayla, more people would go to the protest, If we cut out a link between Jamie and Lin, more people would go to the protest

2.8. How protests spread through networks - ARTICLE

A young woman holding a megaphone © Clem Onojeghuo on Unsplash CC

In this article based on the example of Grapevine, we will have a look at some characteristics of networks that might make it easier or harder to organise a protest and we will point out the way processes on the network may be influenced even by small changes in the network structure.

When we investigate the spread of a protest through a network (just as you did in the previous steps) there are a few things worth noticing. First of all - it's **not only the thresholds that count**. Obviously, the lower the thresholds, the easier it is for a protest to spread (Image 1). But this is only one factor.



higher thresholds ——————————————————– lower thresholds

Image 1: On the left: nobody will join in. On the right: everyone will join in.

There are a lot of other things that matter for the dynamics of the process. Just as in the case of the protests we were analysing last week - the presence of initiators is crucial for the spread of the protest, but with networks - the placement of initiators is essential as well (Image 2 and Image 3).

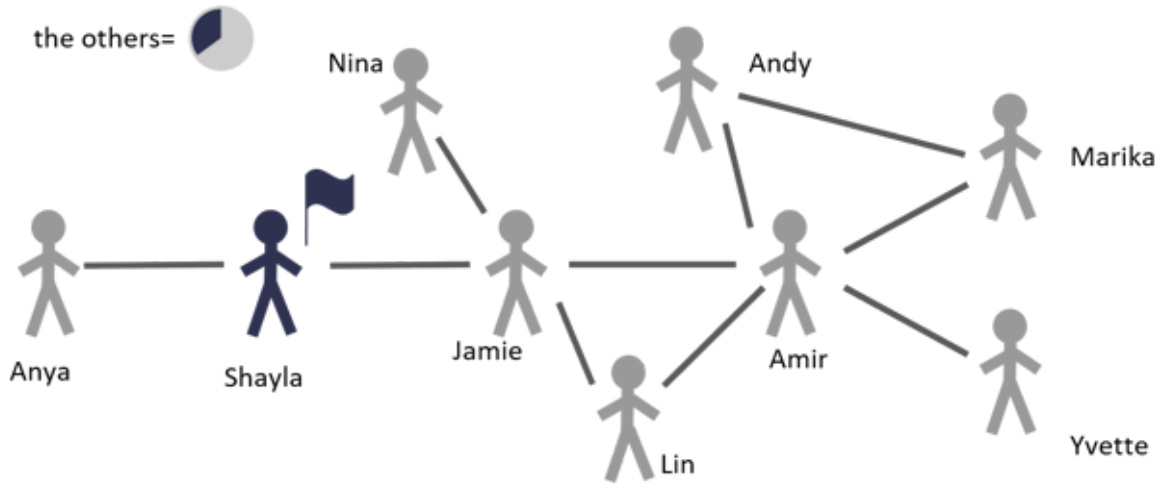


Image 2: Initiator has a peripheral role in the network. Only one person will join in.

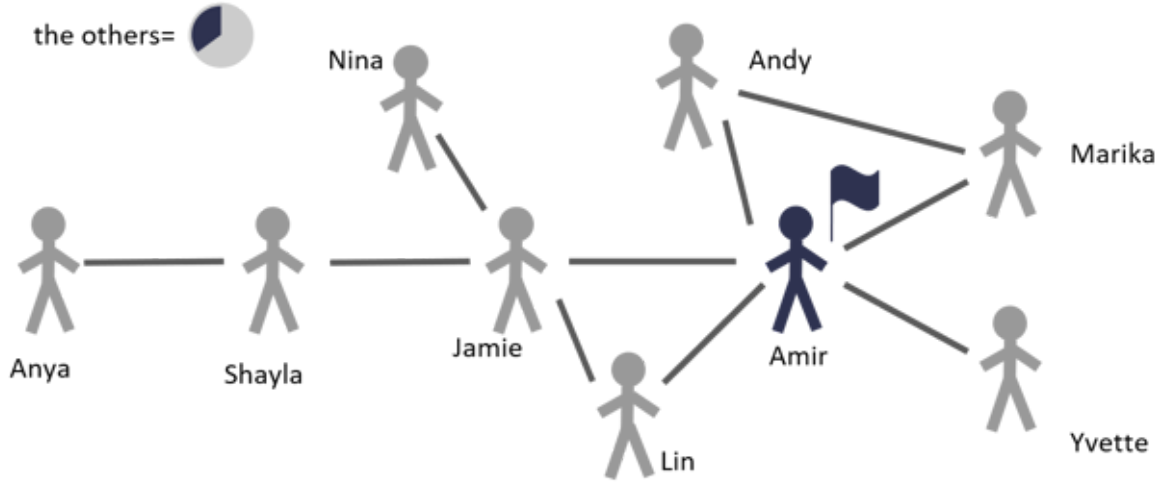
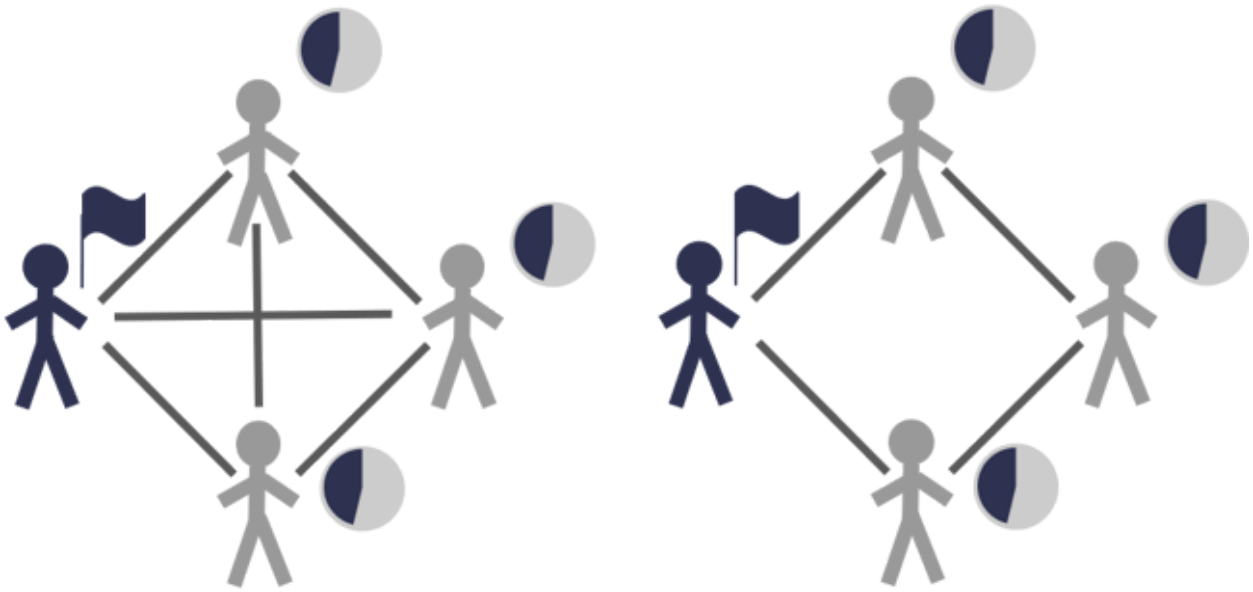


Image 3: Initiator is a 'central' person. Everyone will join in.

Another issue that is really important is the general shape of the network. Are all the people connected? How many links are there in the network (e.g. image 4)? Are links more or less evenly distributed in the network or is it rather a collection of a couple of closely-knit groups?



network is very dense ——————————————– fewer connections

Image 4: On the left: nobody will join in. On the right: everyone will join in.

