

A decorative graphic on the left side of the slide, consisting of a series of white lines and circles on a blue gradient background. The lines are vertical and horizontal, with some branching out, resembling a circuit board or a network diagram. The circles are small and white, some of which are connected to the lines.

NETWORK ANALYSIS

DATASETS AND TOOLS

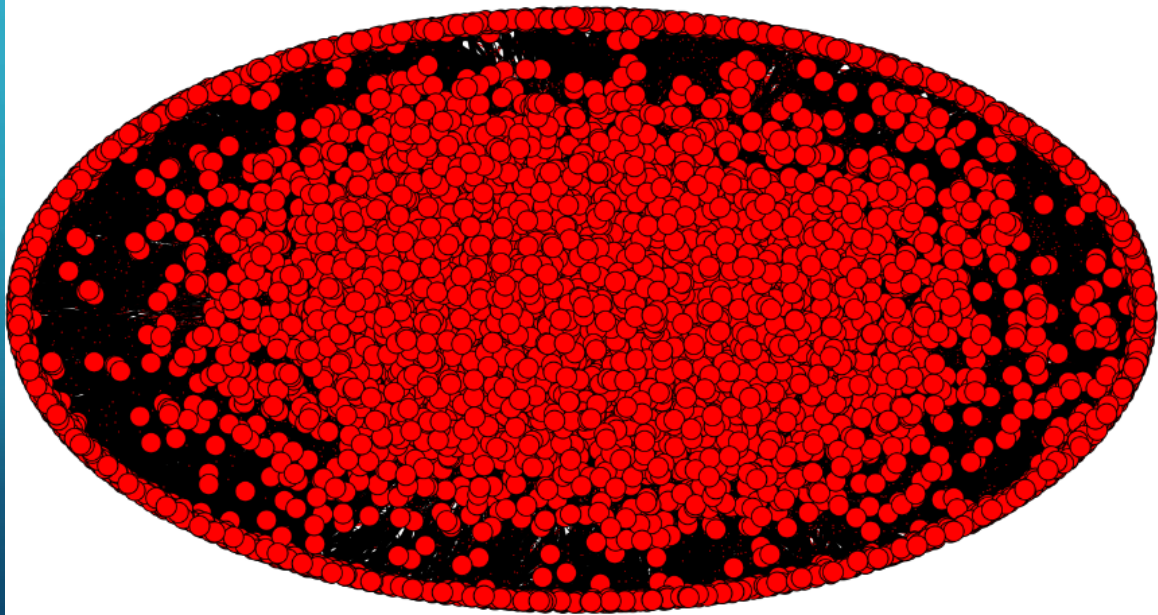
- Data: `mrredges-no-tweet-no-retweet-poi-counted`

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

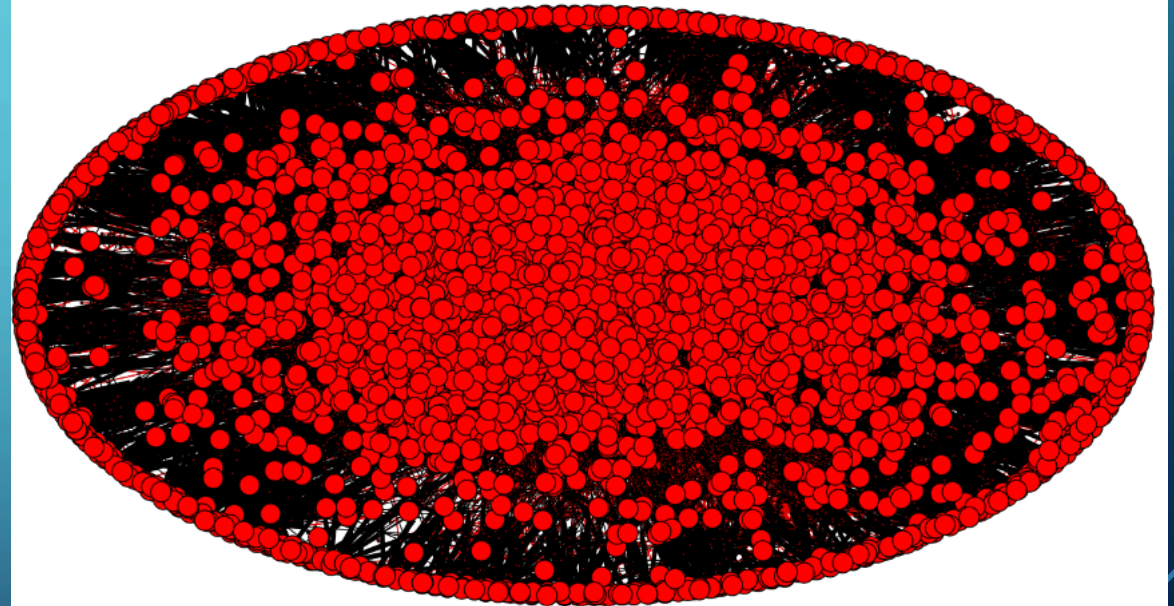
- Tools: Python, Networkx, Matplotlib

DIGRAPH TOPOLOGY OF NETWORK

Plot of Network(reply)



