

## Module 4 Video 4: Using data visualizations for network analysis

[00:00:00] In this video, I will talk about the visualization aspect of network analysis. You will learn how to transform your Netlytic dataset into a network graph. And also how to read what the graph tells you about the connections between the tweets in your dataset. Please note that the network analysis done here is not representative of all information available on Twitter about the topic. as we only analyzed a thousand tweets. So that's important to understand.

[00:00:33] So first, go back to Netlytic and go to My Datasets and click on the name of the dataset that you imported earlier.

[00:00:46] So here, up there, you see an option to click on network analysis. That's what we will choose. And on this next page, you go in the name network section on analysis.

[00:01:04] And once this is done. All you have to do is to go on, visualize. And here you have your network graph.

[00:01:16] You can now see my network graph showing tweets from the day of the protests in Berlin. And remember that I wanted to find out whether the police were at the center of Twitter conversations about the protests, at least in my dataset. And I wanted to find this out by analyzing a random data set from the protest. And then you look at the network graph. It seems that the police are indeed in the center of the discussions, because the first thing that I see is that the Twitter name put it, bolizeiberlin, which means Berlin police in English is right in the middle of my network graph.

[00:01:54] But let's look at this more in detail. Each circle called a node in Network Craft Language represents a Twitter user and nodes are connected to other nodes. Then a tweet from one user mentions another user. That's how they are connected through mentions. You can also see that the network is split into several other clusters. They have different colors and a cluster is a group of nodes that has stronger connections to each other, then to the rest of the network. If you zoom a little bit further into the green cluster, we see that the two biggest nodes here are Polizei Berlin and PolizeiBerlin\_e, which are official police accounts.

[00:02:51] So these are the two accounts, right? So why are these two accounts in the middle of the big cluster?

[00:03:01] The answer is that there are several users represented by nodes around the police accounts that have tweeted mentioning one of the two police Twitter account names. They all mentioned the police accounts. And as a result, we have a cluster with a strong focus on the Polizei. Netlytic also gives us the option to look at the individual tweets or retweets that created a connection between two accounts.

[00:03:29] So click on any node and you will see on the left hand side a list of Twitter users with whom that specific node is connected via a tweet.

[00:03:42] If you click on one of the names of window opens, which shows a list of all the tweets from this user mentioning the police account. So here, one tweet. Another tweet. These are two. And you can also see the content of the tweet here. Then you click on View Source Appear. Then the original tweet will be opened in a new tap. So now we directly look at how this looks on and Twitter.

[00:04:09] So by simply looking at the densest part of the network graph and by analyzing the patterns in my network graph, I was able to confirm that the Berlin police were indeed at the center of the Twitter discussions. And this is particularly interesting, given the small size of my dataset and the fact that I had a set of random users here. For my graph, analyzing the content of the tweets helped me understand why the police are such an important node in my network. So to analyze my network graph, I clicked through the users and looked at the tweets that connected them with the police account. And what I found out was quite interesting. For instance, I found that many users in my dataset commented particularly on the fact that the far right protesters managed to go up the stairs of the livestock building and they thanked the police for

their work on the protest state. So these were some users in my data set. But at the same time, many others criticized the police interventions during the protests. So here we see some criticism.

[00:05:25] Another insight, although unexpected that I was able to gain from my network craft was that the Twitter handles of the two police accounts were also included in tweets that were spreading rumors about the police changing sides and joining the protest against the Corona measures. This was not true, but it was a rumor going around during that time and this rumor seemed to be spreading at the protest location itself. And a journalist you can see here, a tweet from a journalist to share the information that this rumor was going around. And I also found users from my own dataset who were sharing the same rumor. So in there in my dataset there were also a few nice rumors that could then be checked further. And overall, the network graph gave me a really good overview of what type of accounts were communicating with the police accounts or others and about the content. And these people were talking about on the day of the protest.

[00:06:40] To conclude network crafts make it very easy for us to analyze and spot patterns in data sets, which can help us answer several questions related to digital investigations. Whether you want to verify if a hypothesis is true or not, or you want to get to completely new insights by studying the patterns within the datasets. It's really useful.

[00:07:05] If you want to learn more about how to create more sophisticated network graph visualizations, I recommend you tools such as Gephi, this one or NodeXL. It might take a bit to learn these tools, but they really allow you to do more sophisticated analysis with your data. I also added some links to tutorials for these tools.

[00:07:32] I hope that you will now take some time to out Netlytic. Feel free to start by creating your own first network graph and discuss your findings in the forum.