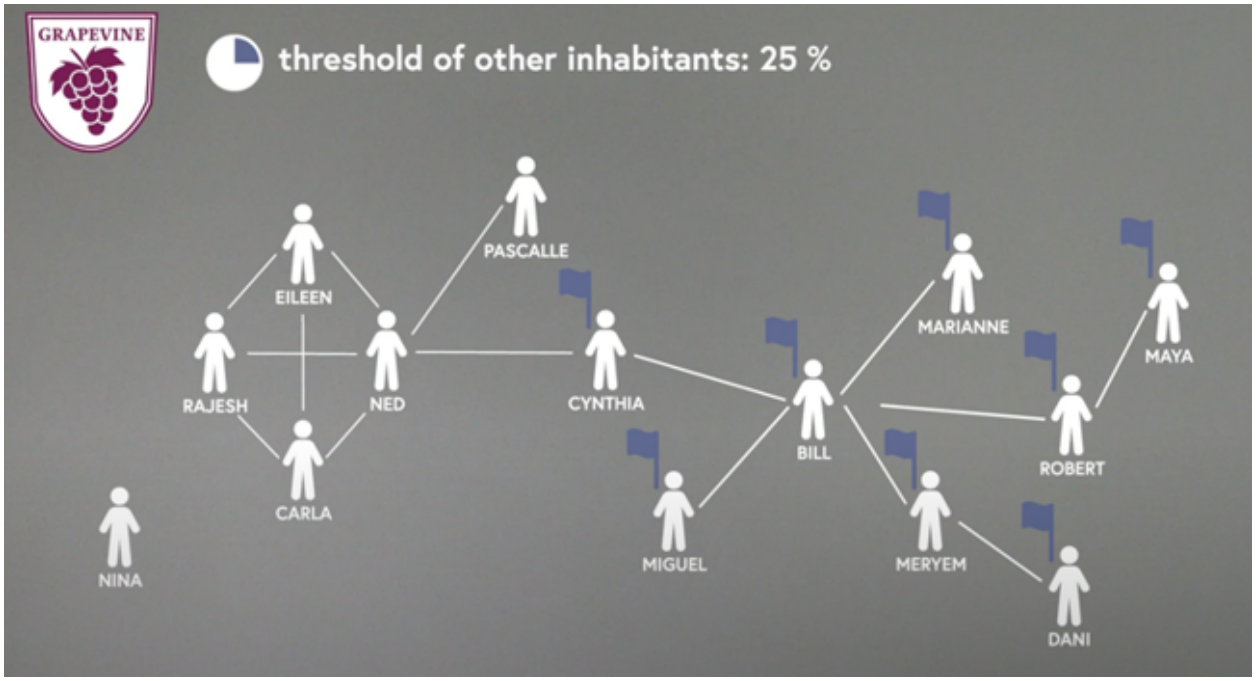


Image 5: A group of people who are closely connected within the group and have only a few links to

the outside their social circle is blocking the process of joining in. Such a structure within a network is called a ***blocking cluster.***

The point here is not to list all the features of networks that are important for the dynamics of the process but rather to point out to the fact that there are quite a few such features. The systematic study of properties of different networks is one of the main topics of a discipline called Social Network Analysis that will be described in more detail in the following steps.

However, there is one more observation about processes happening in the networks that is worth underlining. If the shape of the network is important for the way the process unfolds and for the final result (which in our case is the final number of protesters) it is **not surprising that small changes in the network may have a huge impact**. Adding one link (or removing one link) may change nothing at all, change the result only slightly, or change almost everything. It's also very important to stress out that it doesn't mean that such changes are unpredictable or just random. Such a vulnerability to small changes is just typical for complex processes. (And we've actually already seen it in the previous week - the "butterfly effect".)

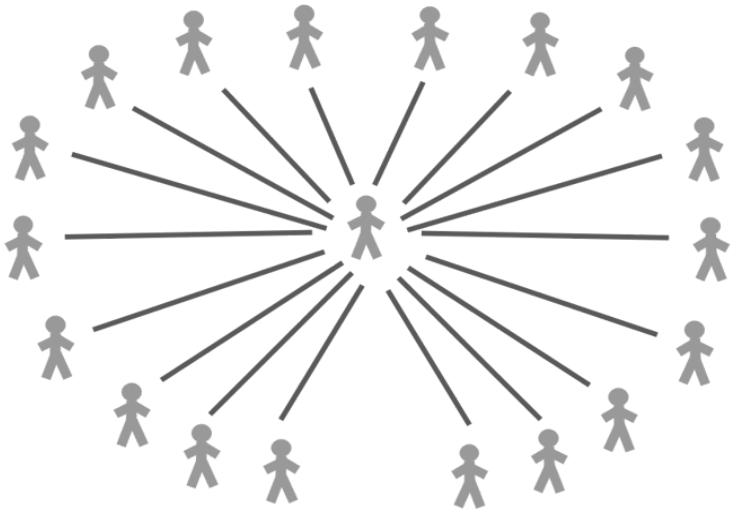
Summing up

When different social processes happen through a network of social relations, the properties of networks are very important for how those processes will unfold. There are a lot of features of networks that are important, e.g. how many links there are in the network or where certain people (such as initiators in our case) are placed. And sometimes even small changes within this "web" of links may have an impact on the final effect.

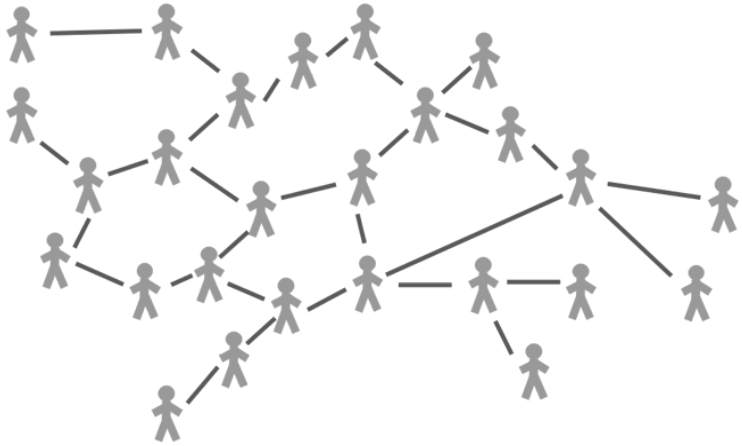
2.9. Different networks lead to different results - DISCUSSION/EXERCISE

© Heidi Fin on Unsplash

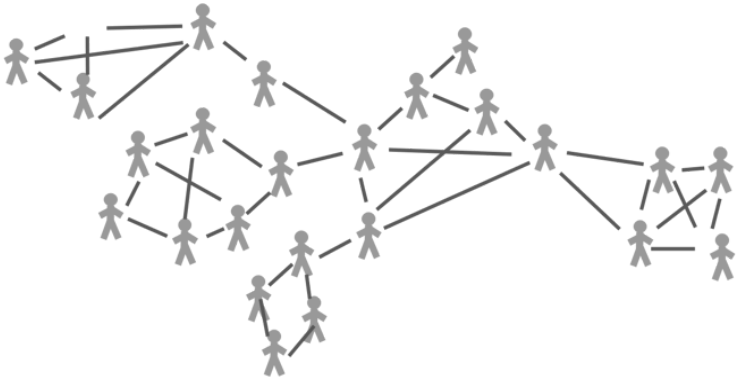
In this step we invite you to examine the three networks of approximately 20 people featured below. They're similar in terms of people's attitude towards the protest - in all networks there is one initiator (we don't know who this initiator is) and the others have diverse thresholds, ranging from 20% to 50%. Examine them and then answer the question at the bottom.



Network 1:



Network 2:



Network 3:

What do you think - which one is the one where the protest would really take off? Why?