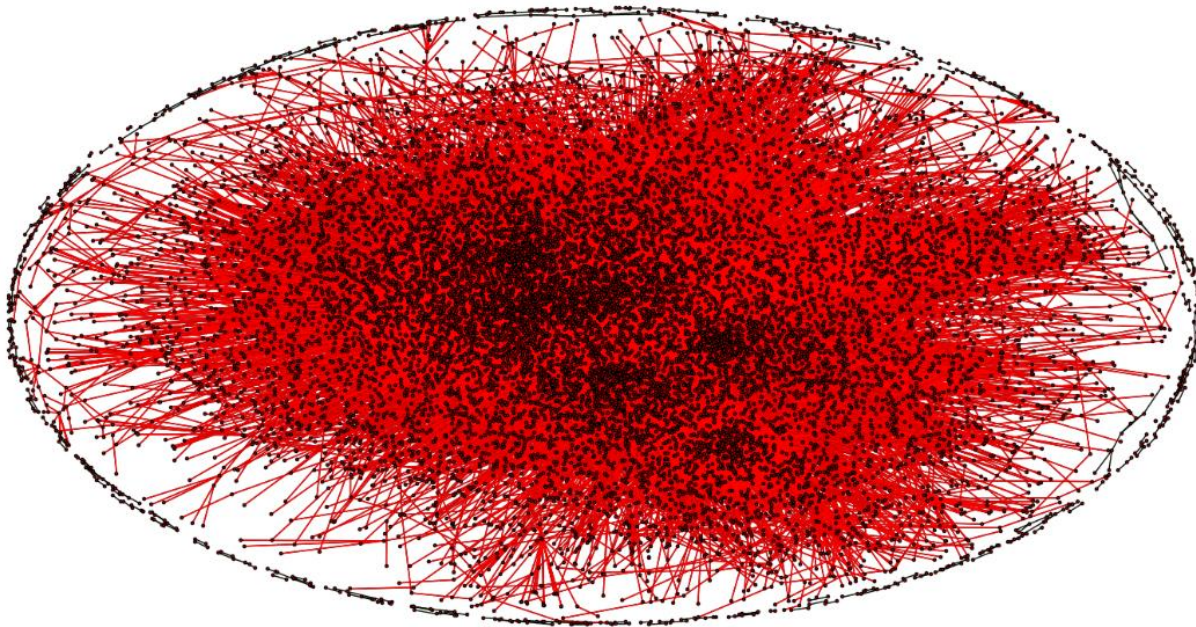
Plot of Network(mention)



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

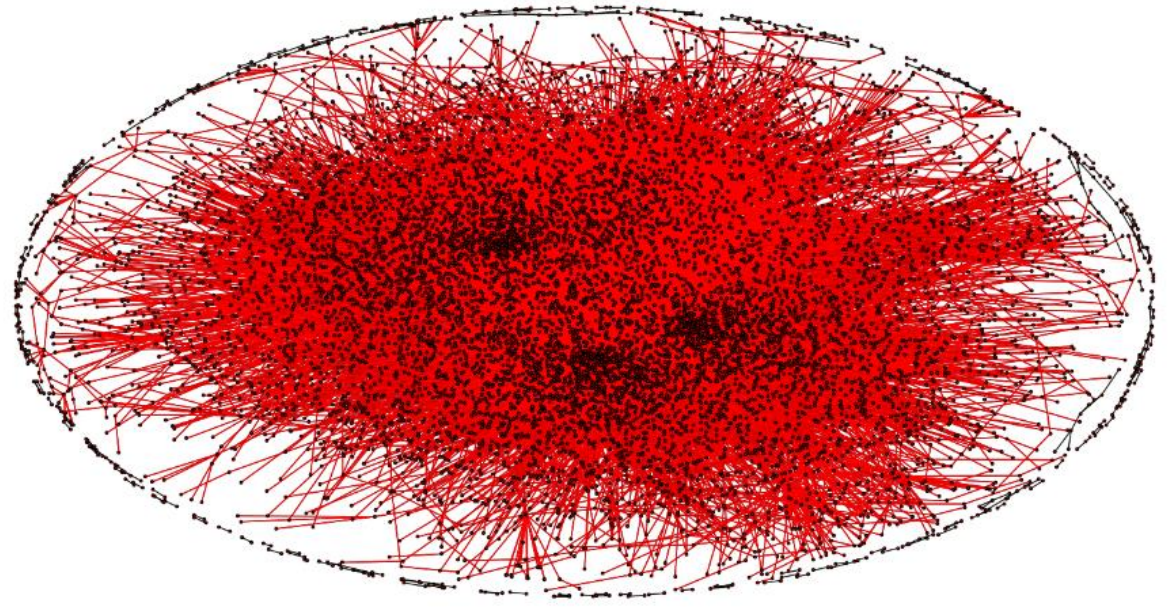
COMPONENTS (UNDIGRAPH)

Plot of Giant Component(reply)



