

Graph Theory

akim1

April 14, 2015

1 Introduction

One of the goals of this proposal is to lay out a framework for determining rigorously whether patterns that arise from a nodal network is dependent or independent in nature.

One approach to determining the dependency of a particular pattern is to determine a model to be used, such as the stochastic block model. A network will be generated using the stochastic block model. After which, the network will be inspected for formation of triangle patterns. The number of triangles will be quantified. This process will be repeated for different parameters of the model.

At the end, a t-test will be performed, and the number of triangles will be compared to the one generated by the stochastic block model and the ones observed in data. It is assumed that if these two processes are not independent, then the number of triangles generated by the stochastic block model should be comparable to the one observed in data.