Checkpoint 4 Analysis

The Freedom Donkeys

Initial Proposition: For the officers who have been disciplined, we will create a graph where the nodes are the officers and the edges are weighted by the number of complaint reports shared between two officers. We will repeat this for complaint reports who have been disciplined for a civilian complaint and those who have been disciplined from an officer complaint. Finally, we will see if these co-accusal graphs have the same density and/or are similar in cluster formation. We will search for cliques/triangles within this graph to see if there are patterns with which officers are getting disciplined together.

Model Outcome

For our model, we ended up creating a node for every officer who has been disciplined by either a civilian or department complaint and mapped an edge between officers on the same crid (complaint report id). We created a graph for civilian complaints and another for officer complaints. From there, we found different triangles and groupings within the graphs and plotted some of the most components that showed up in the graphs. These are shown below.

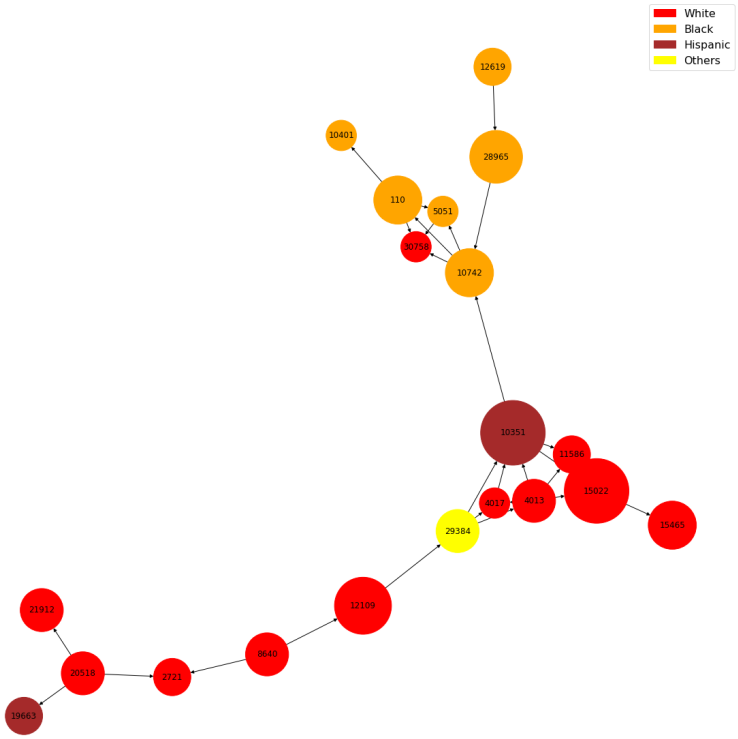

Figure 1. Plot of a civilian complaint component.

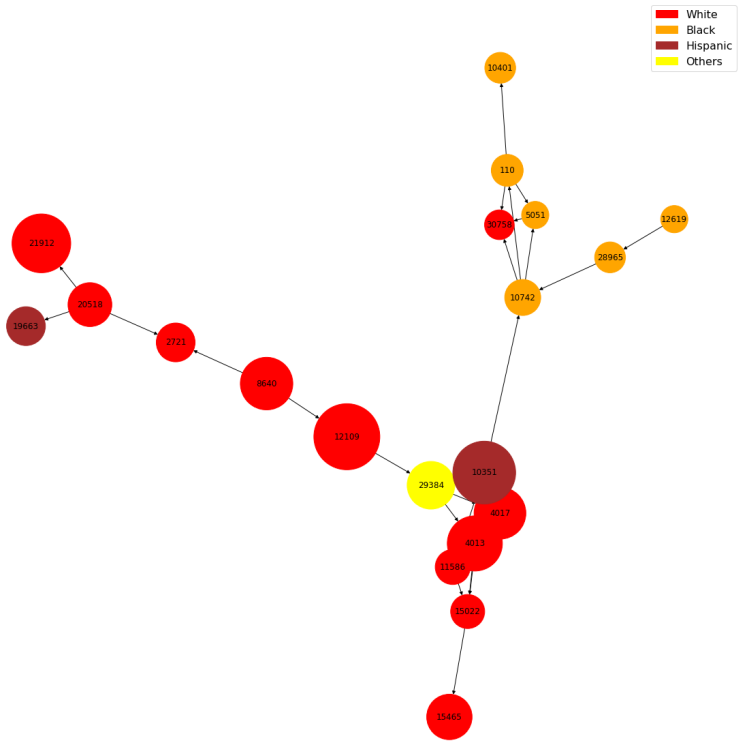

Figure 2. Plot of Figure 1 with allegation counts.