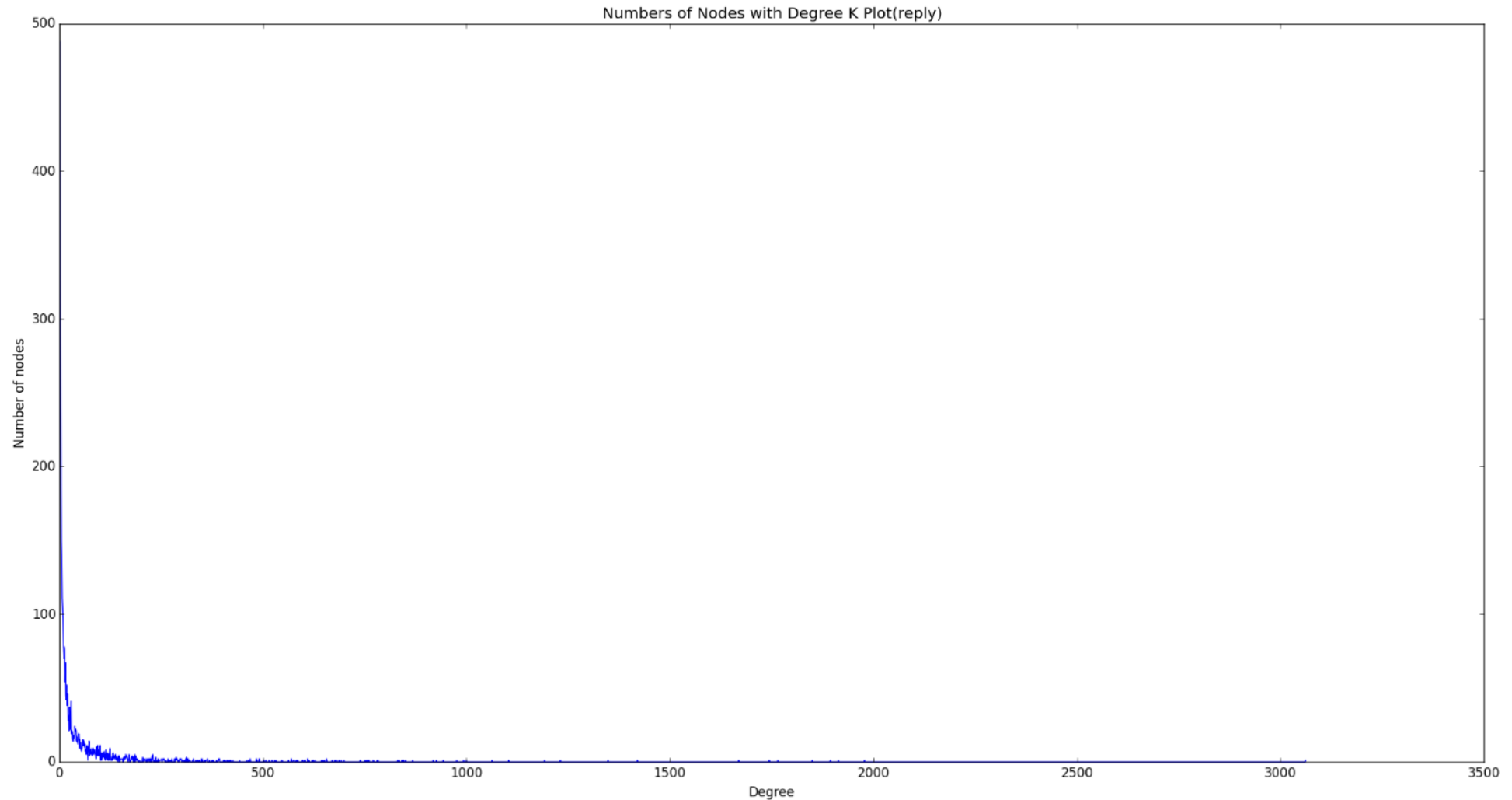
number of components in network: 66
the size of giant components: 3892/4038 ratio: 96.4%

Plot of Giant Component(mention)

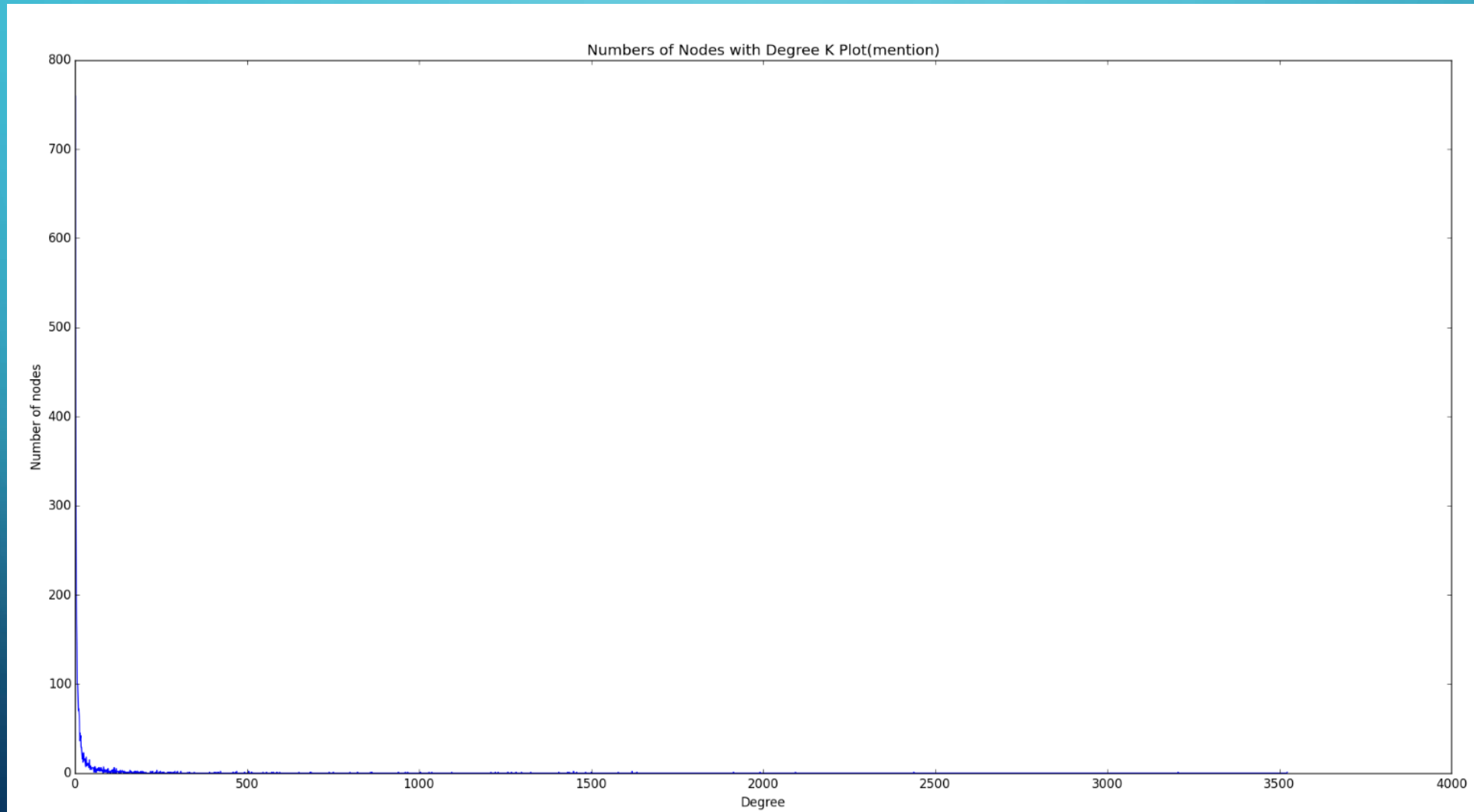


number of components in network: 80
the size of giant components: 3332/3513
ratio: 94.8%