2.10. Social Network Analysis - ARTICLE

© Getty Images

In the previous examples and exercises, we focussed on relations. We investigated what impact they have on the process e.g. by adding or removing some links between people. We looked at relations both from an individual point of view (investigating how someone's relations may influence his or her decisions) and from a more general level, by looking at the shape of the whole network. One of the most important conclusions from those observations is that relations do matter. This observation is a cornerstone for Social Network Analysis.

Social Network Analysis (SNA) is a systematic study of social structures of relations and the processes that operate within such structures. The whole investigation of the Grapevine example was actually a typical example of this approach. We analysed a group of people connected by

friendship relations and observed what happens within this structured group. Such a structured group is an example of a **social network** consisting of individuals connected in some way.

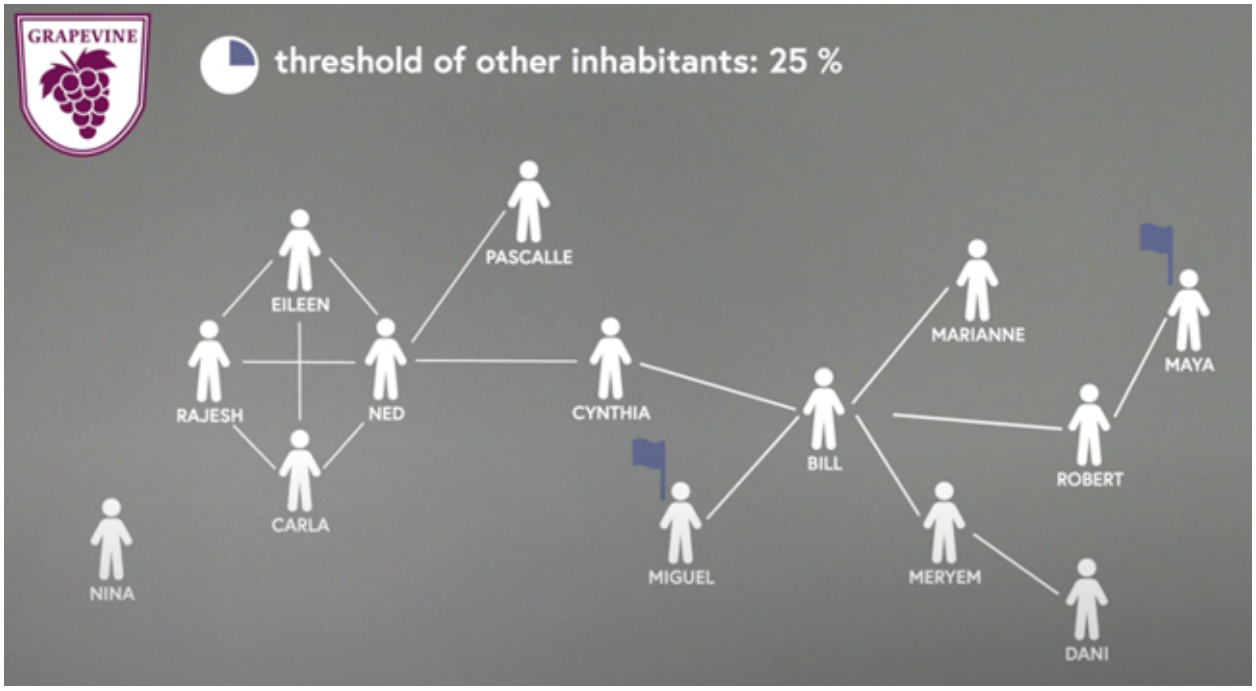


Image: social network in Grapevine

Social Network Analysis dates back to the first half of the 20th century and it has developed a lot since then, especially after computers made it much easier to access information about different structures and to analyse them. SNA uses tools and concepts from mathematical graph theory (which is a mathematical study of graphs) and also some specific language that comes from graph theory. For example, a word "**node**" is used for individuals being connected by links and connections/links between them are called "**edges**". So, in Grapevine all the inhabitants were the nodes of the network and all the friendships represented by lines were the edges.

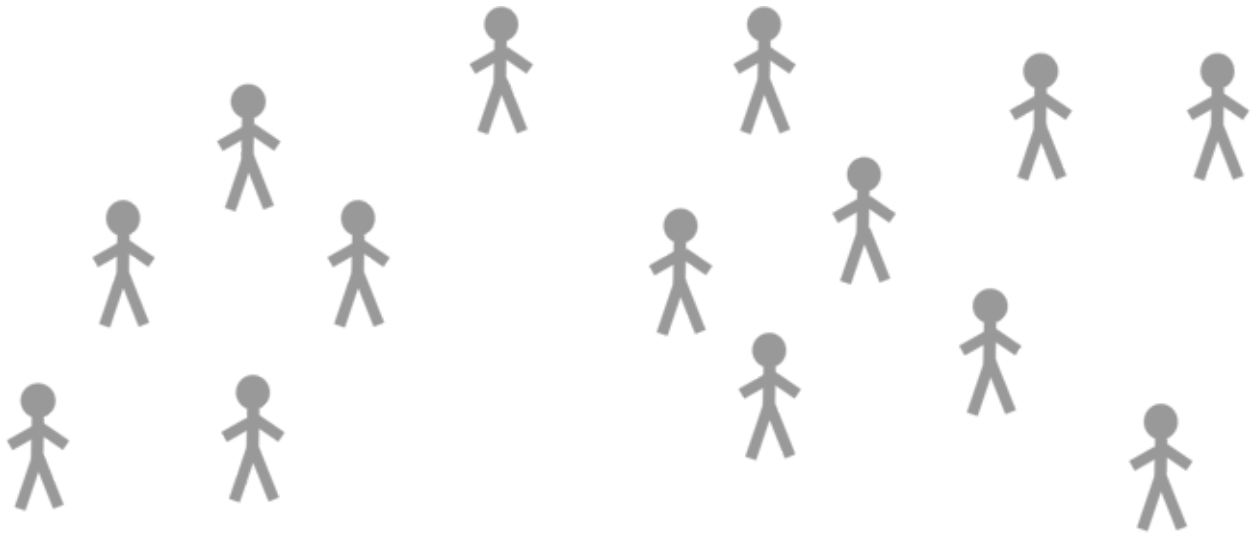


Image: NODES in Grapevine network

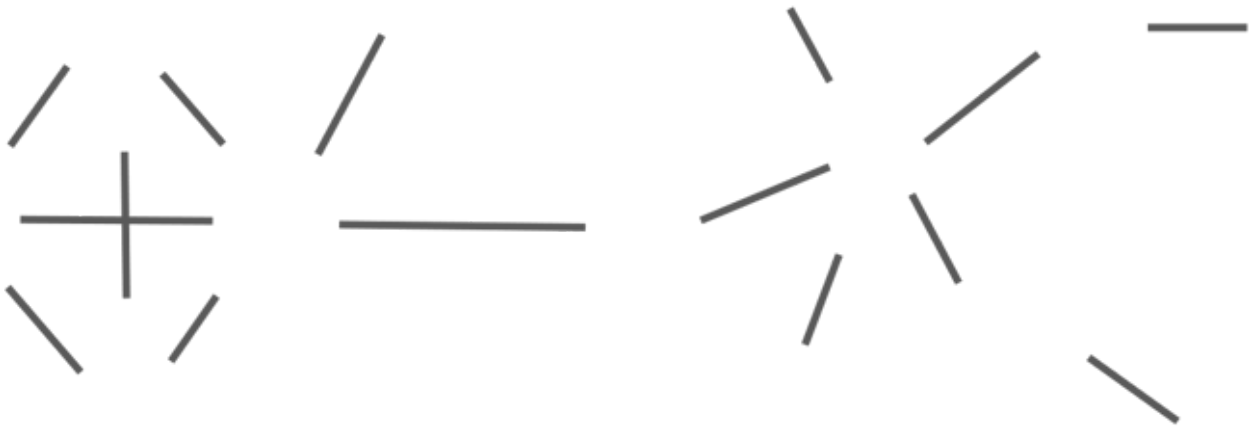


Image: EDGES in Grapevine network

So, let's consider nodes and edges or - getting back to less abstract terms - individuals and connections between them that might be interesting from a social point of view. As Social Network Analysis puts relations in the centre of interest, **let's start with relations.**

