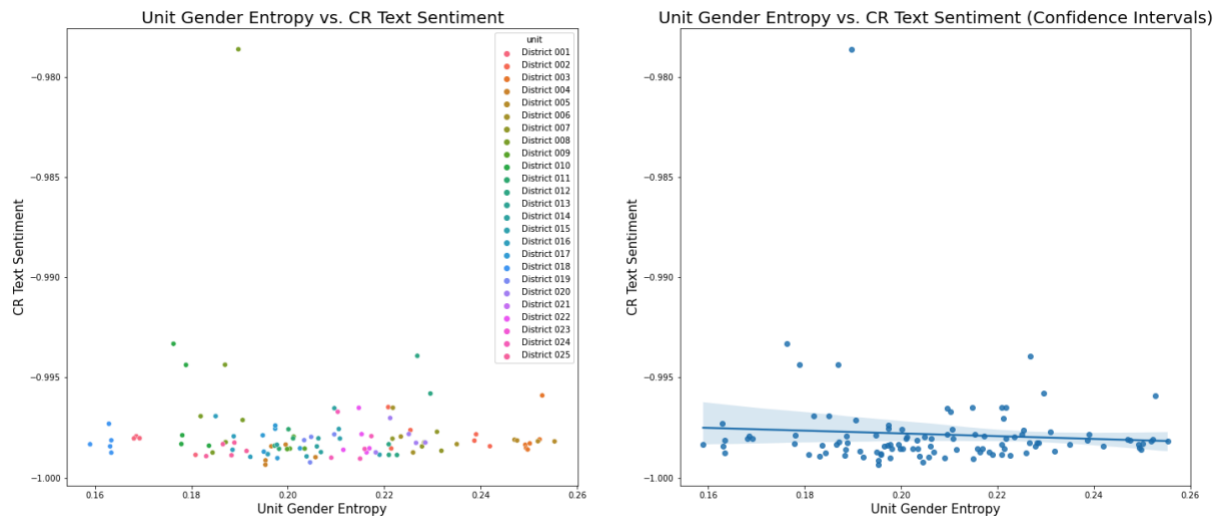
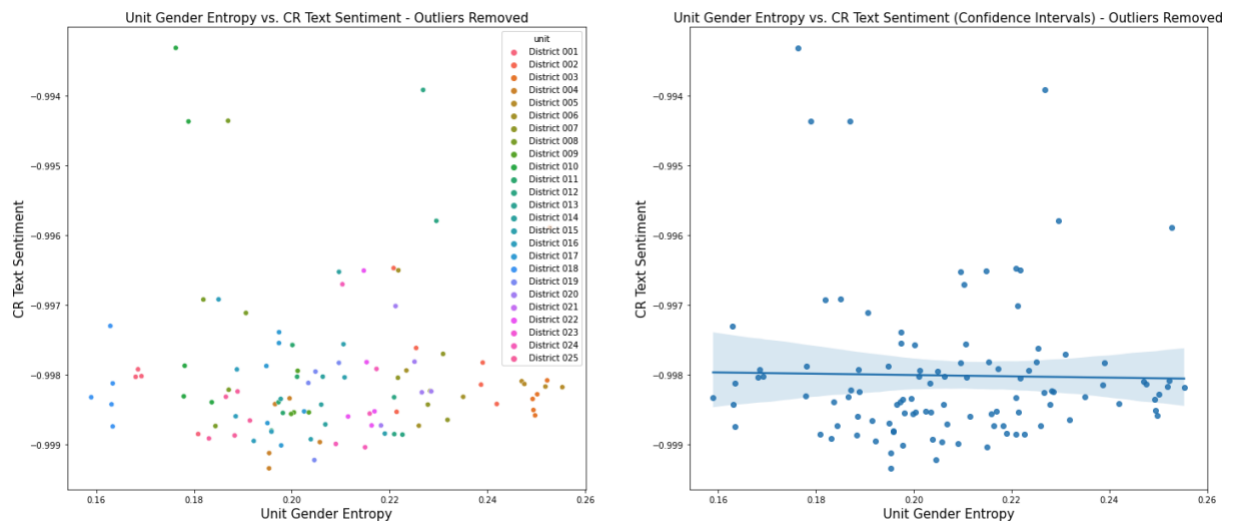


Question to Investigate: “Sentiment analysis on the available free-form text of a complaint then related to the demographics of the officers’ specific units. Do we see a more negative sentiment between complaints against an officer of a unit that is more homogenous?”

Unfortunately, the outcome of the analysis on sentiment of text from cr’s (as well as quoted phrases within that text field) yielded insignificant results. We can see the results in the plots below:

