Pre Assignment 3

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This assignment consisted of calculating and visualizing basic network metrics for the 71 node macaque network. The scalar values calculated for the network are

Density : 0.1501

Diffusion efficiency : 0.0128

Characteristic path length : 2.3298

Transitivity : 0.398

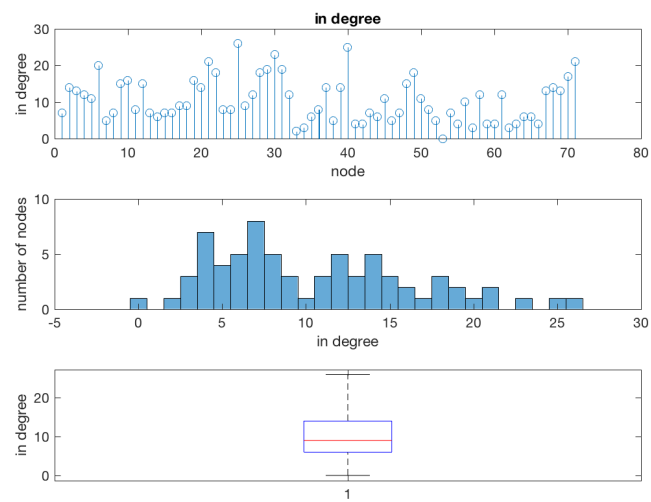Assortativity : -0.066

Strength and degree
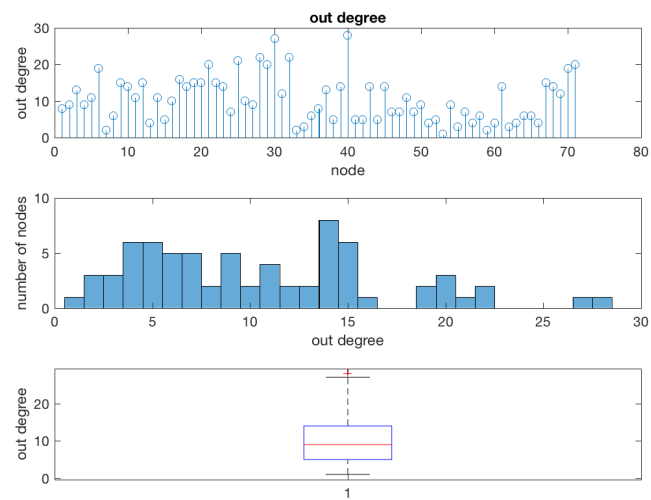

Figure 1: Inwards degree of the nodes
