# Analysis of Networks

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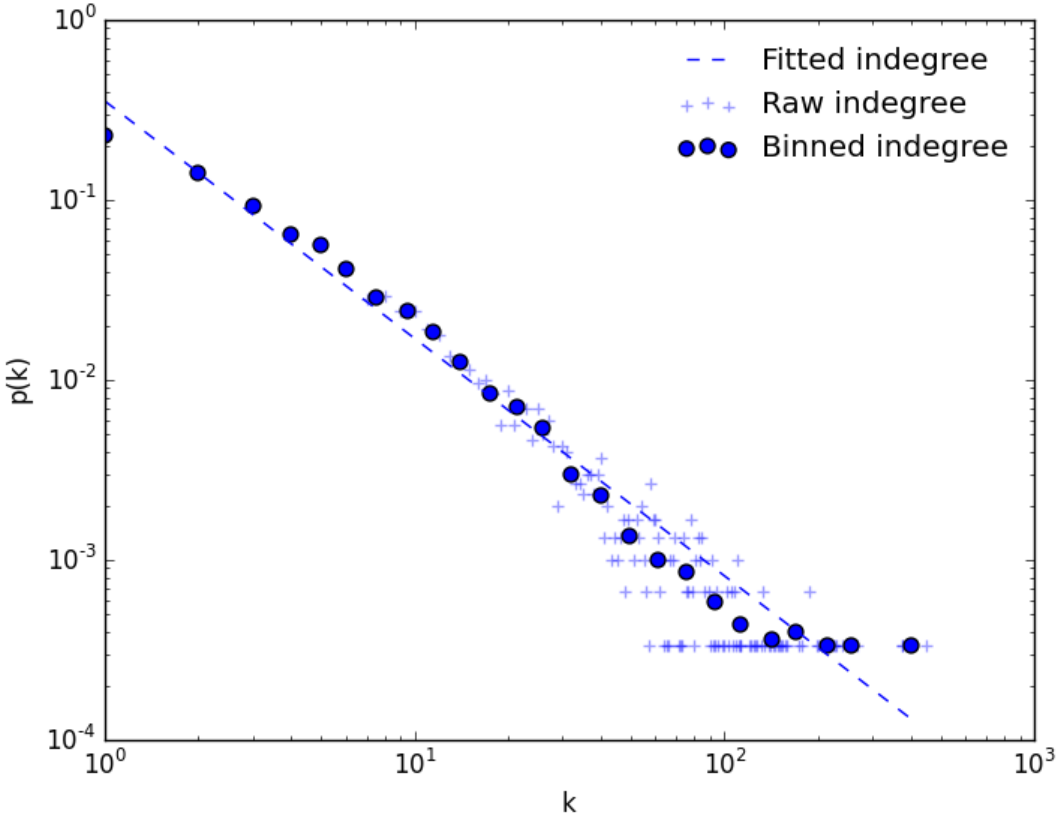
# Distribution of Indegrees