In the case of Grapevine we drew lines between people that were friends. But it's not only friendships that connect us with each other. Other relations that might be quite important are being married to someone, being someone's relative, working with someone or supporting the

same football team. There is even more - as we can think about links in a broader sense than typical social relations. In Social Network Analysis we can define a link between people also in case of exchanging information or virtually anything else that people can give or take from each other. Trade is also a type of a relation between people. The same goes for power - relations of superiority and subordination connect managers and their employees. Not mentioning all the structures that are created online: following someone on Twitter is a link between the follower and the followed one, the same goes for being friends on Facebook (although it's usually very far from real friendship).

There are many more relations that are studied by social network analysts - whenever we can think of a link that connects people, there might be something interesting going on from SNA point of view.

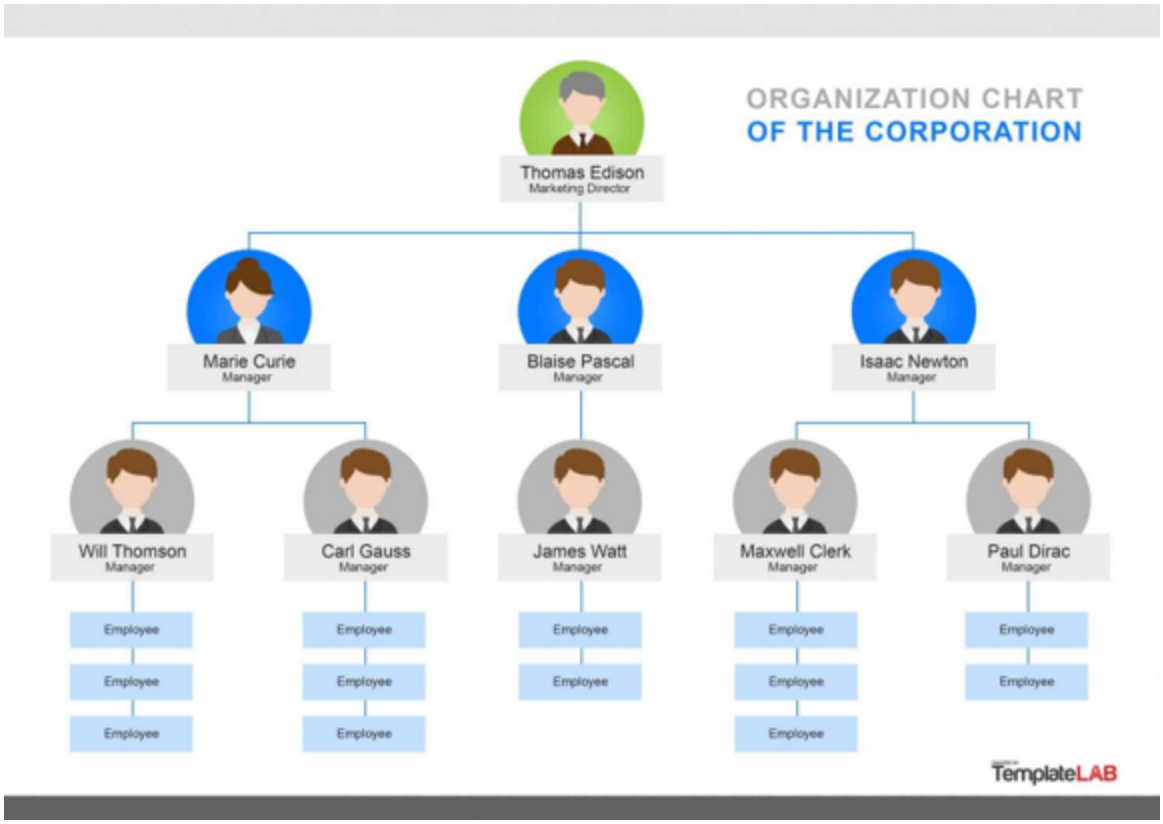
Connections are in the focus of attention but they are in between. In order for a connection to be present there have to be nodes that are linked. In the case of Grapevine, those nodes are just individual people and this is the most common type of a node when we think about social

processes. On the other hand, it's worth noting that in Social Network Analysis we can think about nodes in a broader sense and create or analyse networks consisting of companies, organisations, teams, countries etc.

Networks around us

Networks have an impact on a lot of social processes we are involved in. When we think about how we make different decisions, how we purchase things or about the way we work, it's quite obvious that relations matter. For example, when we're buying something in a local shop, there are already two sides of this transaction, one willing to purchase a certain item (us) and the other that wants to sell it. This is one relation. If we go further, there is also a shop-owner who bought the goods from a provider. And then far along the way - a manufacturer and providers of different materials also are involved. Even in a simple transaction when we think about it, in order for it to happen, there has to be a whole chain or a tree or rather a network of different relations where exchanges of materials, products, services and money take place. The economic market is a networked phenomenon.

Think about work: task division, different positions in the structure. Below, you can see a sample organisational chart:



Source: Unese

Formal structures in different organisations often look like that. What we can see are some elements (roles/positions) that are bound by different relations. And apart from those formal connections if we looked deeper and studied who talks to whom, which people meet after work etc. we would also get an informal structure of relations at the workplace. So, it seems, the work environment also has some networks in it.

Last but not least, we're all quite familiar with a certain type of structures consisting of people and relations between them:

Source: Metmuseum

And how about those networks connecting people in different ways?

The world is full of network structures and they affect us in different ways. The moment when we get a certain information (for example about a new product or idea) depends on who we are connected to and who they are connected to, etc. Depending on our place within the network we may find a new job more or less easily. Moreover, the shape of the networks we are in may affect the way we work, the way we do business etc. Here, we are only scratching a surface by pointing to the fact that different network characteristics may shape the way social processes unfold. Social Network Analysis is a study of such processes and it uses different models to better understand how networks are shaped and how they shape social reality.

Summing up, Social Network Analysis is a study of social relations and can be used to analyse a variety of different topics and social phenomena: innovation, economic or educational inequalities, cooperation, management and organisation, crime. Its tools and concepts are closely connected to mathematical graph theory and it's very 'visual'.

And if you are interested in getting to know more about Social Network Analysis, we recommend our course Networks connecting people on Futurelearn.

Think about networks around you (in your private life, at school, media, TV, professional life), list 3 of them and write down what could be a node and an edge in these networks?

2.11. Questions about Social Network Analysis

Check your understanding of Social Network Analysis with these questions.