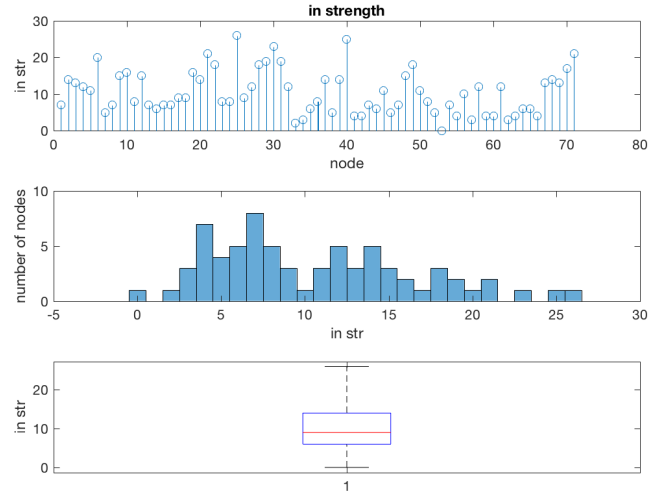

Figure 2: Outwards degree of the nodes

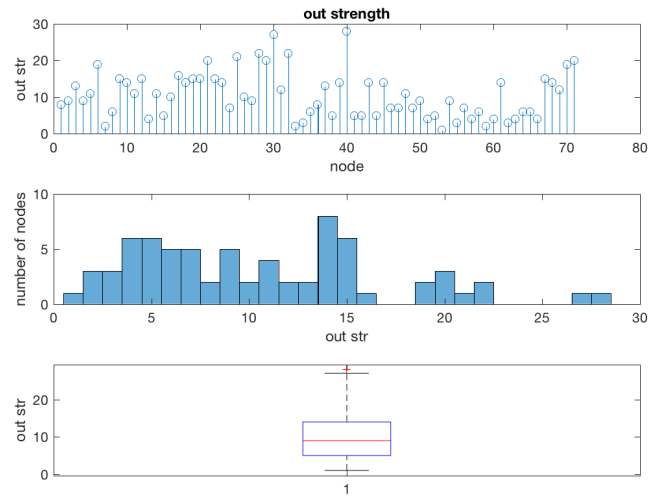Figure 3: Inwards strength of the nodes

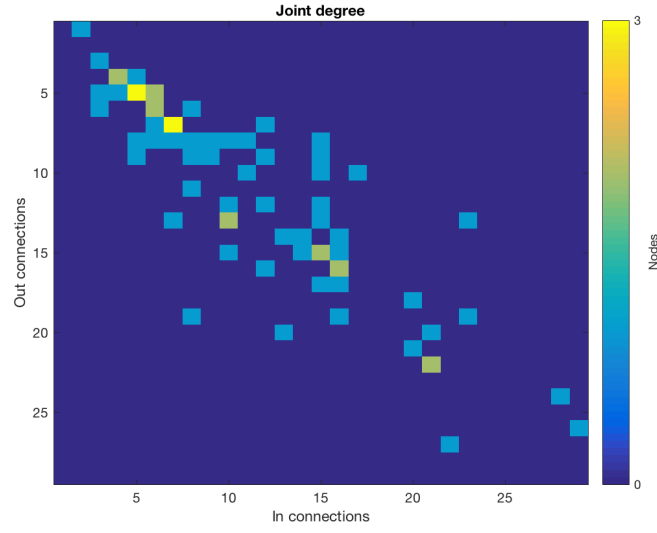Figure 4: Outwards strength of the nodes

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Figure 5: A matrix depicting the joint degree of the nodes
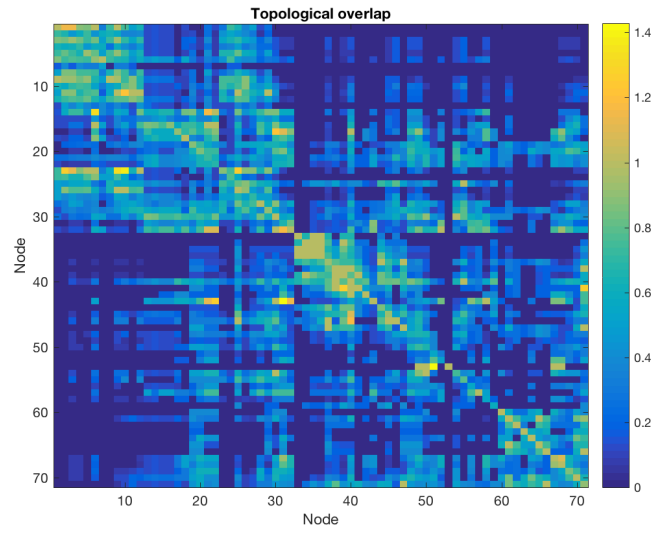

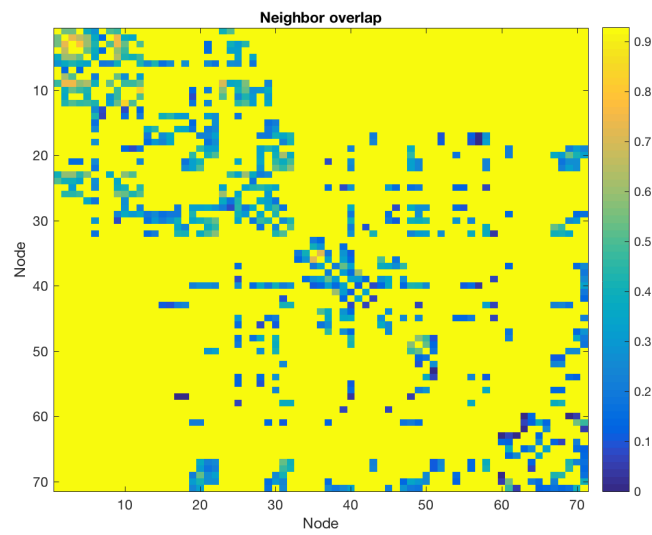Figure 6: The generalized topological overlap of the nodes

