NETWORK ANALYSIS

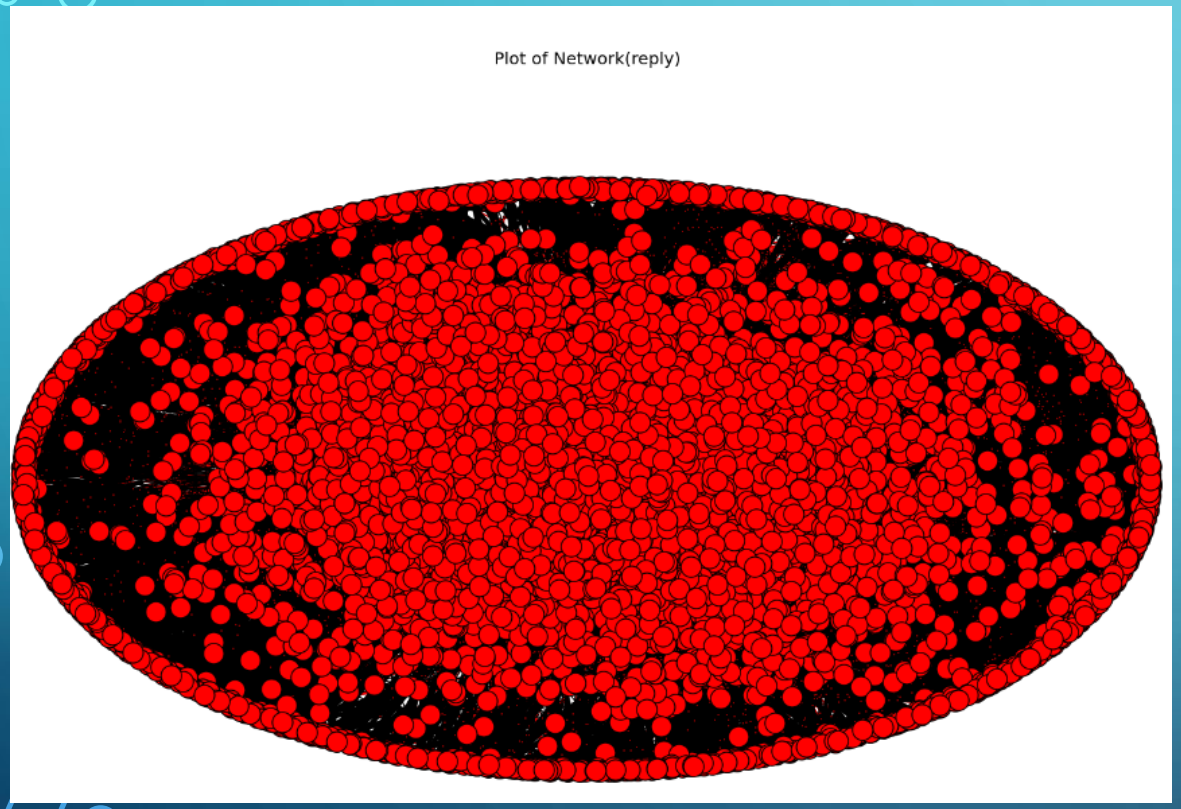
DATASETS AND TOOLS

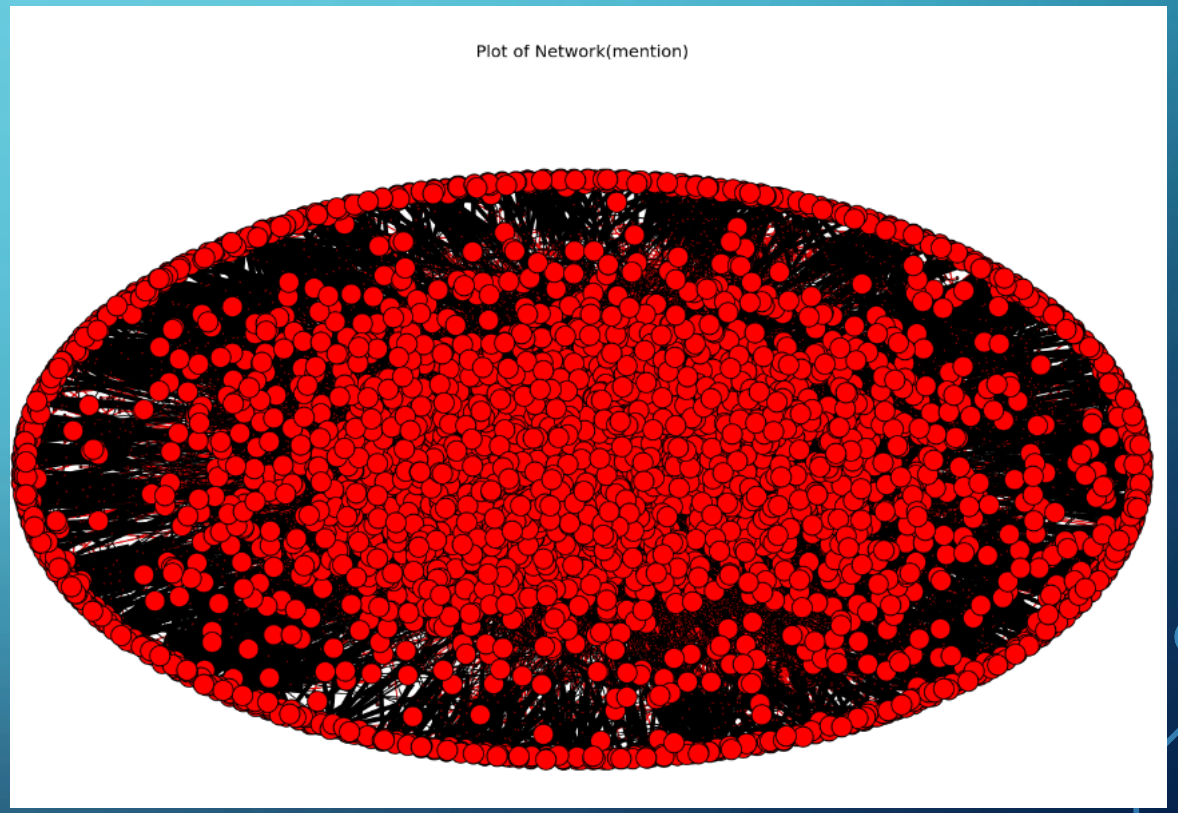
- Data: mrredges-no-tweet-no-retweet-poi-counted

