

SUPER STAR MODEL: PREDICTING THE STRUCTURE OF RETWEET GRAPHS IN TWITTER

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Twitter is a micro-blogging site where users post messages known as “tweets” and repost the tweets of others via an act known as “retweeting”. We observe the following interesting phenomenon in the retweet graphs associated with a wide array of topics in Twitter: there is always a single vertex whose degree is on the order of the graph size. We refer to this vertex as a super star. To model this phenomenon we propose the super star model, which is a variation off the preferential attachment model that allows for one vertex (the super star) to have degree that grows linearly in the graph size. This model predicts a relationship between the super star degree and the degree distribution of non-super star vertices. We find that this relationship exists in real Twitter graphs. Furthermore, we show that the super star model predicts the degree distribution of these Twitter graphs more accurately than preferential attachment.