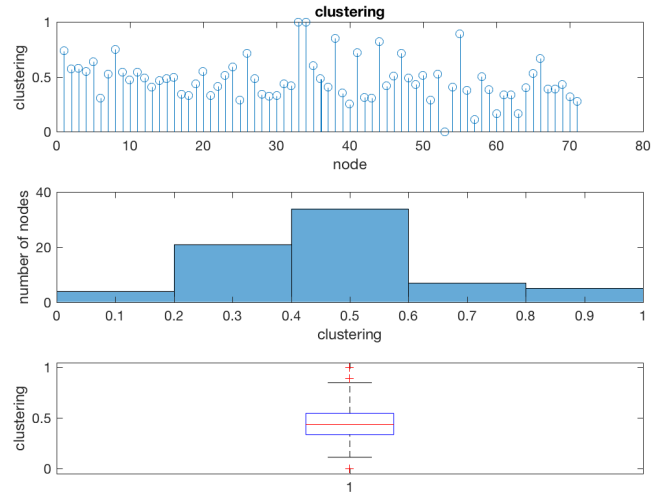Figure 7: Neighbor overlap of the nodes

Clustering and communities

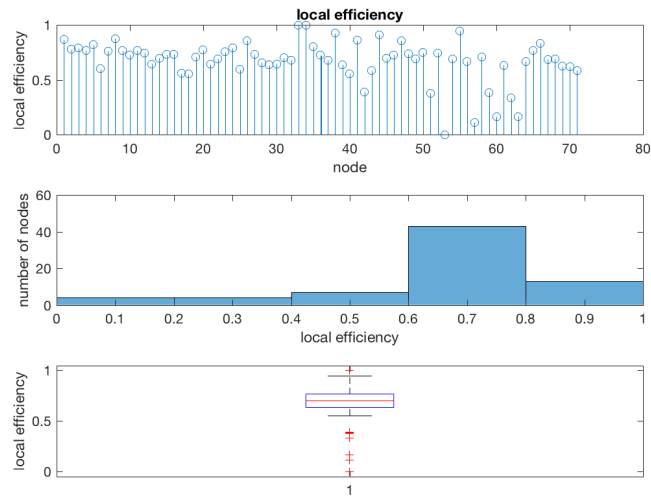Figure 8: The clustering coefficient

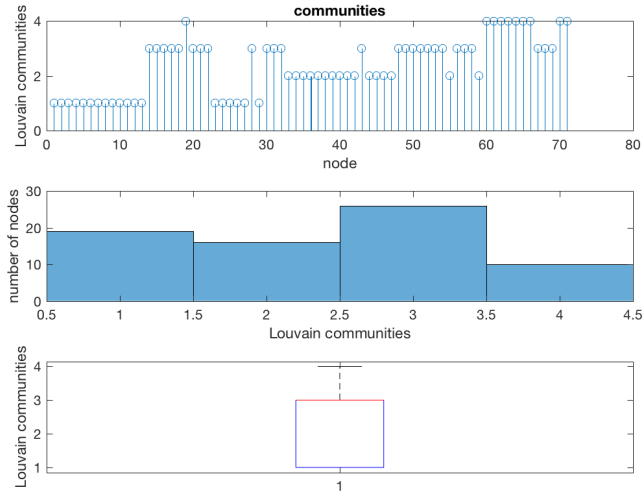

Figure 9: The local efficiency

Figure 10: Community structure calculated using the Louvain method
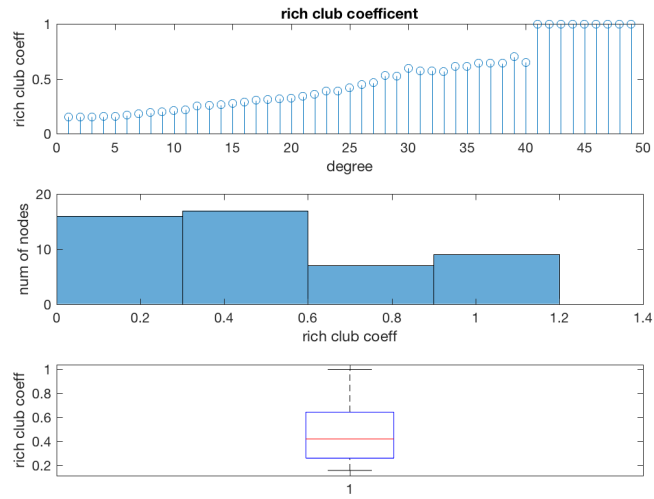