Graph	Nodes	Edges	Self-loop	Density	Is_connected
DiGraph of Reply	4038	28992	0	0.00177849689775	NA
DiGraph of Mention	3513	17227	0	0.00139629440146	NA
UnDiGraph of Reply	4038	22062	0	0.00270676038619	False
UnDiGraph of Mention	3513	15429	0	0.00250112339005	False

- Tools: Python, Networkx, Matplotlib

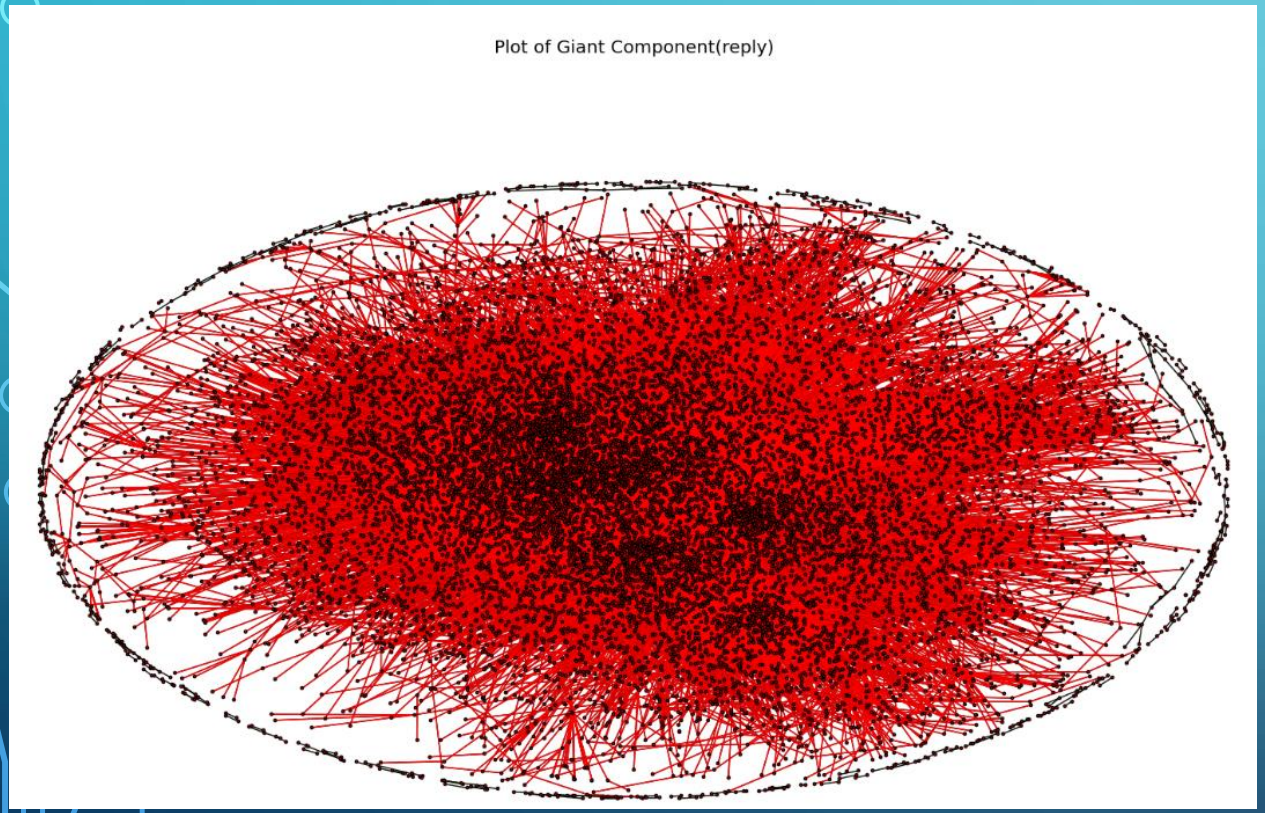