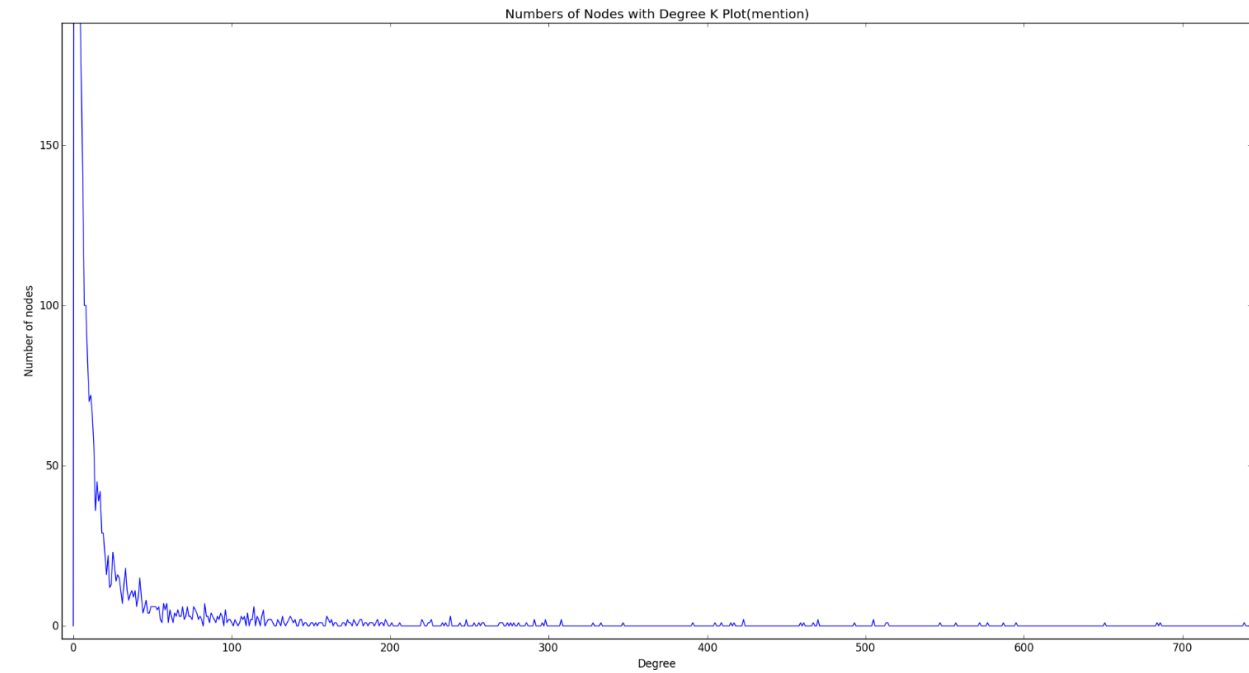
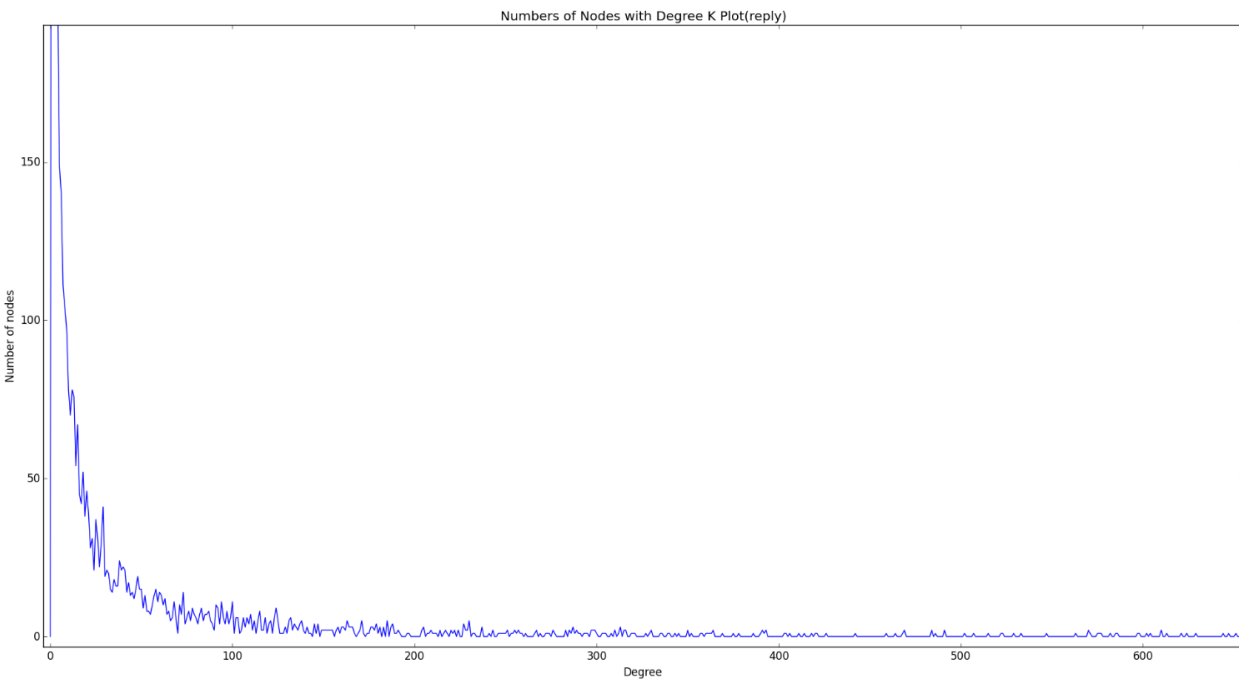
DEGREE DISTRIBUTIONS IN DIGRAPHS



