Social Networks
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Lecture – 65
Homophily (Continued) & Positive and Negative Relationships
Characterizing the structure of balanced networks

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Let us now shift gears and look at something slightly deeper you are now going to observe how in an organisation such positive and negative relationships can actually affect the organisation. Let me now ask the big question the main question in this chapter. So, he has the puzzles that impose the big question as a puzzle.

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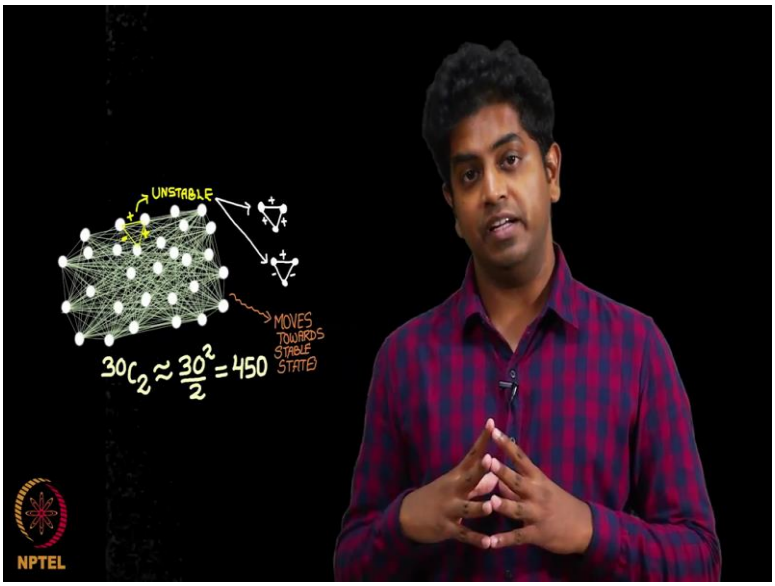

There are 30 people in an organisation 30 out of these 30 people since its only 30 people they know each other. So, is what is called a complete graph 30 people who know each other perfect? So, how many possible friendships are their here we have discussed this before it is roughly $30^2/2$ to be precise it is (30 * 29)/2, but throughout the discussion in this course a graph on n number of vertices we assume has roughly $n^2/ 2$ number of edges.

So, with 30 people you have $30^2/2$ number of friendships which is 450, right. So, far so good out of these four fifty friendships that you are seeing some of them can be positive some of them can be negative. So, observe carefully here is the graph with 30 nodes 30 people and roughly 450 friendships which can be positive and negative. We also know the four cases if there is a triangle here with a positive, positive, negative the it is unstable it will move towards positive, positive, positive or positive, negative, negative we have discuss this enough or you should remember by looking at this figure is that given a complete graph with 30 nodes and some random plus minus symbols on these edges in an organisation it moves towards stable state because every triangle here if you see may not always be stable.

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So, what is the big question the big question is as it goes towards the stable state in an organisation how will the graph look like when there are no unstable triangles here I repeat out of 30 people given 450 friendships with some random plus minus symbols on the edges which is friendship and hatred what is what does one mean by this particular graph becoming stable, alright. So, in (Refer Time: 03:18) heard to analyze that that see one first of all one should get the question right once we get the question right we should make an attempt to answer to do you see the motivation behind this question the motivation is if a bunch of people get together there could be there could be friendships or hatred between them if there are unstable triangles it moves towards stable state what exactly happens eventually.

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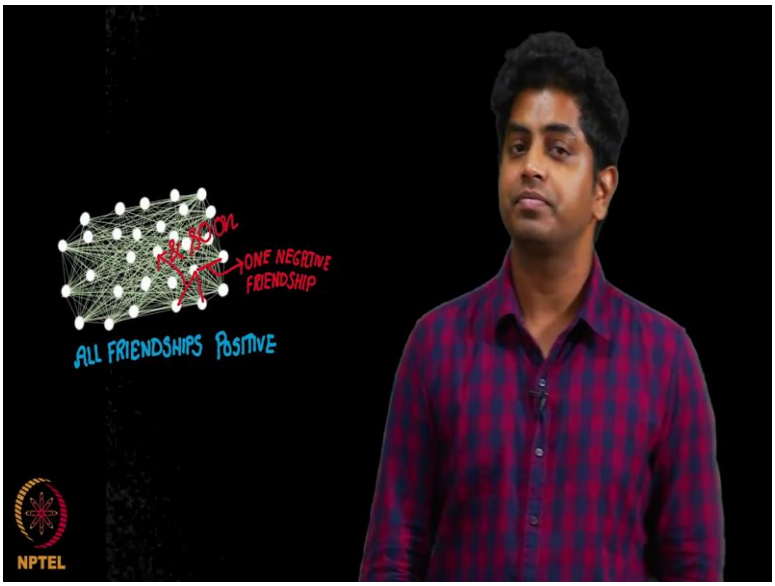

Let us consider a happy about assume 30 people how 450 friendships and all this friendships are positive never happens, but let us assume this happens all 30 people are friends with each other and their all positive now remember the code that I started this chapter with what is the code a bunch of apples you have and you just put one rotten apple there one rotten apple spoils the barrel right. So, this is just like this you have milk you put some if you drops of curd into it and the entire milk eventually turns into crud right given this kind of a happy world with all relationships being positive just try introducing one negative friendship what will that result in observe.

One negative friendship will result in a triode around it at least one triode right one triangle one negative friendship and that results in Rama Krishna kind of a phenomena and this one negative friendship ensures that one of their friendships becomes negative and this cascades whatever mean by this cascades one negative friendship results in another negative friendships so on and so forth. But wait a minute we will this result in all of them becoming negative my curd milk example is not actually true here why introducing one negative friendship we will result in negative friendships, but then if there is a triangle with three negative friendships that will result in positive friendship. So, it is not really true that introducing one negative friendship results in all negative friendships it may not really be true.

Now what else us what else will happened here I repeat the question given 30 people I am using 30 for example, reasons you can it an 100 200 whatever let us stick to 30. Given 30 people 450 friendships positive or negative there are some unstable triangles here it will reach stability slowly how does a organization with all stable triangles look like is the big question that we are going to answer now.