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Percolation Threshold from a Giant Subgraph of a Twitter Based Nodal Graph KEITH ANDREW, MORGAN TAYLOR, PHILLIP WOMBLE, Physics and Astronomy, Western Kentucky University, KARLA ANDREW, Cyber Defense Laboratory, KAY OPALENIK, Information and Library Science, Southern Connecticut State University, CRAIG COBANE, Political Science, Western Kentucky University — We find the critical edge value p which almost surely determines the percolation threshold for a minimal giant subgraph of a host graph G, using the Lu Subgraph Percolation Theorem for a Twitter based social media graph. We determine the linear time dependence of the exponent of the degree distribution function for the resulting giant subgraph. This time rate of change is compared to the rate of change for the corresponding centrality eigenvalues within the Giant Subgraph and to external edges that connect to nearby clusters. The greatest rates of change are coupled to the Parts of Speech (POS) Indicators for selected memes with topic specific verb and adjective bigrams. The differences between these values and the Percolation Centrality are used as indicators of graph activity and are modeled to generate a global graph entropy used to capture the large scale connected complexity of the graph. We explicitly calculate these values for the Twitter activity related to the example of information tweeted from topics on Banned Books for the Handmaids Tale and government focused cluster subgraphs in a Tweet-Retweet graph.

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