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**Darren Narayan\***, School of Mathematical Sciences, Rochester Institute of Technology,  
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Connectivity of the Human Brain.*

We will show how two different graph theoretical centrality properties can be used analyze to functional connectivity of the human brain. Edge betweenness centrality measures the ratio of shortest paths between two distinct vertices that contain a particular edge. Edge clustering centrality measures the frequency at which an edge appears across all local subgraphs induced by each vertex and its neighbors. The latter metric is tied to a problem from structural graph theory in which we seek the largest subgraph that is a Cartesian product of two complete bipartite graphs  $K_{1,m}$  and  $K_{1,1}$ . Here the most central edge is the one appearing in the largest set of overlapping triangles. We use these centrality properties to analyze functional MRI data from a study involving the viewing and pantomiming of tools at the Rochester Center for Brain Imaging at the University of Rochester. (Received August 01, 2017)