QUESTION 1

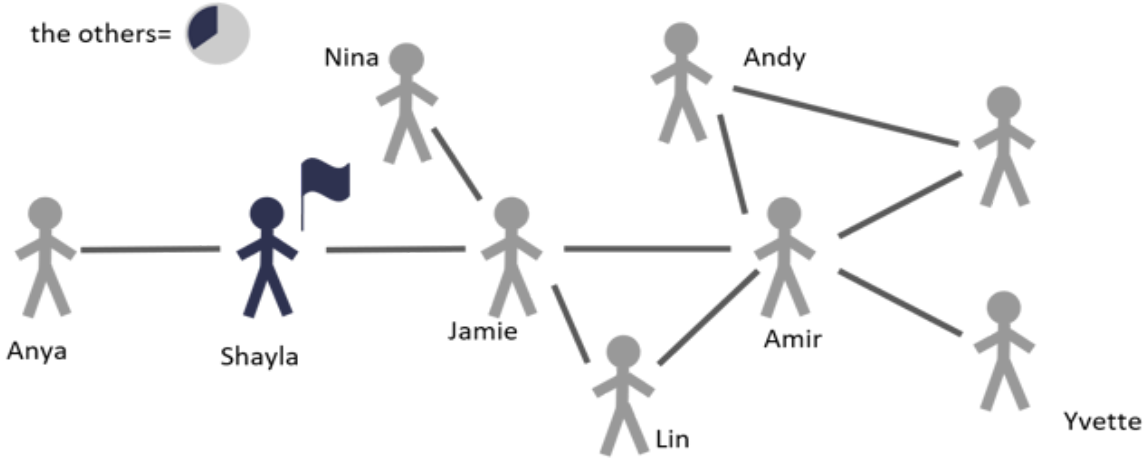
Select all characteristics of Social Network Analysis.

Select all the answers you think are correct:

- Social Network Analysis was developed in order to study social networking platforms.
- Social Network Analysis can be used for studying different mechanisms and processes.
- Social Network Analysis is related to mathematical graph theory.
- Social Network Analysis is a systematic study of people's online behaviour.

QUESTION 2

In the image below you can see a network from one of the previous exercises. How many nodes and edges can you see in this network?



- 9 nodes, 10 edges
- 10 nodes, 9 edges
- 9 nodes, 9 edges
- 10 nodes, 10 edges

QUESTION 3

In a group of 5 people everyone is friends with each other (there are links between all 5 persons). How many edges are there in such a network?

- 5
- 8
- 10
- 20

Correct answers:

Q1: Social Network Analysis can be used for studying different mechanisms and processes.; Social Network Analysis is related to mathematical graph theory.

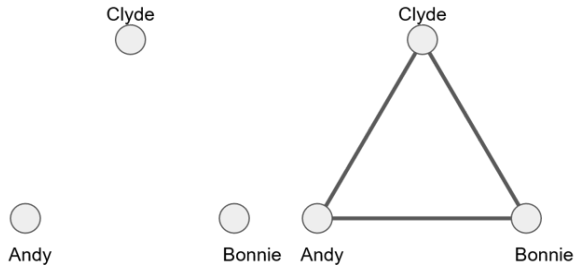
Q2: 9 nodes, 10 edges

Q3: 10

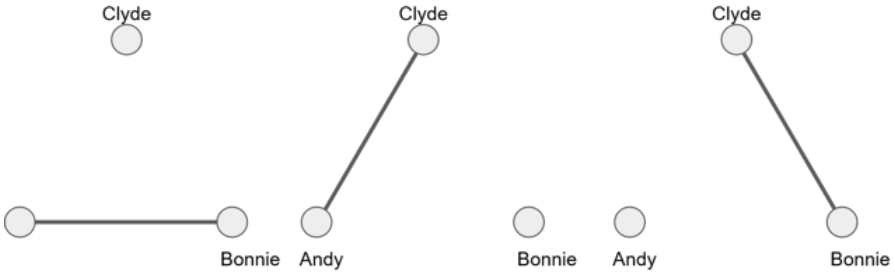
2.12. How many different networks are there? EXERCISE

If we have three people, called Andrew, Bonnie and Clyde, and each two persons can either be friends with each other or not, there are as many as 8 different networks that we can draw existing between them. This includes those where nobody is friends with each other (empty) and the one when they are all friends with each other (full):

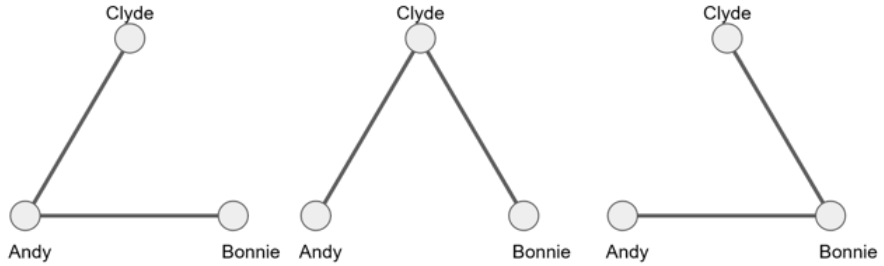
Empty network and a full one:



Networks with one friendship:



Networks with two friendships:



If we'd add one more person to the group, let's say Dennis, how many different networks can be drawn between them? What would be your estimate? You will be amazed by how many there are.

- less than 20
- between 20 and 40
- between 40 and 60
- more than 60

Correct answer: more than 60 (exactly 64)

2.13. How many people can you reach? DISCUSSION/EXERCISE

Mobile phone © dole777 on Unsplash

Let's do a small investigation.

Step 1: Pick one of your social media accounts (e.g. FB, LinkedIn, Twitter) and count your friends/contacts/people who you follow. Write down that number.

Step 2: Randomly pick 3 friends/contacts/people who you follow. Write down how many friends/people/they follow/contacts these 3 people have (it's good to exclude yourself from that number). Count the average of these three numbers.

Step 3: Multiply those two numbers. This is an estimate of how many people you can reach in just 2 steps. This is your "range" of two steps away. Is this number higher than a thousand?

If your friends have the same friends that you have (meaning that most of their friends are your friends as well), how does it affect your real 'range'?

2.14. How the numbers grow

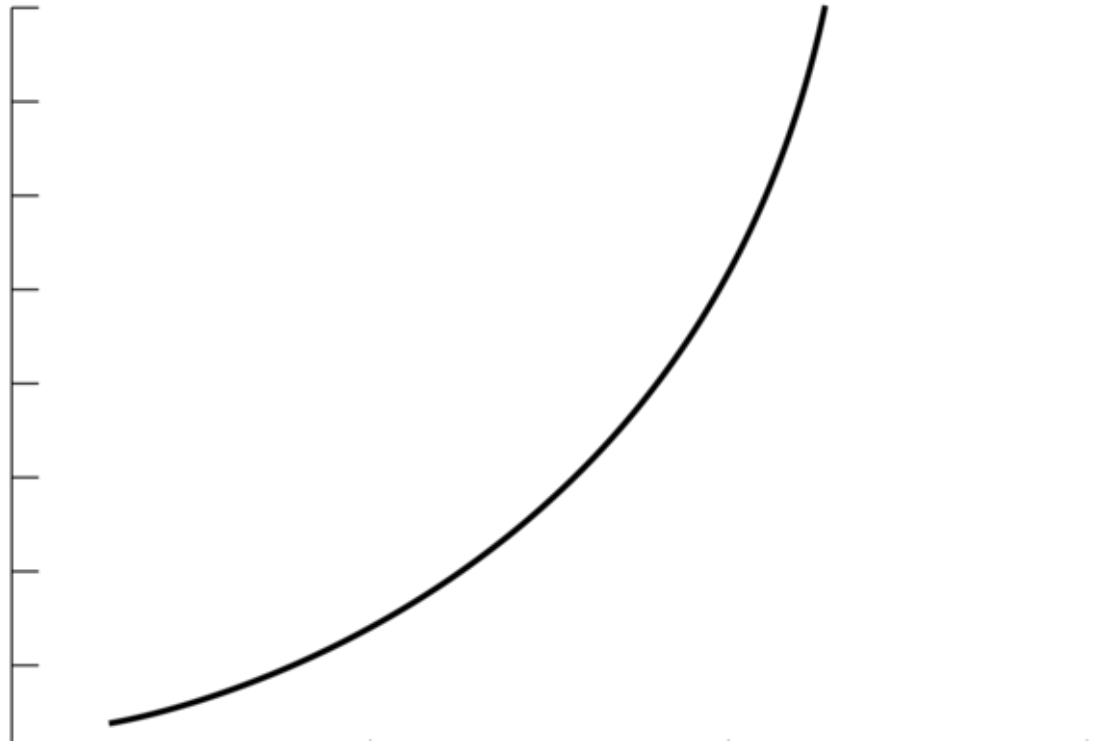
Click on video to view the trailer

In this video, we will have a closer look at social dynamics. We will discuss different ways in which processes may unfold and what changes are observed over time.