DIGRAPH TOPOLOGY OF NETWORK



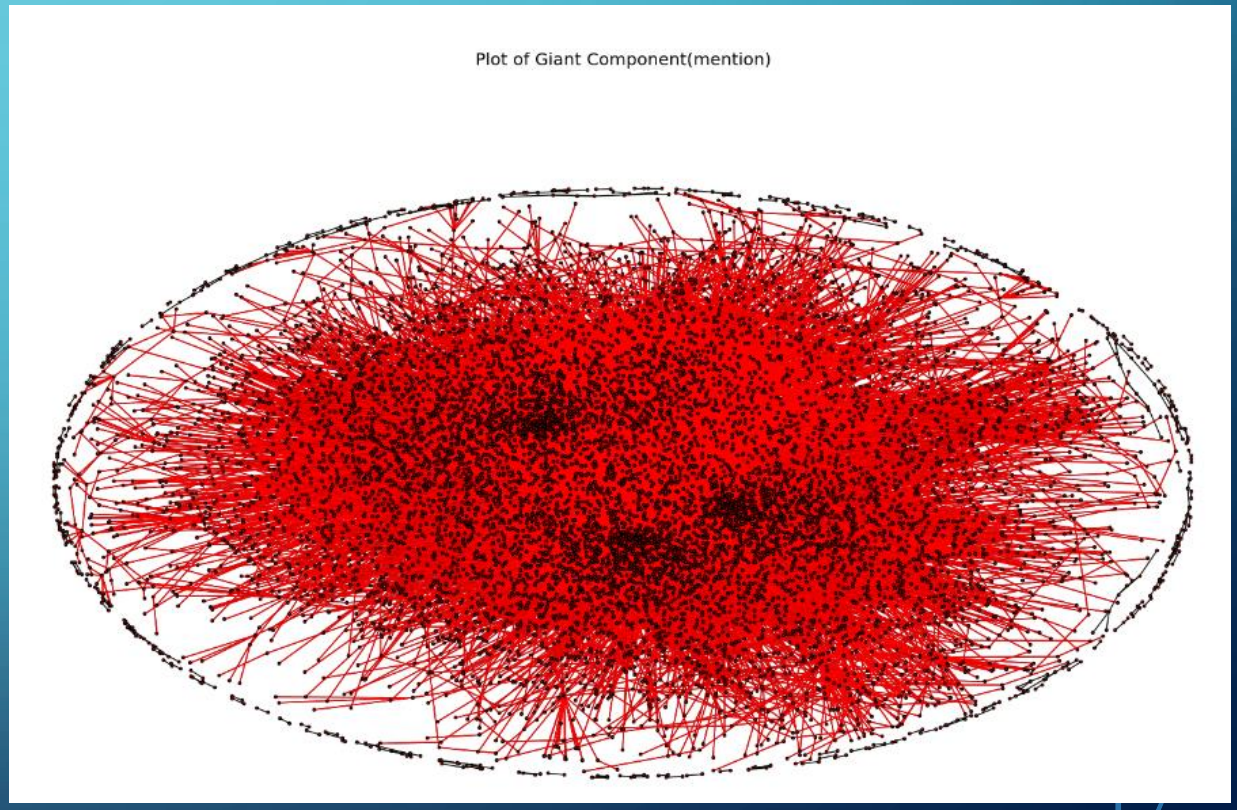


The nodes in mention network seems more partitionable than those in reply network.

COMPONENTS (UNDIGRAPH)

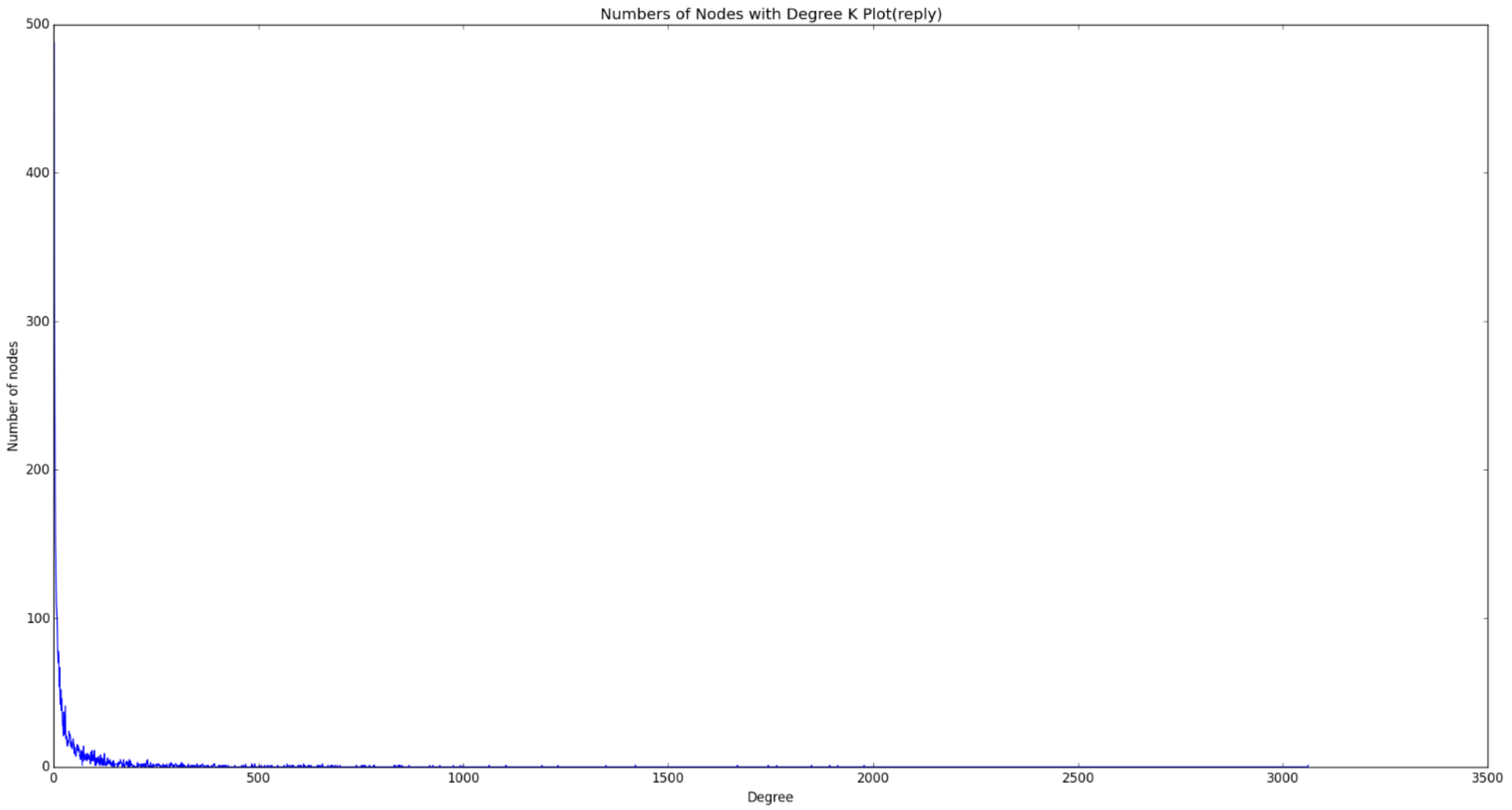


number of components in network: 66
the size of giant components: 3892/4038 ratio: 96.4%