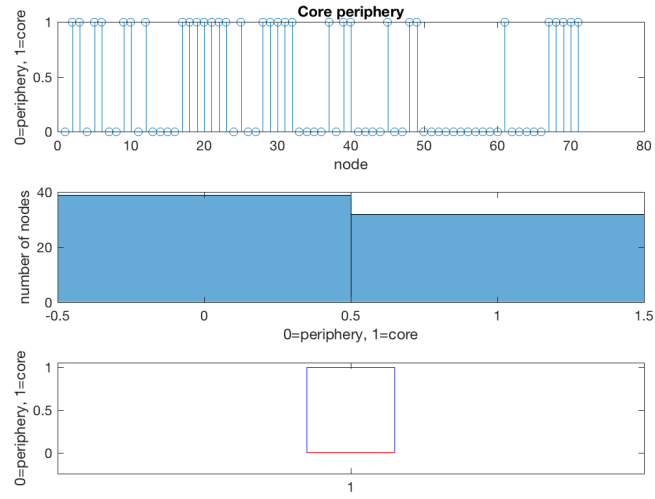Figure 11: The rich club structure
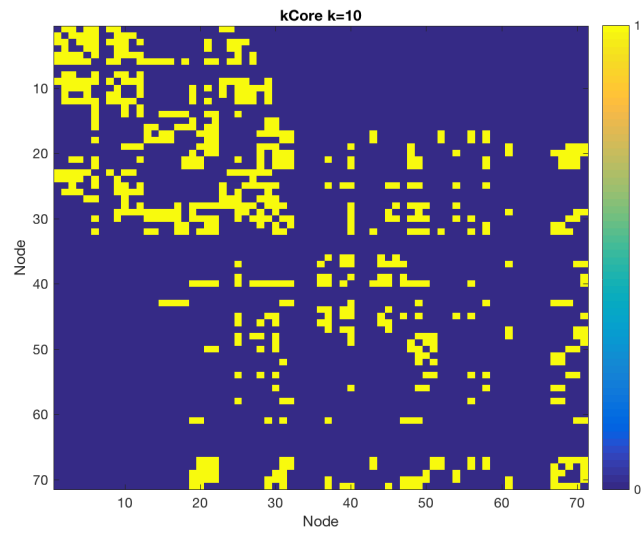
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Figure 12: The core/periphery structure

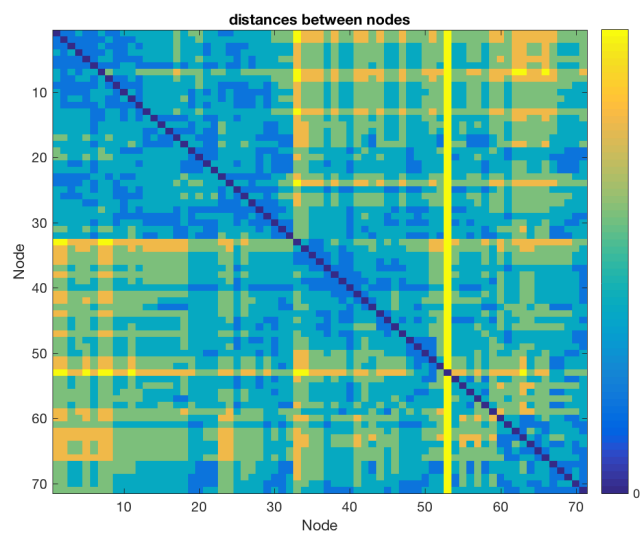Figure 13: The k-core structure with k=10