One small remark is needed here: in the type of threshold model we've been using, those numbers can only grow as there is no mechanism that would allow villagers to leave the protest. Once they're in, they're always in. This is why the process can only stabilise at one point and nothing changes anymore. Obviously, with social processes, it's more complicated than that.

For example, we could assume that protesters get tired after 3 days of protesting and go back home. With this type of behaviour (on top of the fact that we should be expecting non-linearity), we could have many more ways that the process could end. It could stabilise at one point and then die out. Or some people would join in at the same time others would get tired and we could observe 'waves'. With more complicated processes we may also expect more variants of end results.

2.15. A protest that grows exponentially - DISCUSSION/EXERCISE



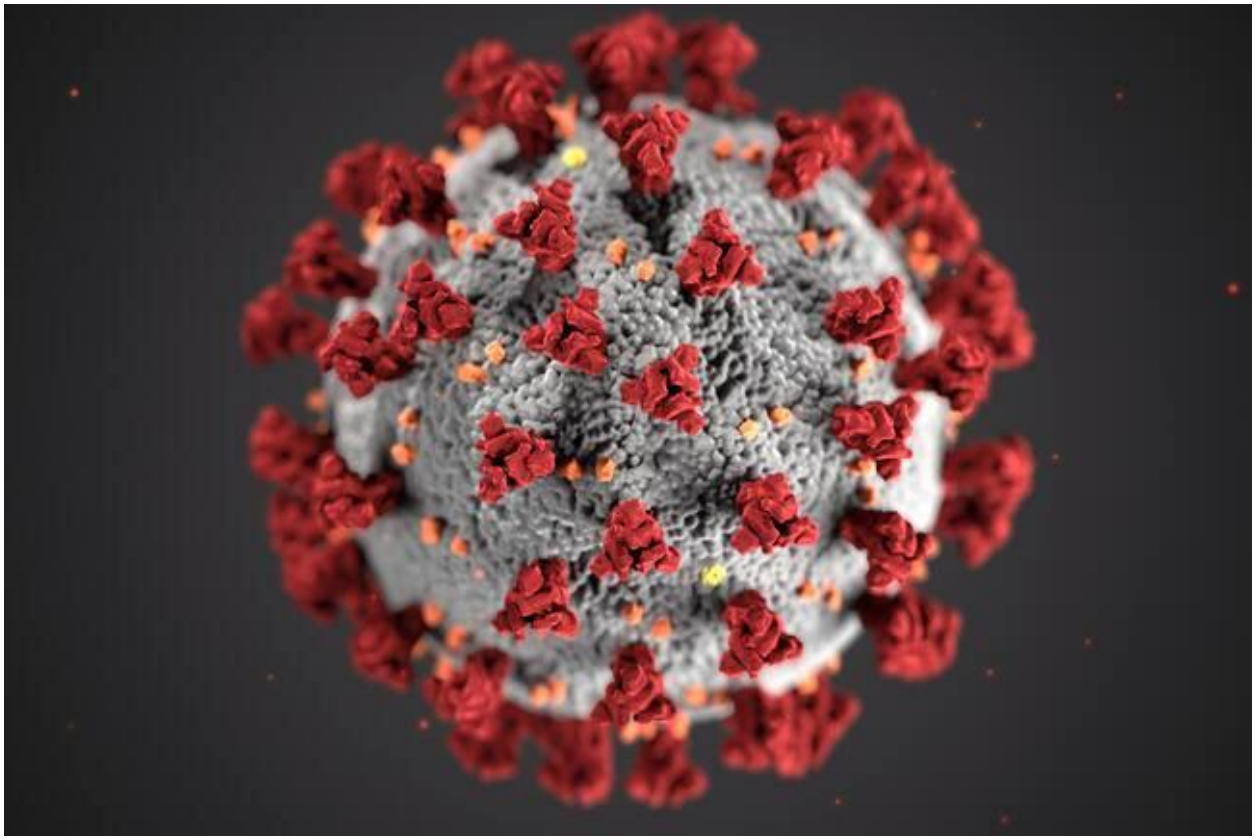
Exponential growth © Kalagato

Think about different shapes of the networks and how they can produce dramatically different shapes of the process of joining in the protest. Could you think of such a network that would produce exponential growth in the number of protesters?

Try out drawing a network consisting of 15 persons: 1 initiator and 14 people who have a threshold equal to 25% where we can observe such exponential growth (day 1- 2 people join, day 2-4 people join, day 3-8 people join in). Please share an image of your network via our photowall.

You can find our answer on the padlet wall, but also as a pdf here.

2.16. Social Network Analysis in practice - ARTICLE



Virus © CDC on Unsplash

When we think about the number of people we might reach just within 2 or 3 steps or handshakes away, it's quite surprising how the numbers grow really fast. If we pass some information to our 20 friends and relatives and co-workers and each of them passes it on to another 20 people they're in relation with, it's already 400 people. And let's take just one more step and we already have 8,000 people. And what if one of these people is an influencer with 10,000 followers?

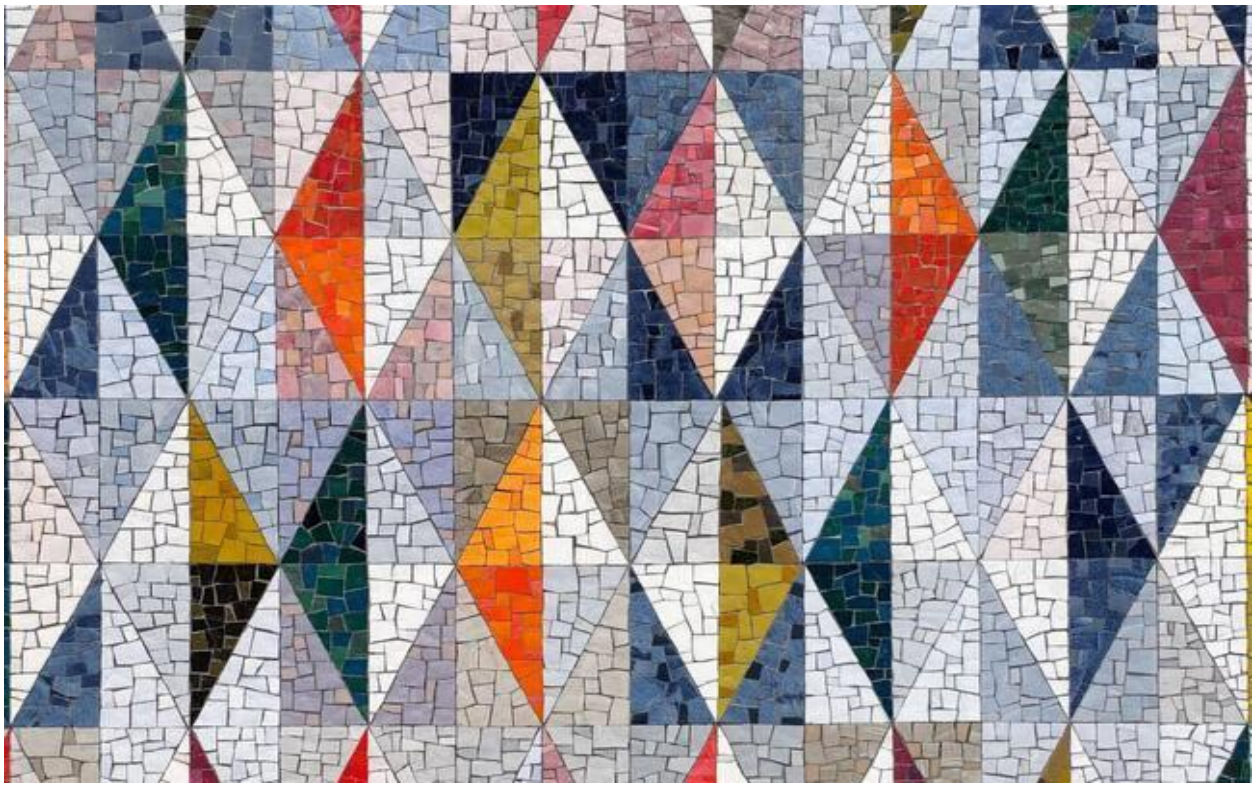
The expression "to go viral" means that something spreads very quickly because of a huge number of individual people who share it (and its relation to the word "virus" is not a mere coincidence). Whether it is an idea, no matter - good or bad (or a virus), when it comes to networks, sometimes we can observe really rapid growth in numbers.

