Potential Source of the bug

The particular bug that we want to look at is the original issue (logit scale ignores limits when no data is plotted)
The tick locating and formatting is supported in /lib/matplotlib/ticker.py. So that's most likely where the bug is coming from. In ticker.py, there is LogitLocator class which is locator for logit scaling. Since the bug only happens with logit scaling, the bug should be from this class. Looking through the methods of LogitLocator class, I found 2 classes that has something to do with the max and min value of tick. They are tick_values and nonsingular.

according to the documentation:
tick_values(self, vmin, vmax)
    Return the values of the located ticks given vmin and vmax.
nonsingular(self, vmin, vmax)
    Expand a range as needed to avoid singularities.
The bug is very likely in the nonsingular function because it expands the range.

Impact on other part of the system

Other than the "too many ticks" issue that's closely related to this issue, we don't think this bug will impact other parts of the system because the tick of logit scaling is just a relatively small and isolated part in the system.

Work Estimate

Software Design Phase [1 day] At the end of this stage, we've already analyzed the bug and have a understanding of the impact of the bug. The team will have a lead as to approximately where the bug is located and get a general idea of how to approach the fix to the bug. This stage would take about a day.

As mentioned in the Requirements Definition Phase, this issue actually contains a original bug and a related bug which are supposed to have been fixed and one followup bug not yet fixed. However, we found that in the master branch the behavior does not look like the bugs are fixed. We are not sure what happened with the other developer's pull request. Since the complexity of the situation and the fact that there are multiple bugs closely related, we think it will take a lot of time to sort everything out and implement the fixes for the bugs. So we decided not to work on this issue for this deliverable.