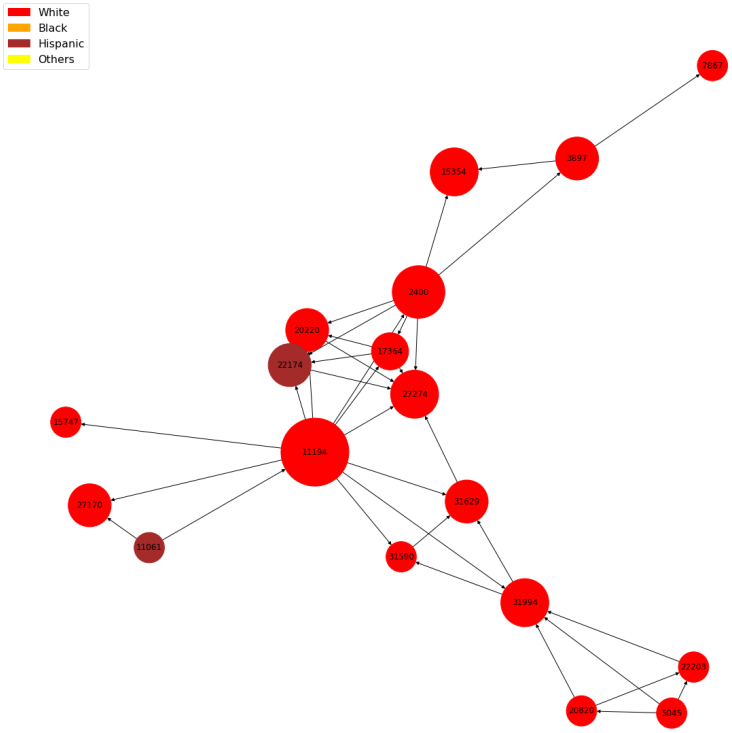

Figure 3. Plot of another civilian complaint component.

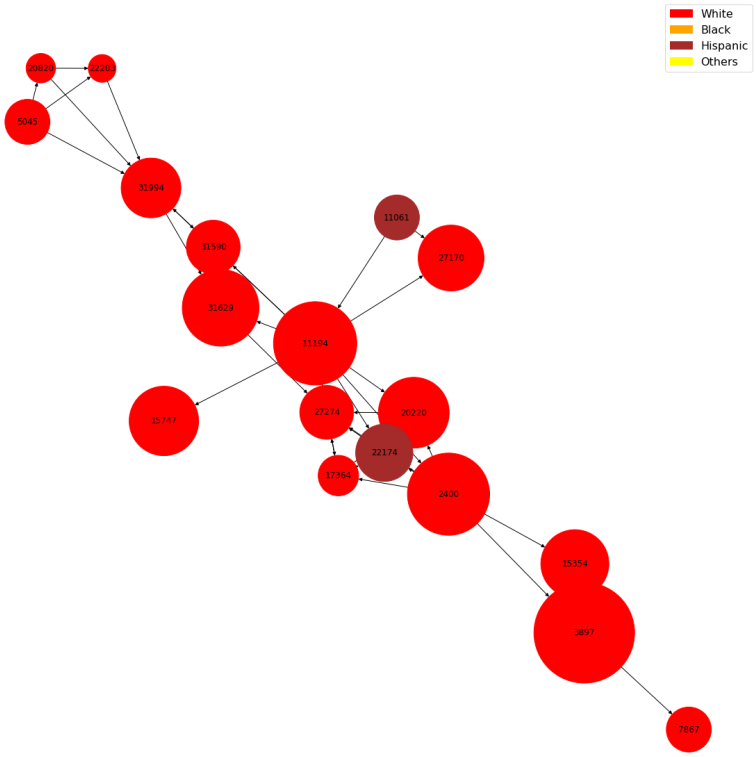

Figure 4. Plot of Figure 3 with allegation counts.

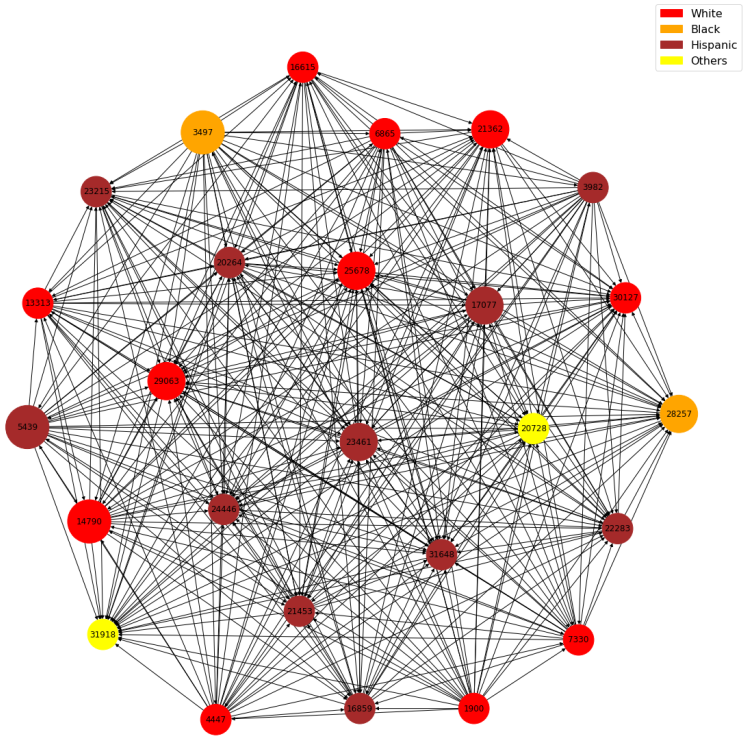

Figure 5. Plot of a police complaint component .