Below there are two stories about such events - read the stories and think about the way networks enabled those stories to happen and how some popular people can help 'speed up' the numbers.

Facebook party invite sparks riot in Haren, Netherlands Fundraising: The Ice Bucket Challenge delivers

Can you name an example of an action that produced some good effect (e.g. a fundraiser or a social campaign) that went viral? Did anyone famous start it or take part in spreading it wider?

2.17. Looking for surprising shapes - DISCUSSION/EXERCISE



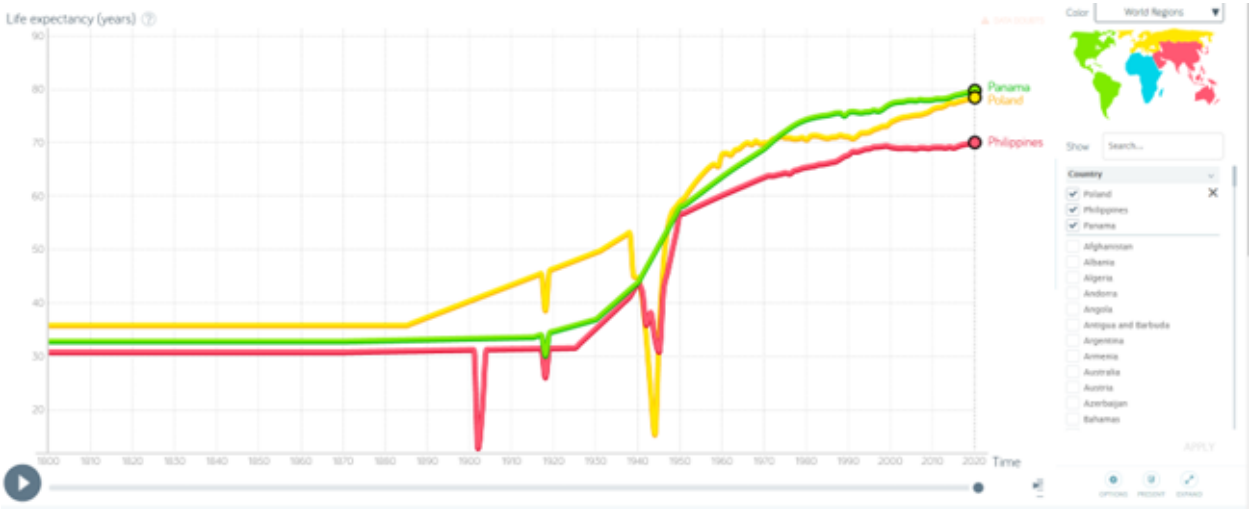
Multicolored wallpaper © Max Williams via Unsplash

In this step you will use a simple tool that helps visualise different publicly available data. With the help of this tool you will look for graphs with interesting shapes.

First, follow the link.

You can find a chart there that depicts how life expectancy (a general measure of how long people usually live) changed in time in three countries starting with the letter "P": Panama, Philippines and Poland. Look at the chart and observe how life expectancy rose, fell and stabilised in certain periods of time.

We encourage you to play with this tool a bit in order to find a chart that is interesting for you. Obviously, it's probably not the shapes of the graphs themselves that are interesting, but rather the social phenomena that they depict. You can check a variety of topics there, related to demography, health, education, economy, environment. While you browse different data you can see lines that show different patterns - growth, decline, changes and stability.

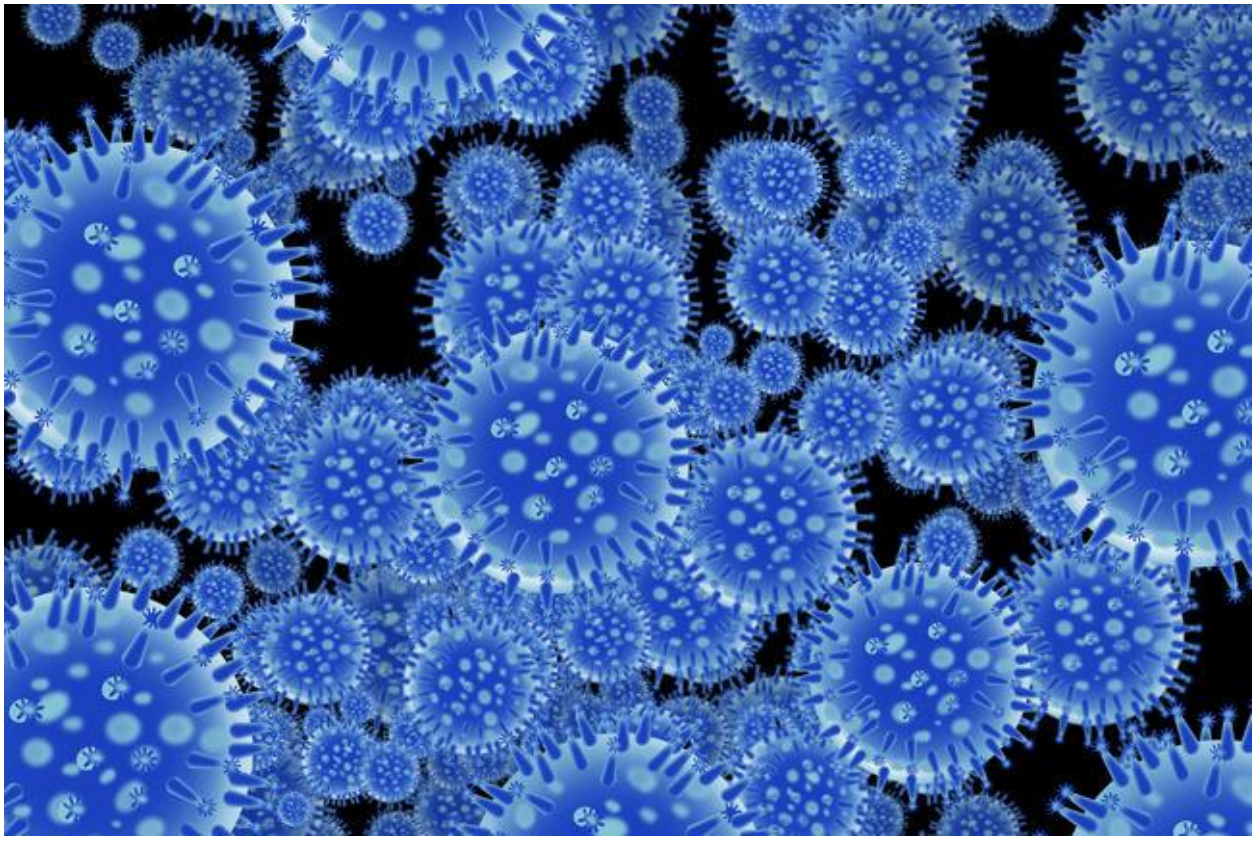


In order to change the main topic of the chart (something else than life expectancy) you need to choose the topic from the list in the menu in the upper left corner of the chart and in order to change the countries, you have to go to the menu on the right and click "Apply" after you make the selection.