Paths

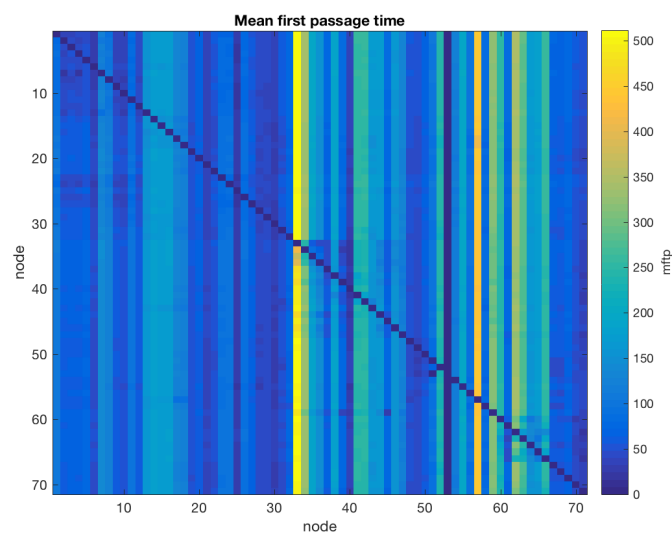Figure 14: The distance matrix of the network

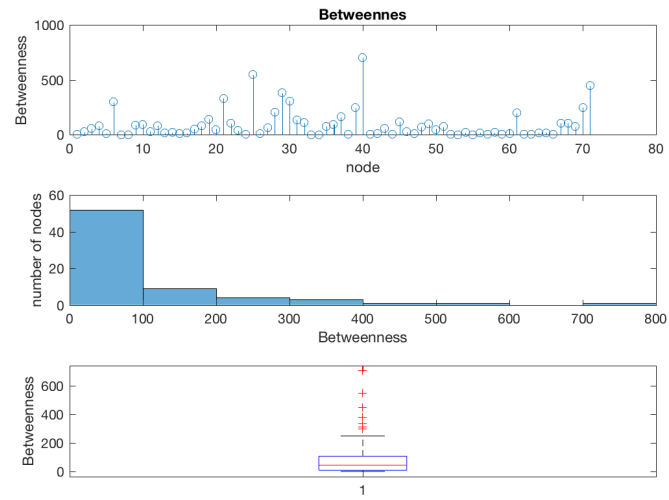Figure 15: The mean first passage time

Centrality measures
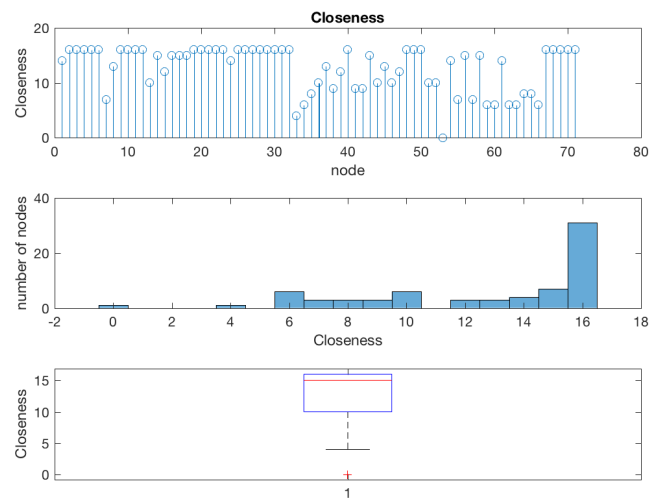

Figure 16: The betweenness centrality of the nodes

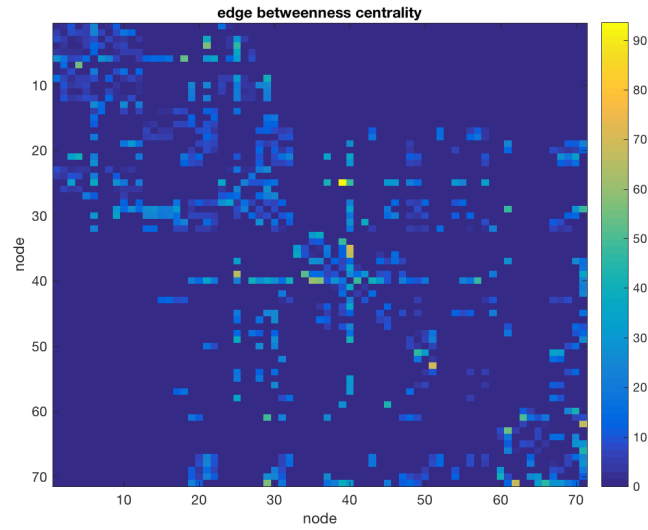Figure 17: The closeness centrality of the nodes
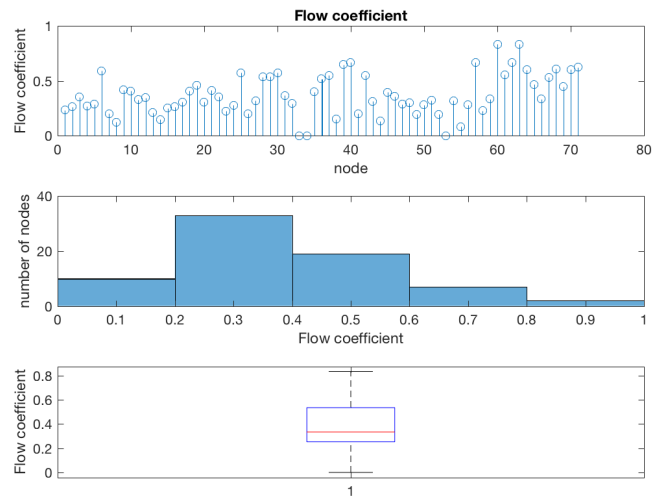
