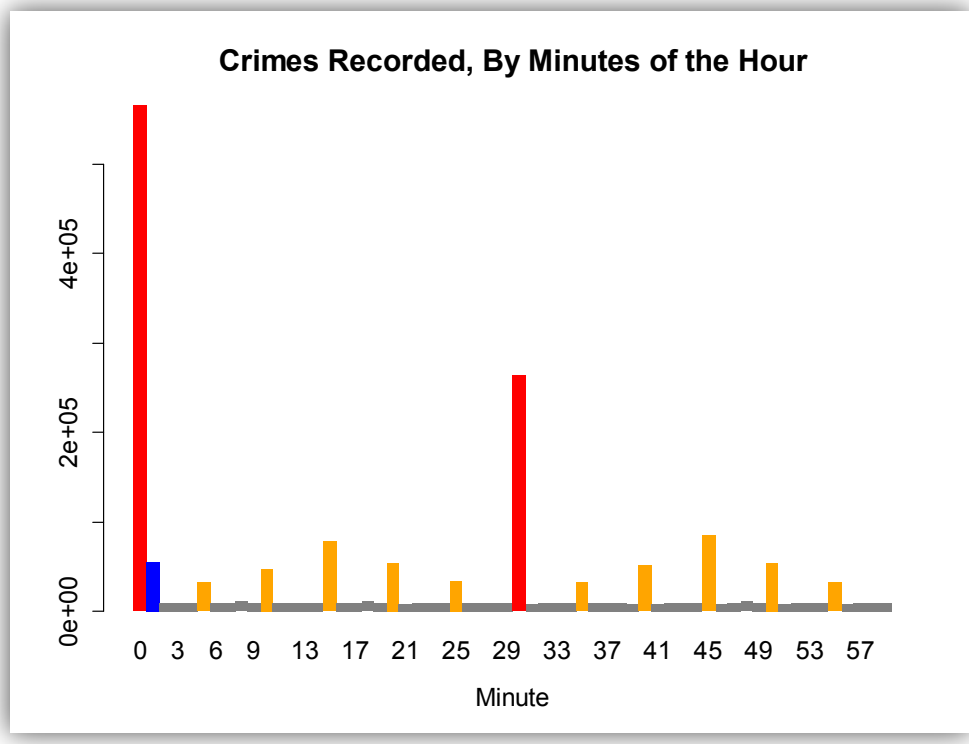
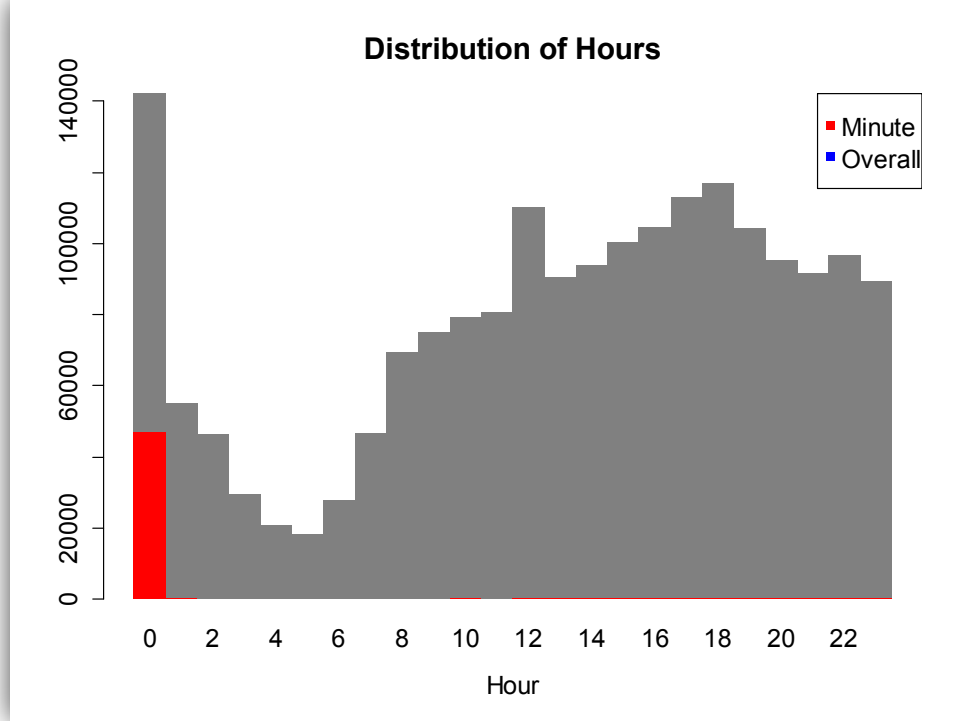
Prevalence of Mental Shortcuts in Official Crime Statistics