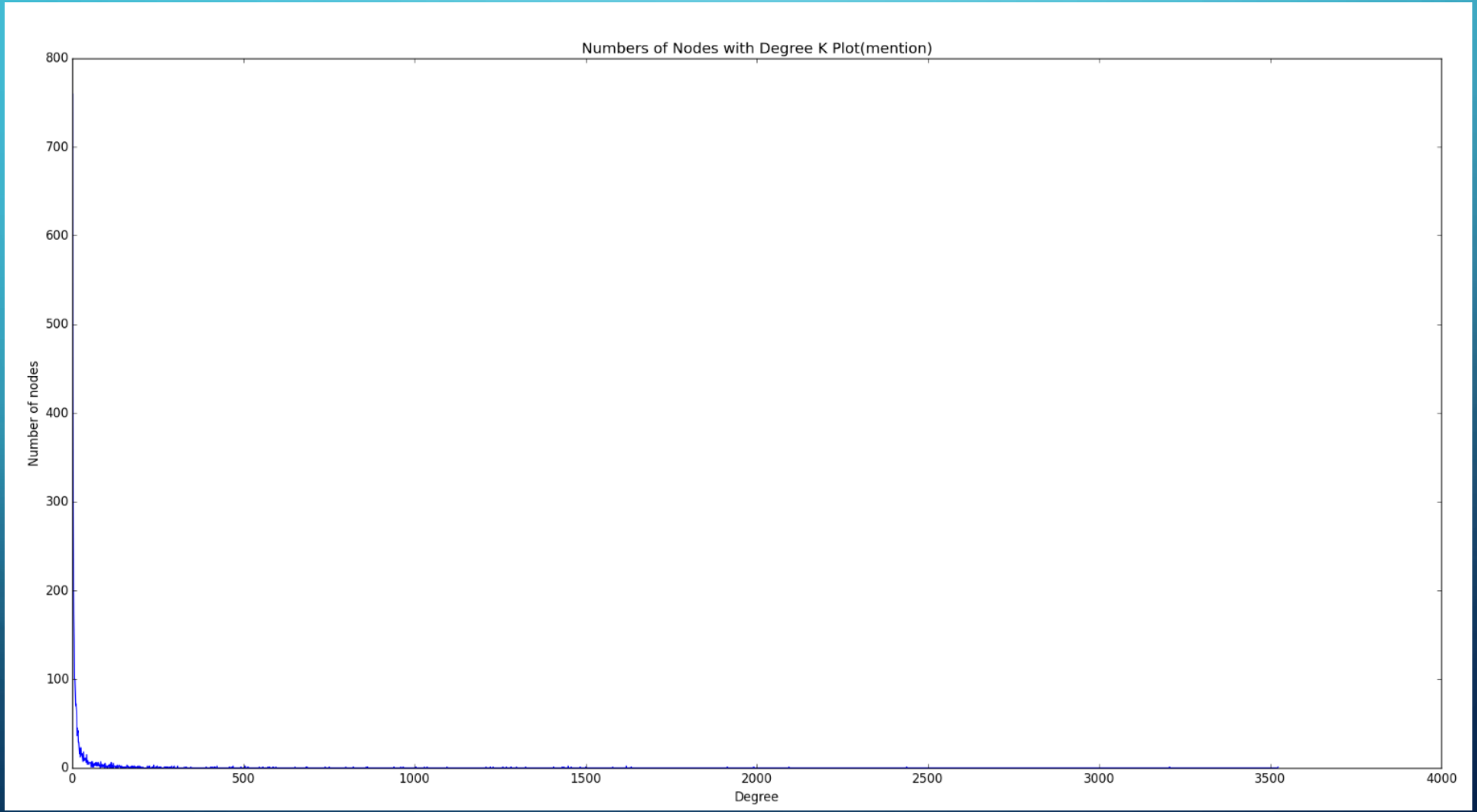


number of components in network: 80
the size of giant components: 3332/3513 ratio: 94.8%