DEGREE DISTRIBUTIONS IN DIGRAPHS

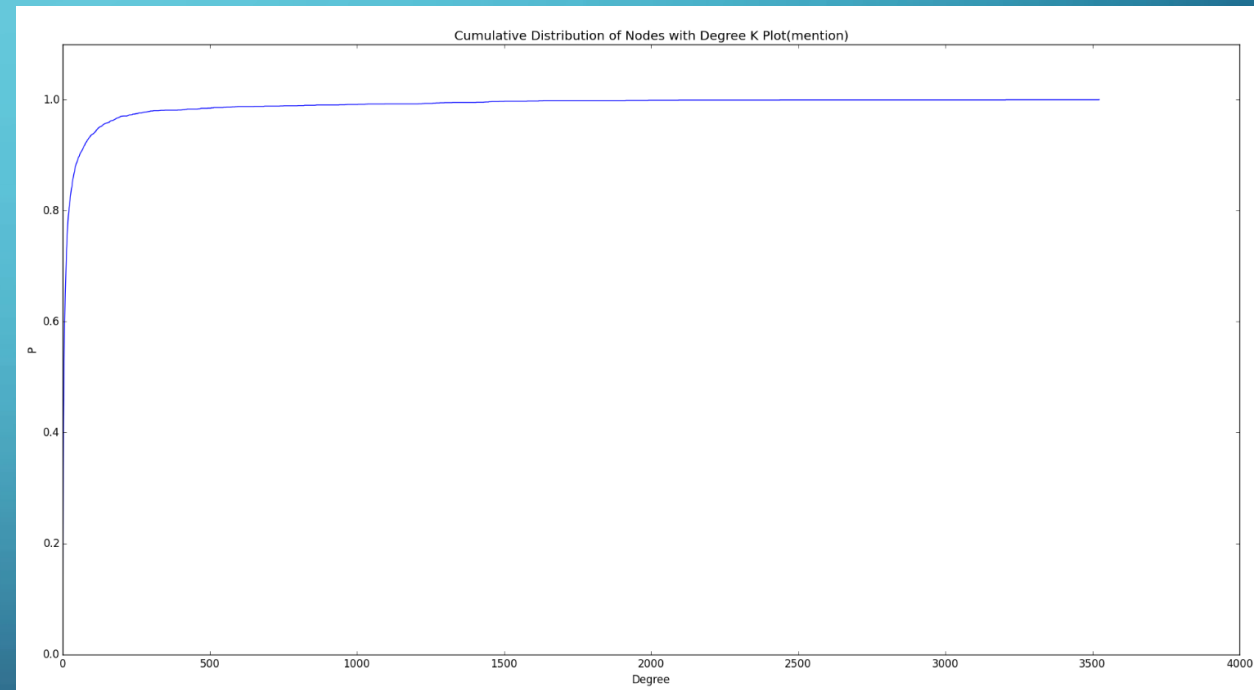
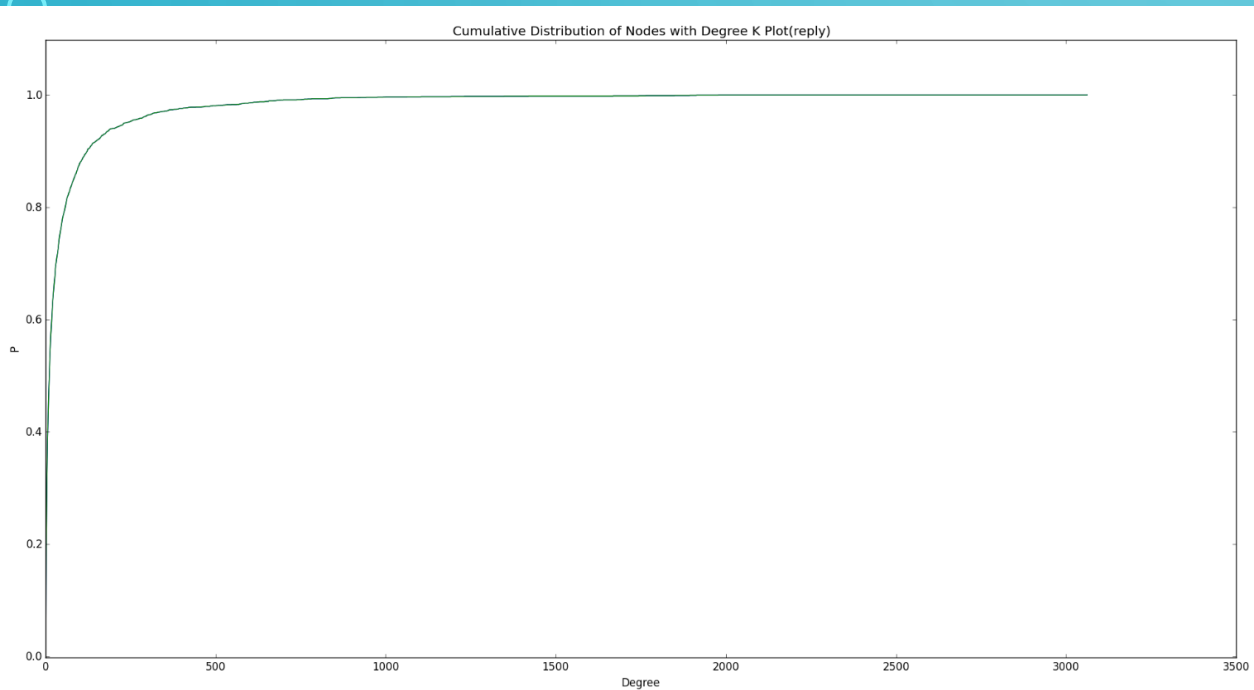


