Bayesian Change Point Detection: An Application to Detect Trend Changes in COVID-19 Cases

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Abstract. COVID-19 has had a significant impact on the day-to-day lives of people across the world. Tracking changes in the spread of the virus has become critical to making decisions and policies to keep people safe from exposure. In this paper, we modify an existing Bayesian framework to identify trend changes in the number of daily COVID-19 cases in the US. The proposed method only assumes the form of distribution that models the different observations between mean and slope changes. Further, once a change point is identified, the algorithm starts afresh looking for the next set of change points. Finally, the performance of the algorithm is evaluated on daily time-series data using the state-level New York Times data set tracking COVID-19 cases.