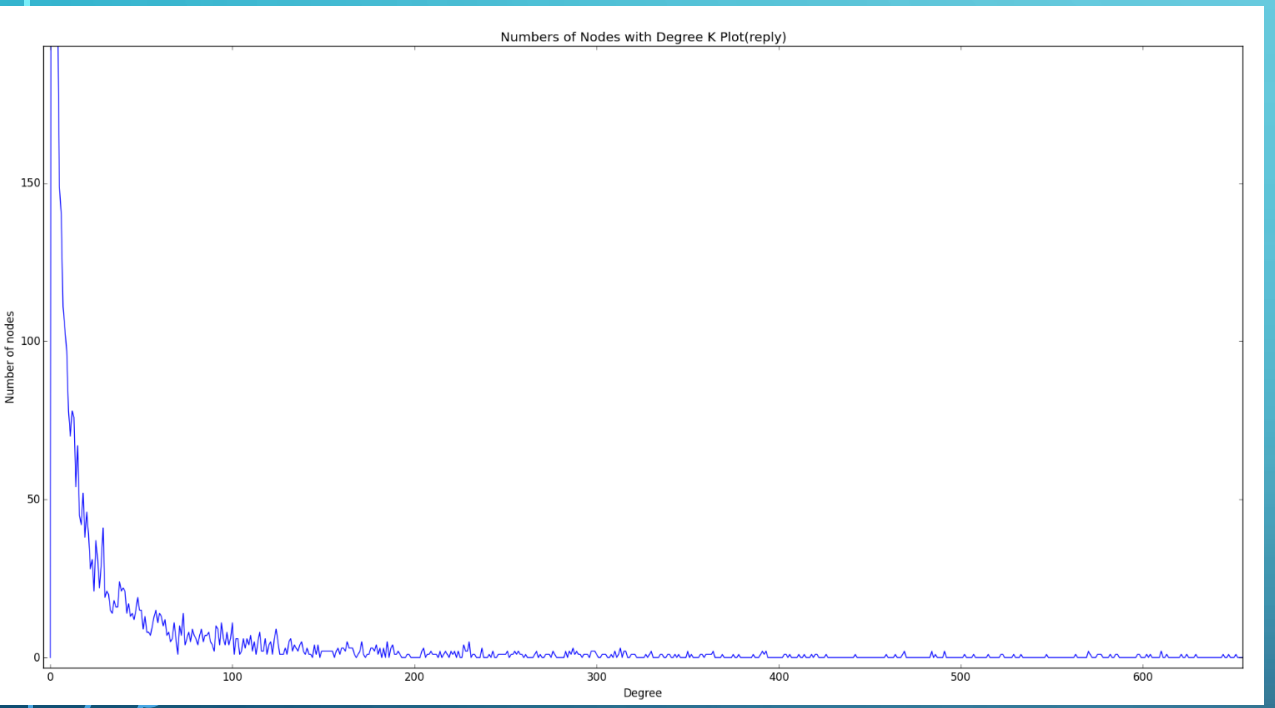
DEGREE DISTRIBUTIONS IN DIGRAPHS

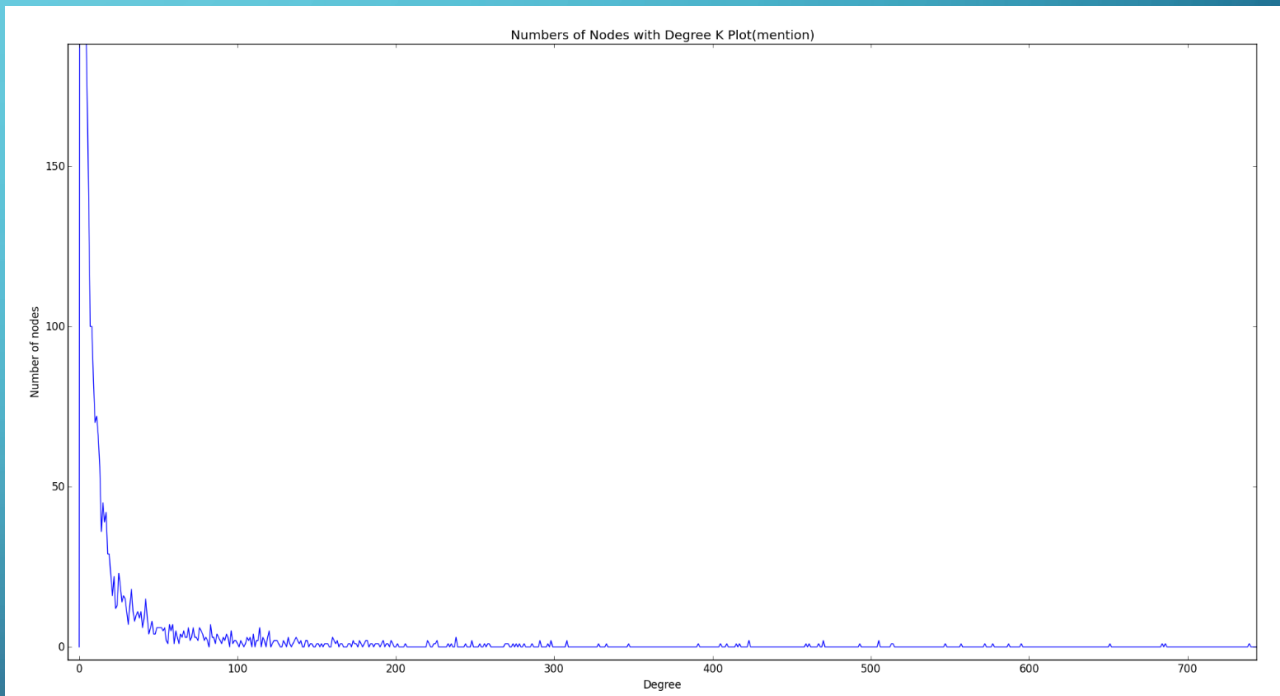


DEGREE DISTRIBUTIONS IN DIGRAPHS



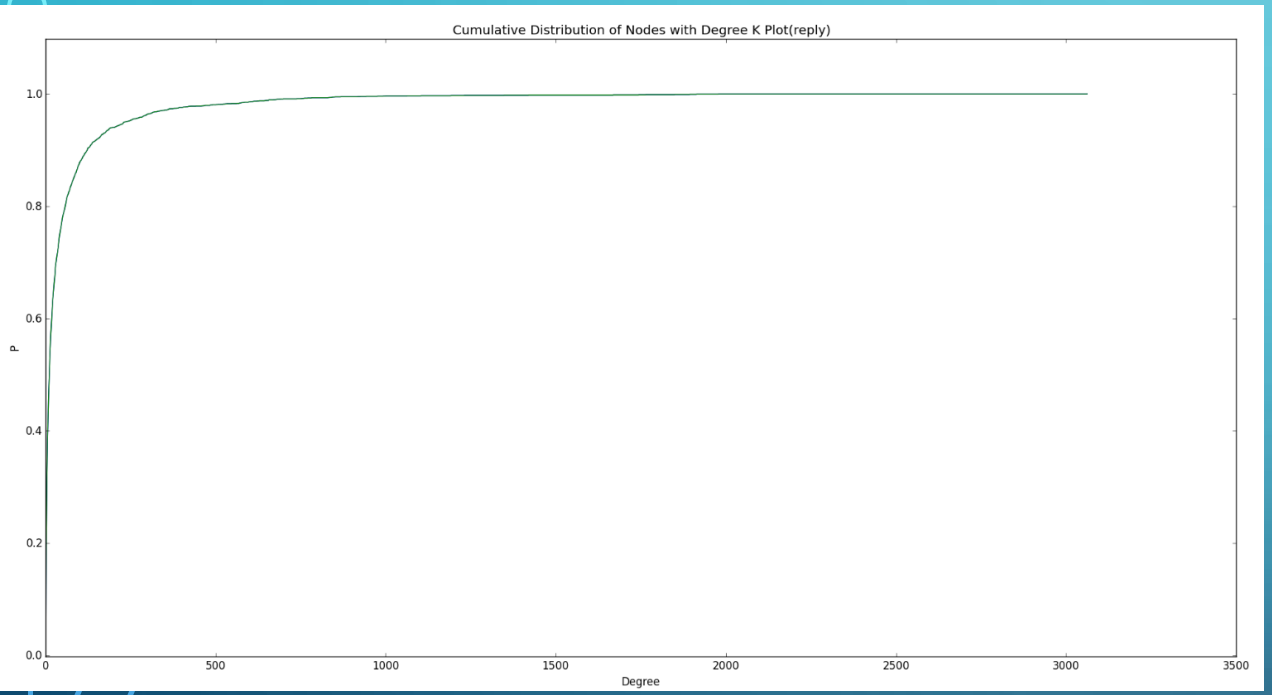