DEGREE DISTRIBUTIONS IN DIGRAPHS



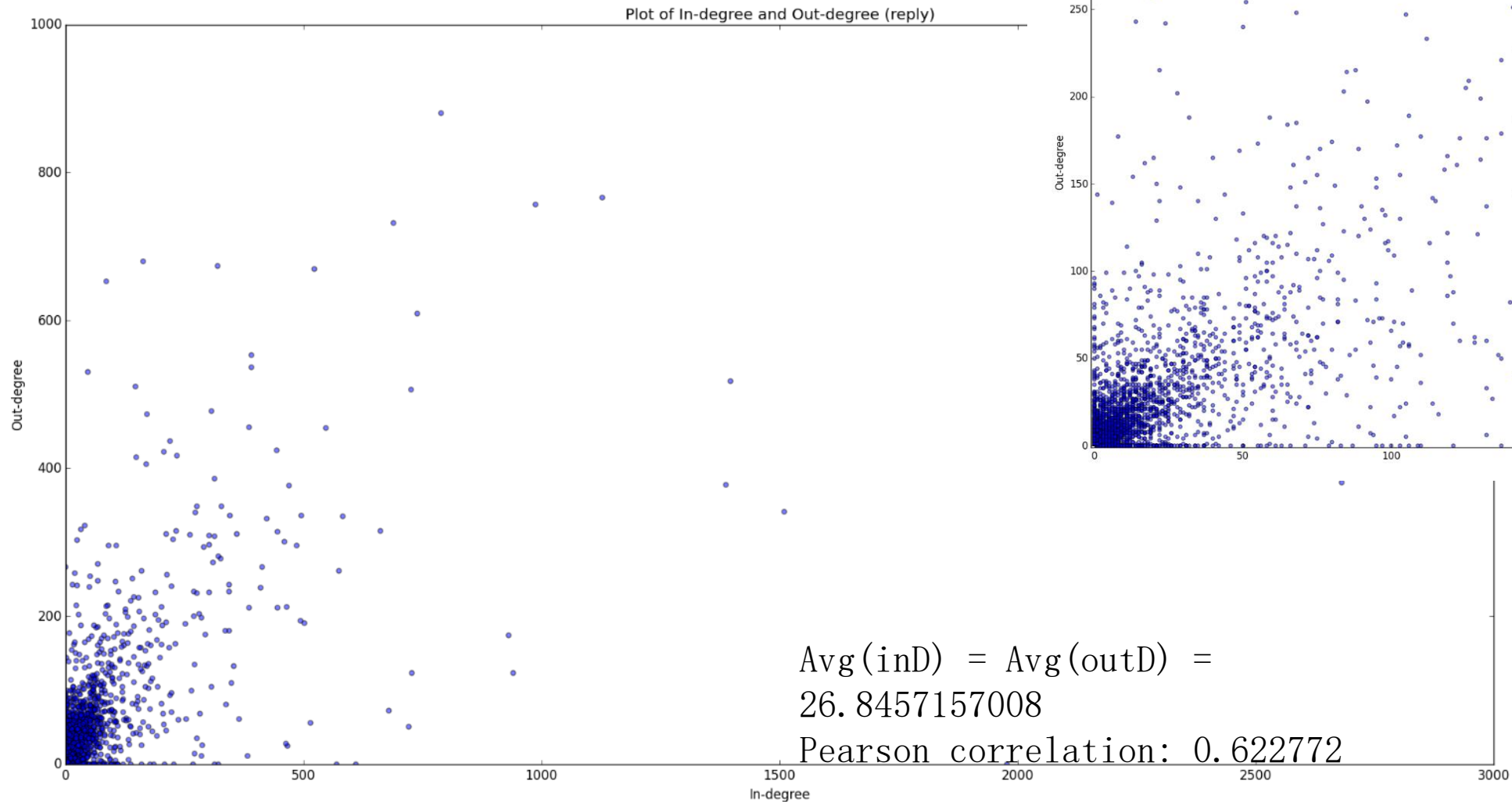
The numbers of nodes with the degree within $[20, 75]$ in reply network are more than those in mention network.