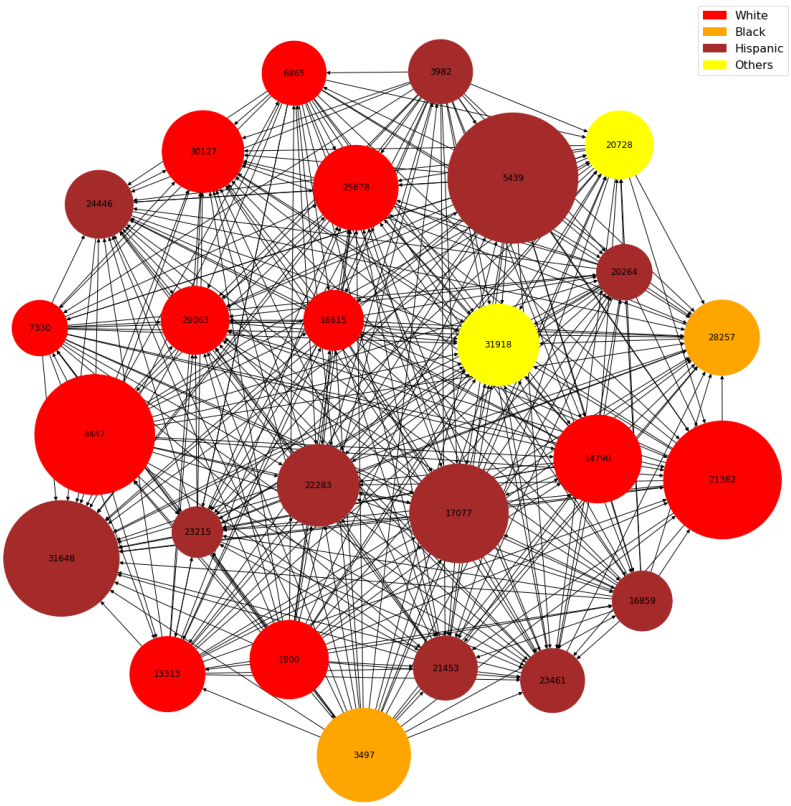

Figure 6. Plot of Figure 5 with allegation counts.

Analysis

Part of our theme involves discovering patterns in what attracts discipline. Here, we study the connected graphs of officers who were disciplined together within the same complaint.

In the figures above, these are chosen because they are the components with some of the highest counts/recurrences. Each node is an officer and each edge is a co-listing on the same complaint, as mentioned previously. The odd numbered figures plot a component with discipline counts taken into account while the even numbered figures following an odd numbered figure indicate the same component except with total allegation counts.

In Figure 1, we can see that there is not as much interconnectedness besides a small party of officers. From those officers, it seems that a string of officers becomes included into the component. There is one main group of officers who are white (we assume this because the officers who are white have higher allegation counts according to Figure 2) and it leads to another group of hispanic officers with a small number of allegations against them. However, we can see that despite having less allegations amongst the hispanic officers, they are about equal in discipline counts with the white officers. This could be indicative of a racial bias when disciplining officers or a difference in the severity of complaints when the

hispanic officers are involved. Additionally, this could lead us to believe that there is often a connection between a few ‘troublesome’ officers which spreads to the officers who fraternize with them.

If we look at Figure 3, which is also a component based on the civilian complaint graphs, we can see that the ethnic distribution is much smaller. The component graphed shows up almost as frequently as the one in Figure 1. We notice right away that the majority of these officers are white and there exists many more connections than in Figure 1. Additionally, when you consider the size of the allegation counts in Figure 4, we know that most of these officers have a not insignificant number of allegations listed on their record.

Finally, we can see in Figure 5, we have a component from the police complaints graph plotted. Of course, these officers seem to be extremely interconnected, but fall under a broad range of races. There is also a decent difference between the highest and lowest officers in terms of allegation counts according to Figure 6. We can assume that there exists way more connections between officers for officer complaints because of the type of complaints that are usually filed by the department (Personnel Violations, according to checkpoint 3). Thus, these officers could be ones that are frequently running into the same issues over and over again like being late to work, owing money to the city, etc. However, with civilian complaints, we can actually explore more connections between different officers and the number of complaints that exist between them.

Based on these figures, we can see a big difference between the civilian and police complaints, most likely because of the type of complaints. Additionally, we can conclude that a few ‘bad’ officers can lead others to more complaints, as described in Figure 1. There also exists at least a small ethnic influence when you consider the majority white officers that show up in these plots, especially Figure 2. In the future, you could track specific officers or groups of officers who we have identified as officers that lead to complaints and observe if they lead other officers to more interconnected complaints. Then, by observing these officers, we can find a common denominator and incorporate that into a police reform program. Those observations can also happen now based on past data; by looking at the records of officers within these common components, we can draw conclusions about what behaviors or actions lead to complaints. This is all with the goal of changing the way police officers act in an attempt to reduce the number of complaints received.