DEGREE DISTRIBUTIONS IN DIGRAPHS

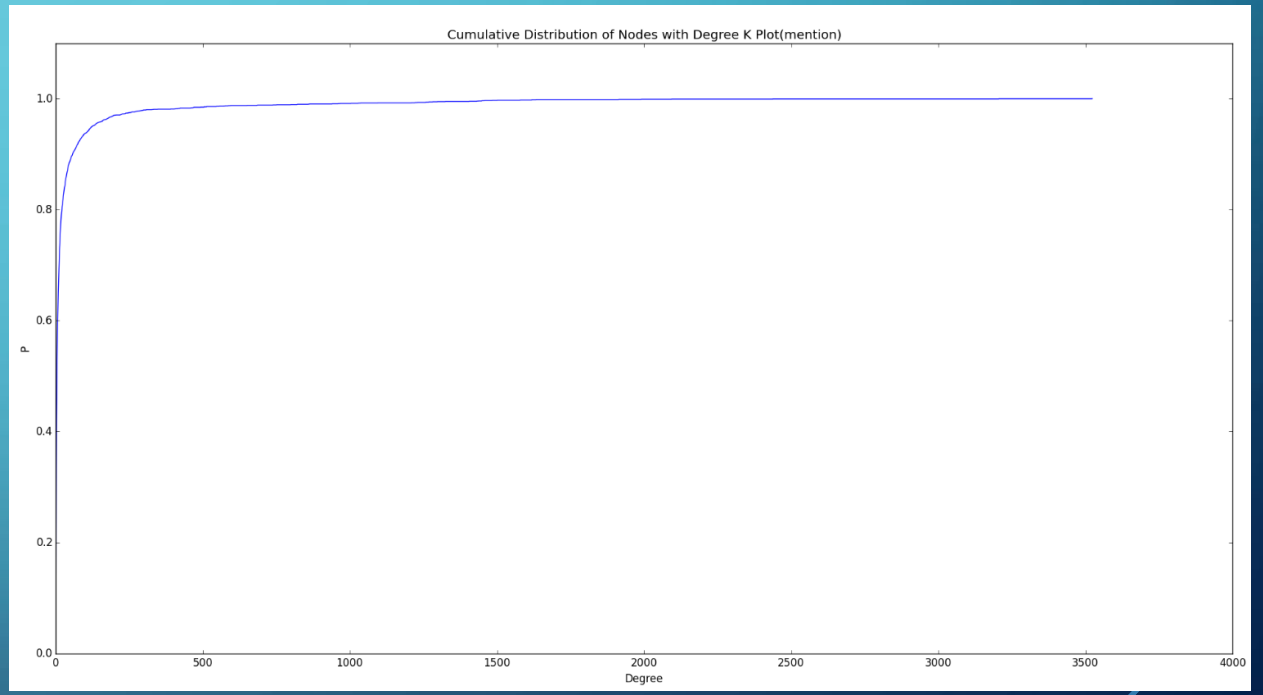




The numbers of nodes with the degree within [20, 75] in reply network are more than those in mention network.