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Figure 18: The edge betweenness centrality matrix

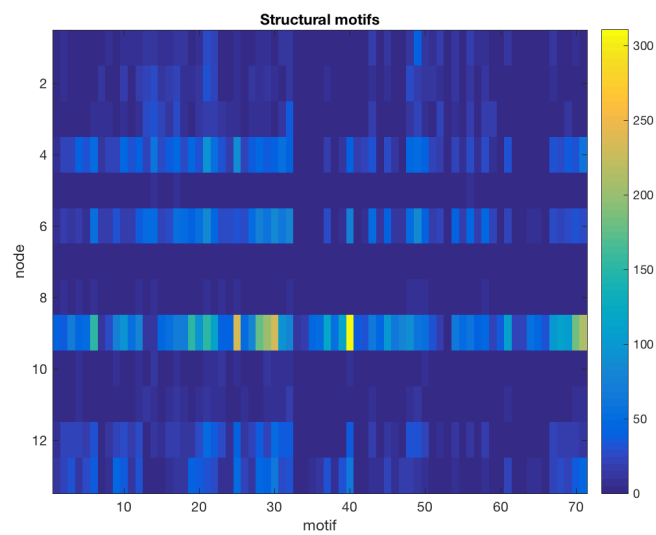Figure 19: The flow coefficient of the nodes

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Motifs

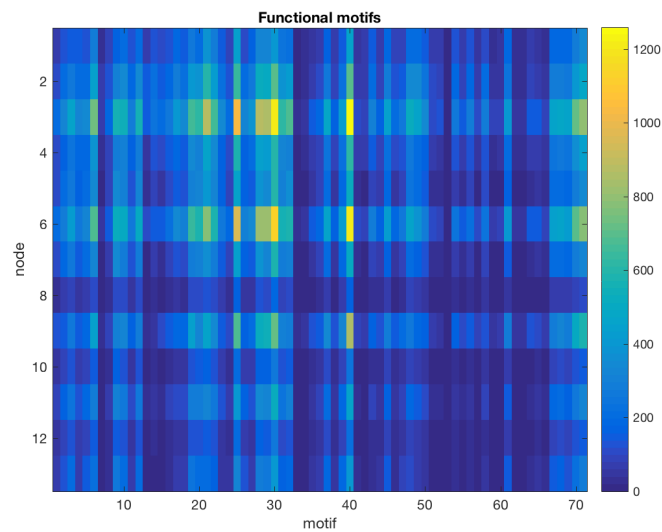Figure 20: A matrix depicting the structural motifs of the network

Figure 21: A matrix depicting the functional motifs of the network