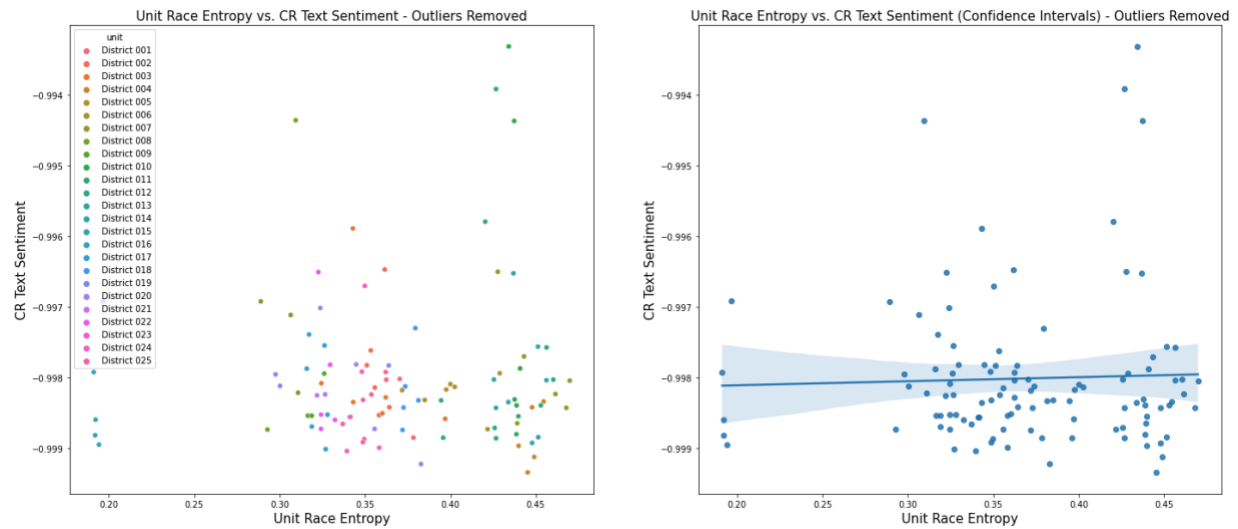


As we can see, there is no strong relationship observed. However, we do see an outlier in the chart, so I removed and tried re-plotting:



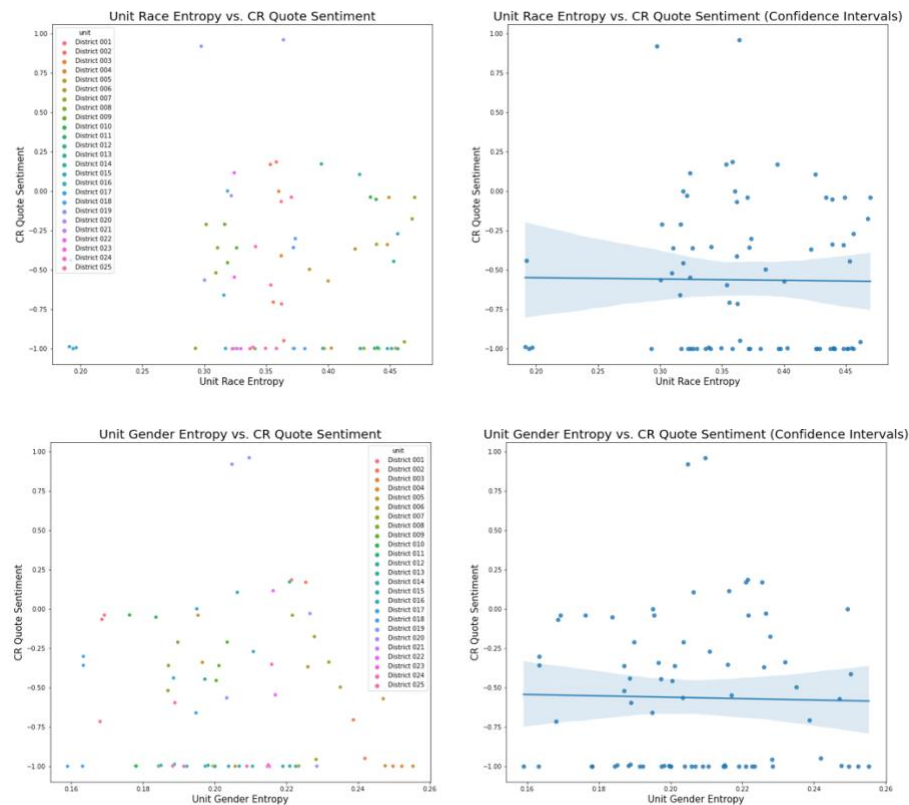
Looking at the line of best fit in the regplot on the right, we see a relatively flat line, indicating there is no significant relationship between the gender entropy of a unit and the sentiment score of the text win the cr.

Continuing to the relationship between racial entropy and cr text sentiment, we skip plotting with the outlier and instead observe the plot with the outlier removed:



Similar to the previous results, the regplot shows no significant relationship between unit race entropy and cr text sentiment.

Since the vast majority of the text sentiment scores are extremely negative (makes sense given the nature of what they are describing – a complaint), I wanted to further investigate the text to see if any included quotes would show a relationship. Do we see a difference in quotes based on the entropy of the unit? Below are the relationships of unit gender and unit race entropy vs. the sentiment score of included quotes. Similar to the above, we see no significant relationship.



Although this analysis proved fruitless in terms of investigating relationships, it gives us some insight into the cr text. Inspecting a handful of the text fields, we observe both actions from the complainant as well as the officer, making it hard to rely on the text for any sort of consistent analysis. Going forward, if possible, it would be interesting to analyze text in the form of actions from each party. For example, we could have free text describing the complainants' actions as well as the officers' actions, and run sentiment analysis on that. From there, we could try to find relationships between officers' behavior sentiment and entropy within units. Additionally, we could investigate the relationship between the sentiment of the complainants and officers, respectively.