DEGREE DISTRIBUTIONS IN DIGRAPHS

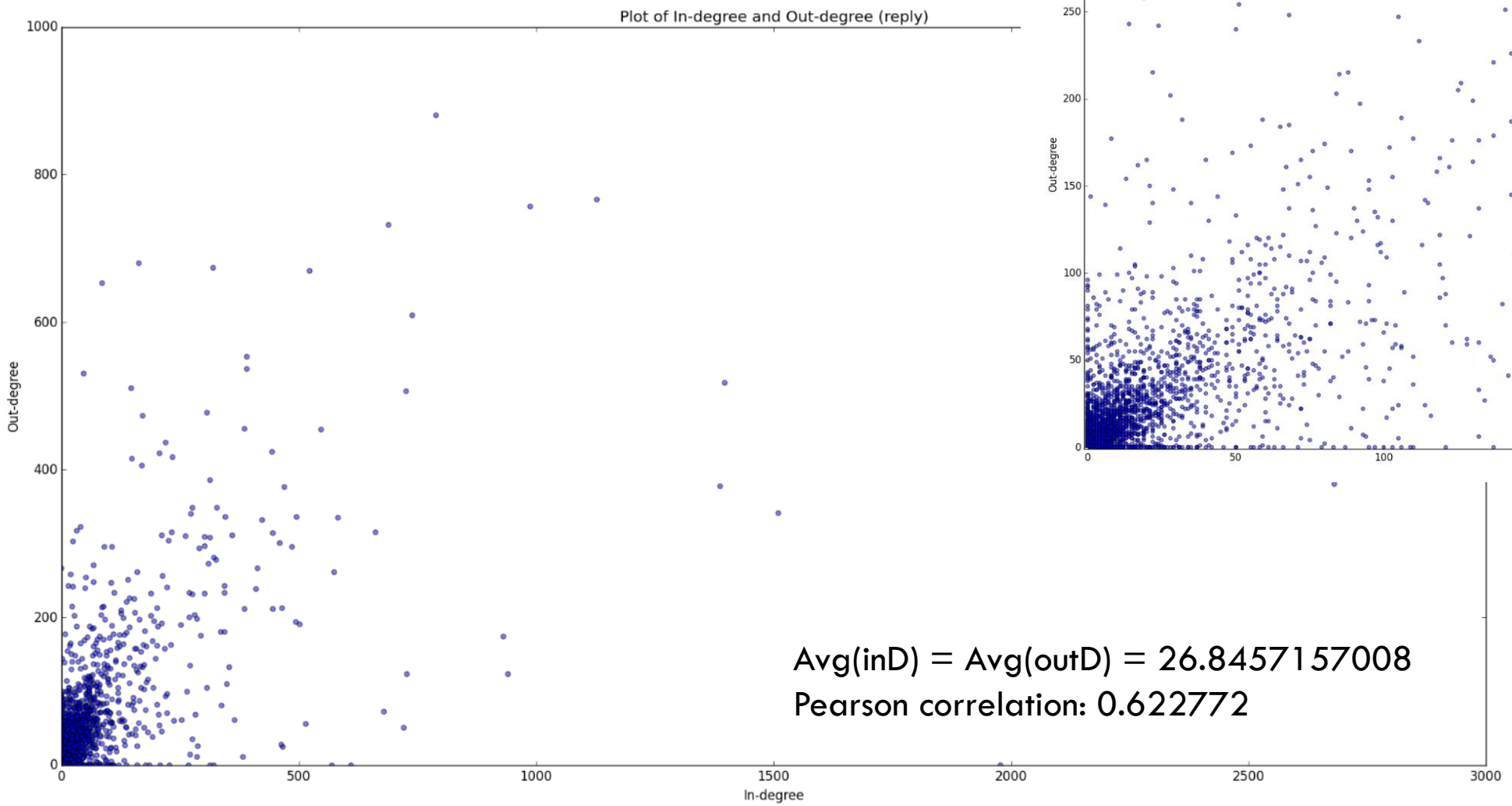




Hence, the cumulative probability of mention network reaches its peak in the smaller range of degrees than reply network.

→ How are their tail distributions?