DEGREE DISTRIBUTIONS IN DIGRAPHS

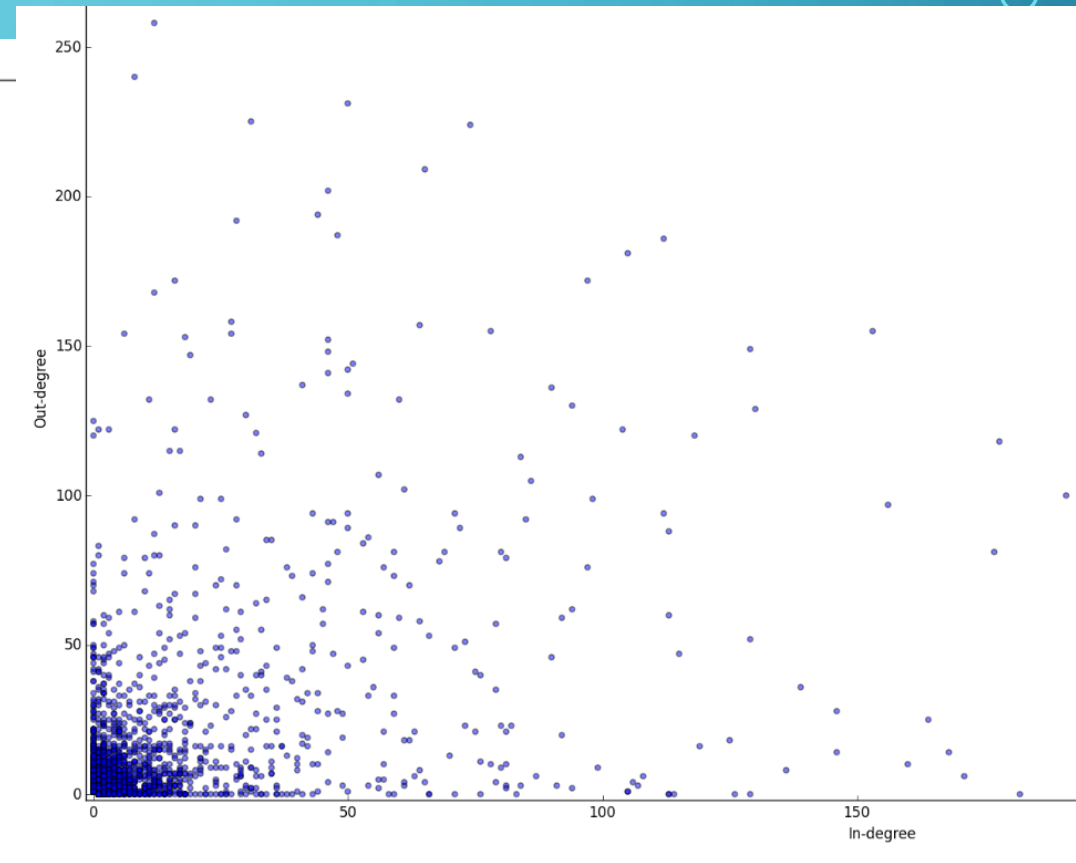
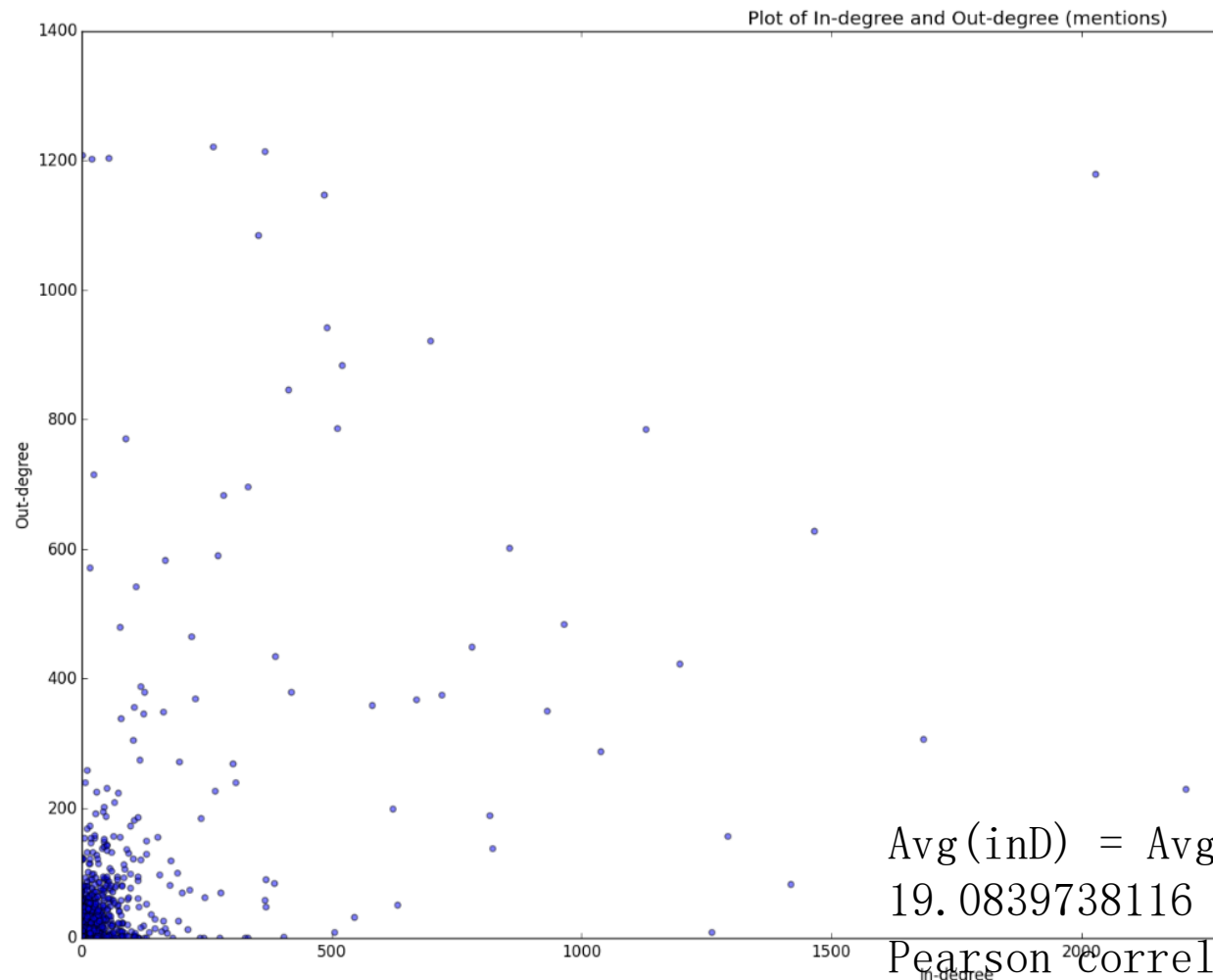


Hence, the cumulative probability of mention network reaches its peak in the smaller range of degrees than reply network.
→ How are their tail distributions?