Looking at the data, the distribution of at what minute of the hour is a crime recorded, is NOT uniformly distributed. We could see the initial peak and the peak at 30 minutes from the full Seattle crimes dataset.

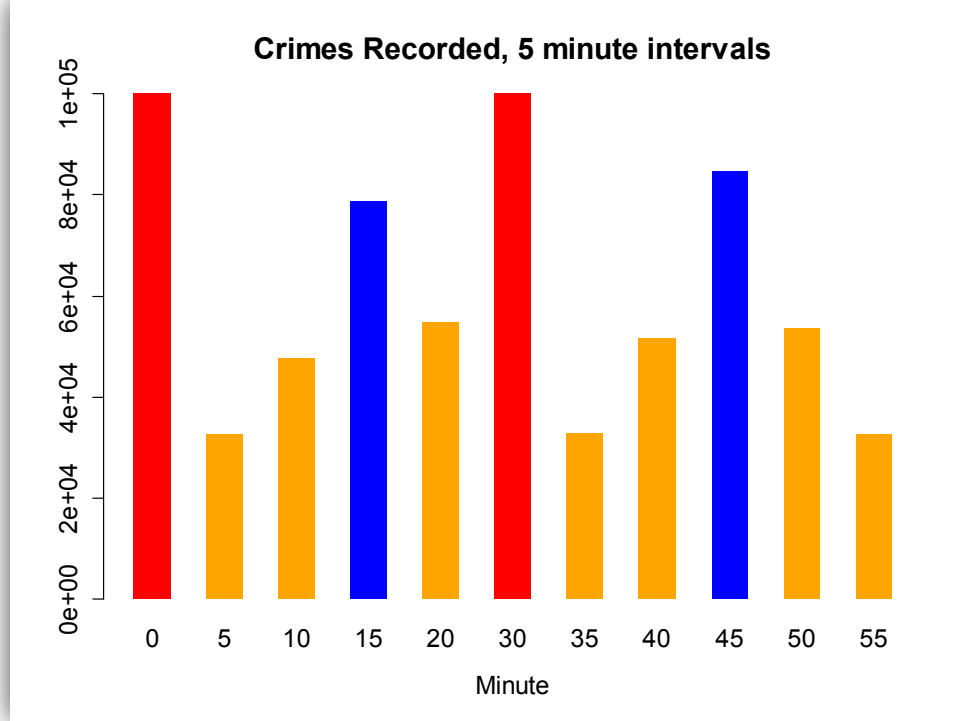


Clearly, we find that reports tend to round to the nearest 5 minute interval. Additionally, there is very significant rounding to the hour as well as to the half-hour. Additionally, there seems to be a lot of rounding to :01, potentially suggesting avoidance of the 12:00 today/yesterday ambiguity (even though the official stance is that a day is 00:00 to 23:59). This seems to be a mental shortcut of the human mind.



Some additional examination of the data shows this to be apparently true, with almost all of the :01 data belonging to 00:01, again inconsistent with the intuition that the distribution should be roughly the same as the overall distribution of hours. Again, this seems to be some sort of shortcut or compensation for a confusing mental framework.

Even more interestingly, there is some unexpected rounding behavior with respect to five-minute increments, presented below:



Note: The red bars for :00 and :30 extend off the graph. There is some expectedly additional rounding to :15 and :45 which, given what we've seen before, is an equivalently fair mental shortcut. What is also observable is that the rounding effect is stronger near :00 and :30 than :15 and :45, even though rounding from :05 to :00 is the same temporal distance as :10 to :15.