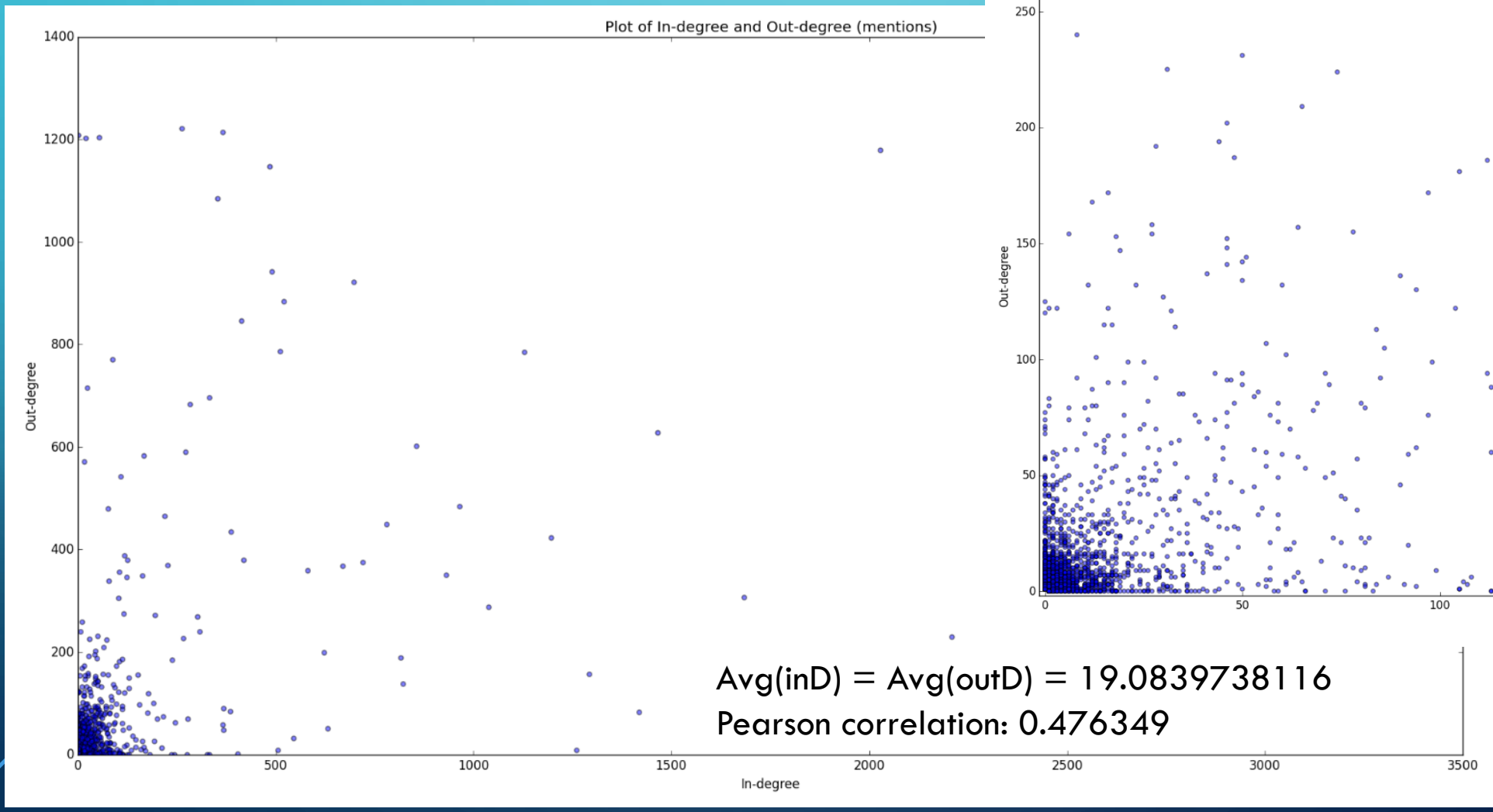
RELATIONSHIP BETWEEN REPLY INDEGREE AND OUTDEGREE



Avg(inD) = Avg(outD) = 26.8457157008

Pearson correlation: 0.622772

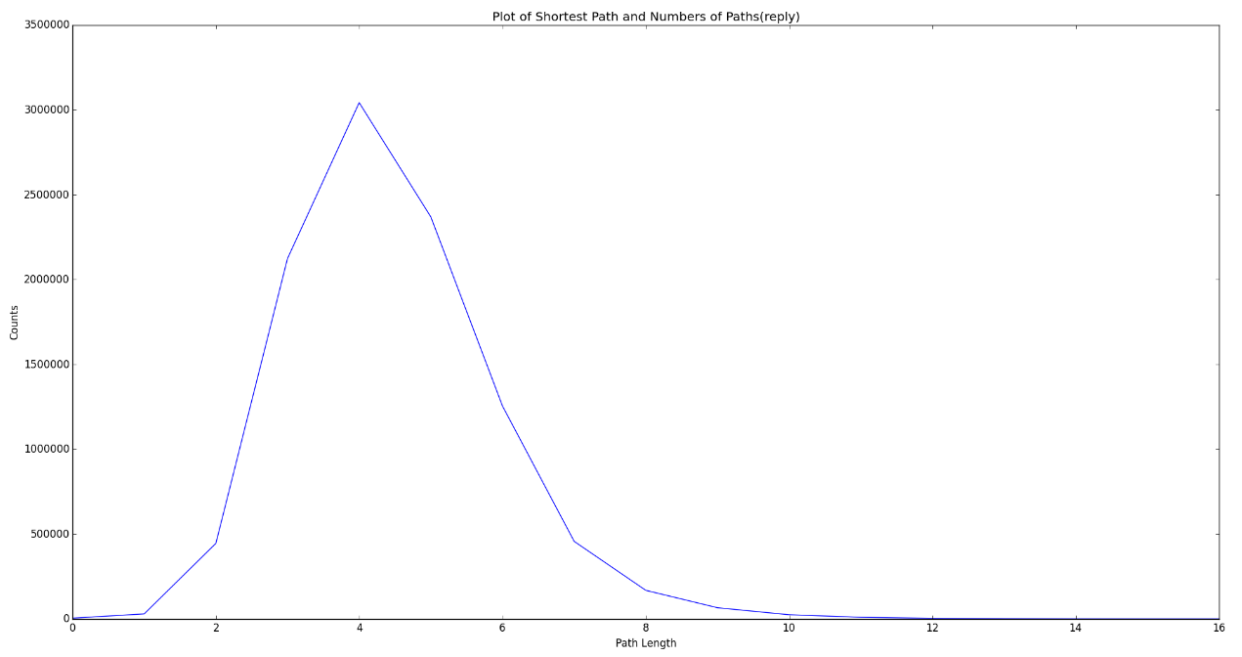
RELATIONSHIP BETWEEN MENTION INDEGREE AND OUTDEGREE



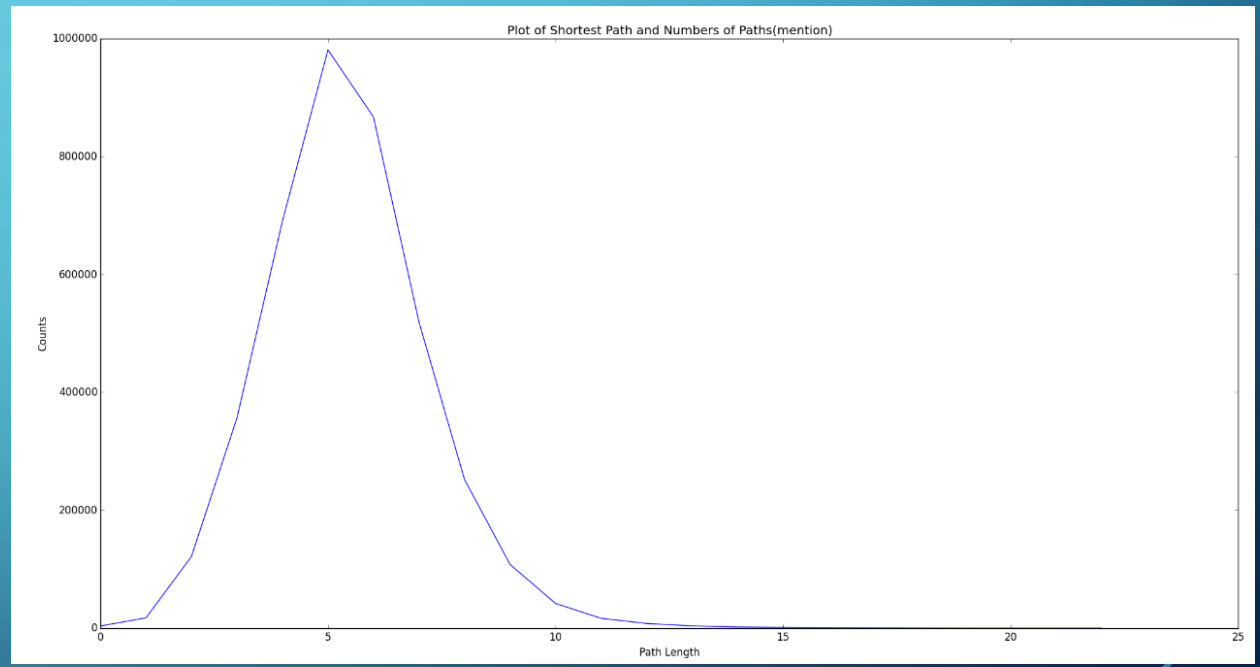
Avg(inD) = Avg(outD) = 19.0839738116

Pearson correlation: 0.476349

DIRECTED PATH DISTRIBUTION OF USERS



The mean of path length is 4.438



The mean of path length is 5.419

The path of mention is generally longer than that of reply
→ the reachability of reply is typically higher than mention