Please browse through the database and look for an interesting result. For a line, you expected to be straight and stable while it's not or maybe a line that you thought should go up and it goes down instead? Please share your findings with other learners:

1. a link to a specific graph (you can copy it from your browser and paste in the comment)
2. brief description what the graph is about
3. why did you choose this graph (e.g. is it surprising? does it relate to an issue you find important)
4. you can also share a comment on the shape of the graph (e.g. it is nonlinear, it goes up pretty fast first and then slows down)

2.18. Modelling epidemics



flu virus © Storyblocks

Watch the video about modelling epidemics. You can see some concepts related to social networks and how they are important for the spread of an epidemic.

Click on video to view the trailer

This is an additional video, hosted on YouTube.

In the video there were some remarks related to the limitations of modelling and simulations - why is it difficult to use models 1:1 and predict the spread of a virus with certainty?

2.19. Why do we need computers to analyse social dynamics? - ARTICLE

White IMac © Gabriel Beaudry on Unsplash

As you have seen, when we're dealing with social processes, it's usually pretty complicated.

Let's think about protests that spread via networks. We investigated what would happen in Grapevine, analysed some examples and thanks to that we know how important the placing of the initiator is and that we should pay attention to so-called blocking clusters. But if we wanted to investigate all the factors that are important for such processes, we should think about different levels of thresholds, different numbers of initiators and, last but not least, different networks.

So, the first challenge of such an analytical task is a **sheer number of combinations** (remember how many different networks you could draw with just 4 persons?). The next challenge is **tracking the dynamics**. With just a couple of nodes (like in Grapevine) we could just track the process step by step. Obviously, with a thousand nodes, it wouldn't be possible (or at least we wouldn't advise it). And last but not least, eventually we would need to **analyse the results** of, let's say, a couple of thousands of little experiments.

This is where computers come in handy. We can create and investigate models without computers (this is what we've been actually doing up to this point with the Fruit County protests!). However, using computers can help us deal with all those combinations and enables us to study end results easily without the need to track down each step of the process. So, in order to analyse more cases, a whole range of initial conditions and to deal with large numbers, we usually need a digital tool. And then we're entering the world of **computational models** which simply means that we're using computers to investigate models of social behaviour. We will explore this approach further next week as we will be playing with some computer simulations (no need to install anything, we will use some simple applications for that!).

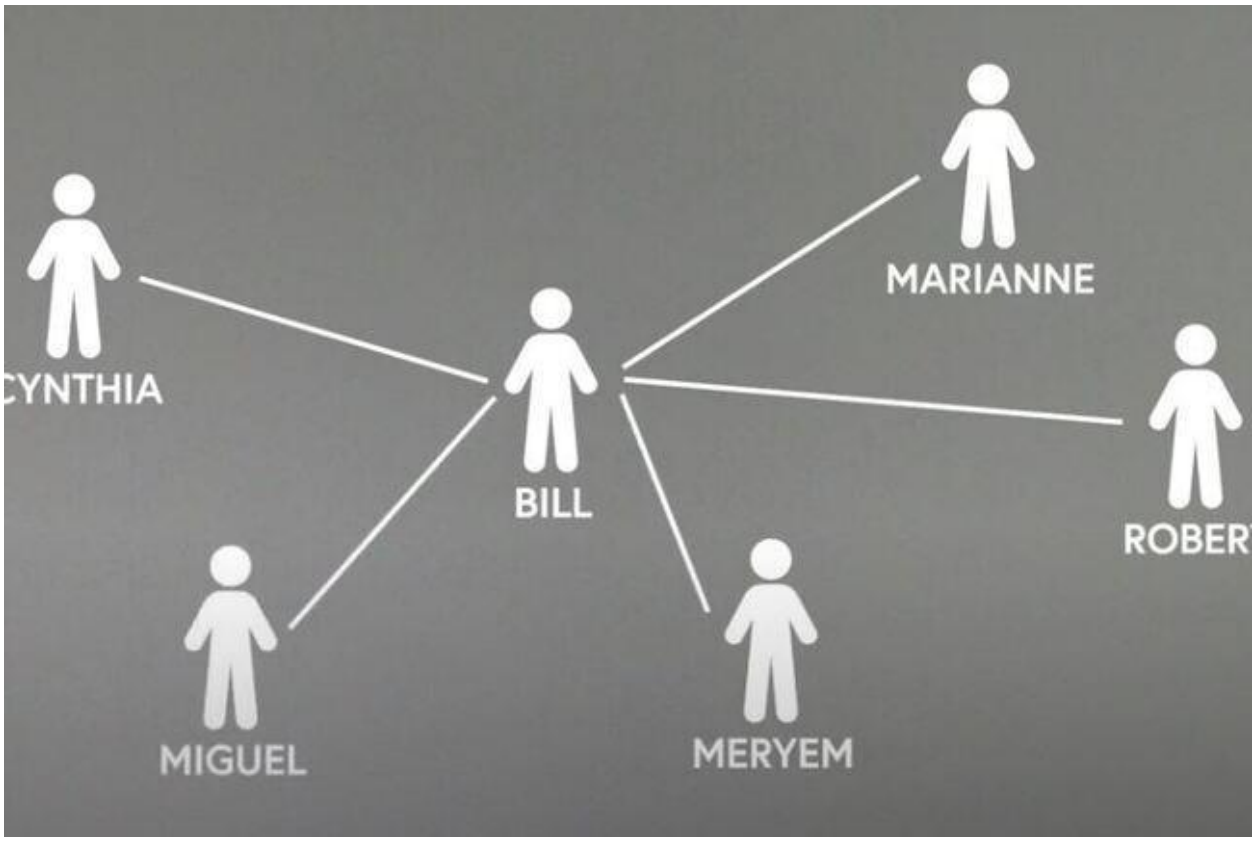
Before we enter the world of simulations, it's worth underlining that behind each sophisticated computer simulation there is a basic concept, a basic model such as the one we investigated in case of Appleton, or in case of Grapevine. Such non-digital models are sometimes called pen-and-paper models and they are not only starting points for computer simulations, but they are also relevant and useful themselves, for example for illuminating some core mechanisms in certain processes. Just think about all the insights about social processes from the previous exercises.

2.20. Why model? - VIDEO

Click on video to view the trailer

In this interview Wander Jager, the Director of the Groningen Center for Social Complexity Studies, explains the main reasons for modelling.

2.21. Wrap up Week 2



Simple model network © ACTISS

Within this week you did a lot!

- We started with the observation that friends often influence our behaviour and our relations may influence our decisions substantially;
- We developed a model where the protest spreads through a network of relations;
- We've done some social network analysis;
- And discovered how many networks are around us;
- We've seen some lines that describe social processes and they weren't straight;
- We also discussed that with many different combinations it is useful to turn our pen-and-paper models into digital ones.

Next week we'll go further with this digital approach and play with an imaginary village in a game-like manner - in order to try out how social simulations work.