RELATIONSHIP BETWEEN REPLY INDEGREE AND OUTDEGREE



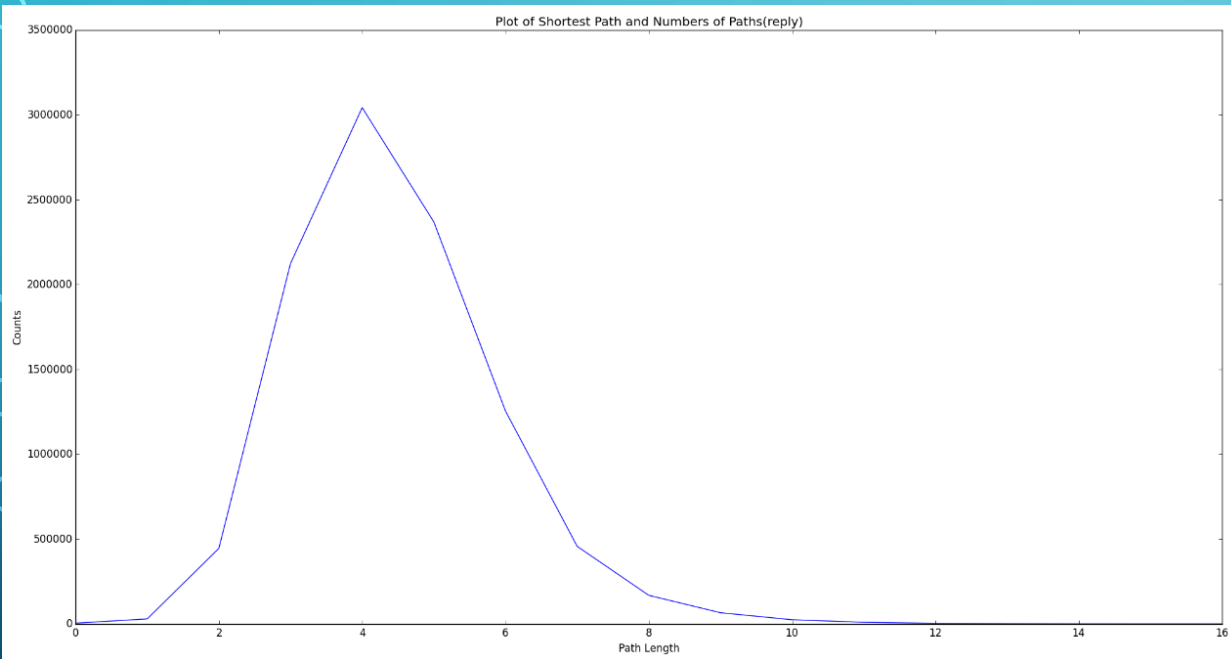
RELATIONSHIP BETWEEN MENTION INDEGREE AND OUTDEGREE



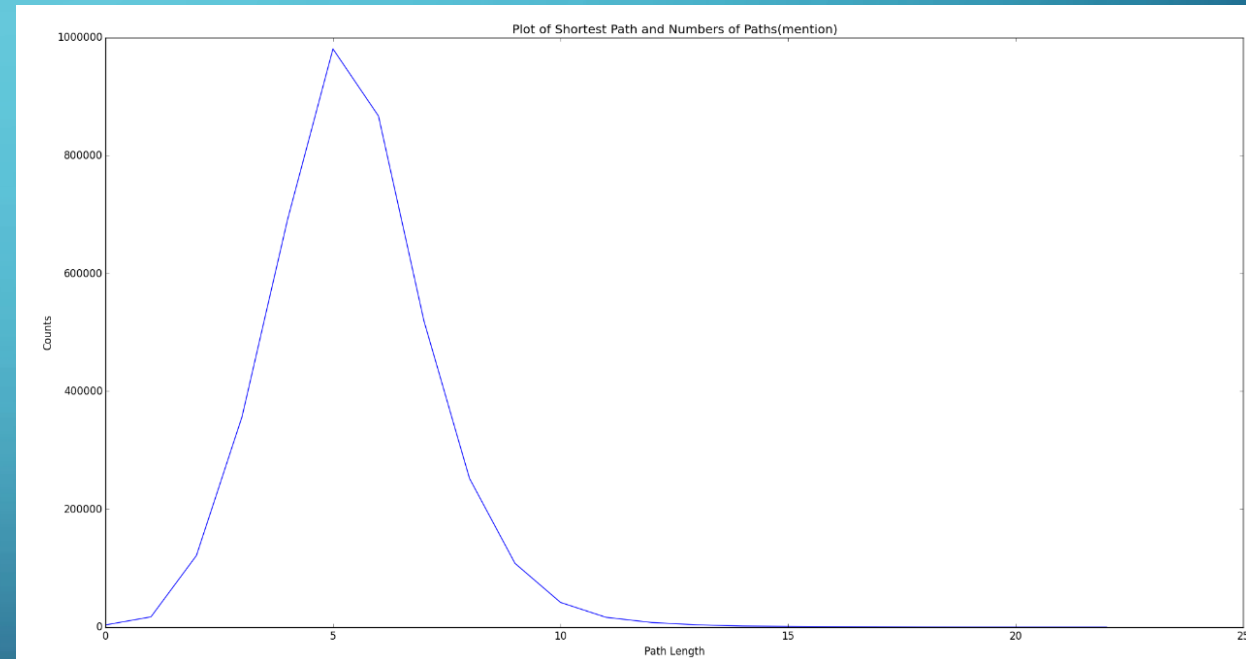
$\text{Avg}(\text{inD}) = \text{Avg}(\text{outD}) =$
19.0839738116

Pearson correlation: 0.476349

DIRECTED PATH DISTRIBUTION OF USERS



The mean of path length is 4



The mean of path length is 5

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