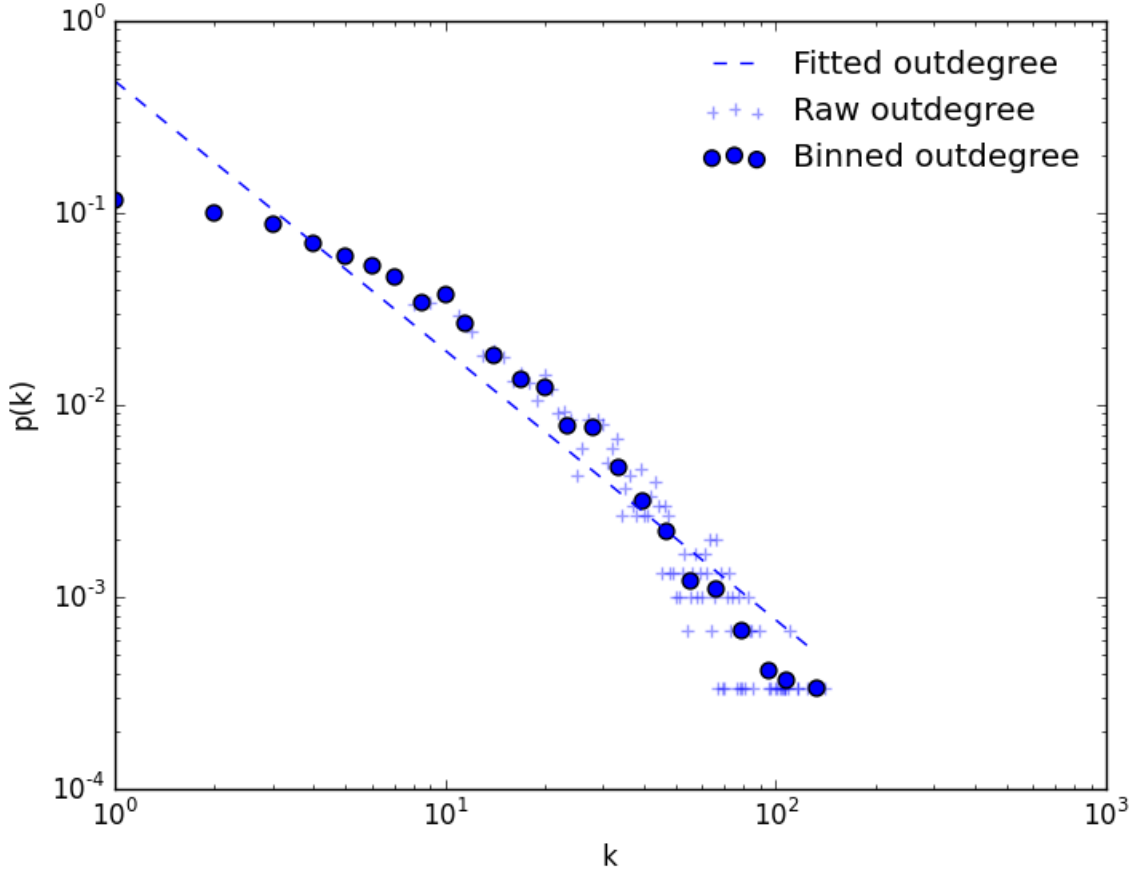





The probability density function (PDF) of indegrees, excluding the nodes with zero degrees. The power-law fitting parameters $\alpha = -1.319$ and standard error (i.e., RMSE) $\sigma = 0.14$ (The power-law distributions are formulated with: $p(x) \propto x^{\alpha}$).

# Distribution of Outdegrees

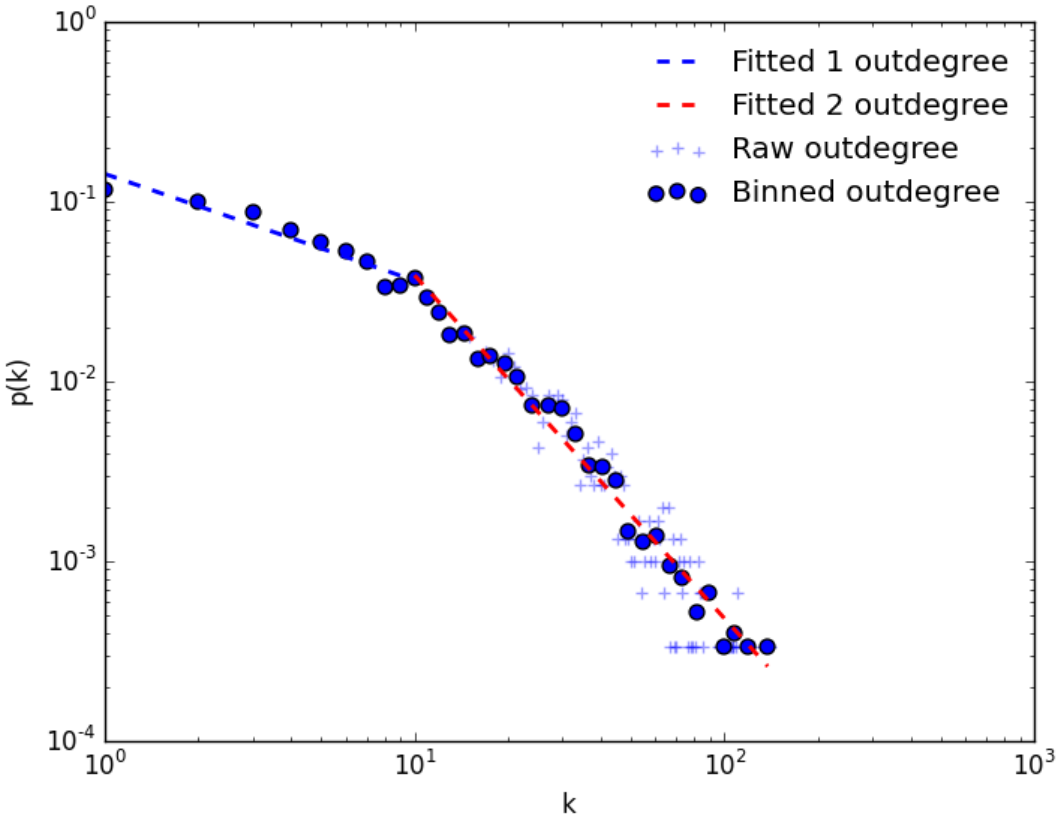





The probability density function (PDF) of outdegrees, excluding the nodes with zero degrees. The power-law fitting parameters $\alpha = -1.403$ and standard error (i.e., RMSE) $\sigma = 0.21$.

# Distribution of Outdegrees (Splitting)

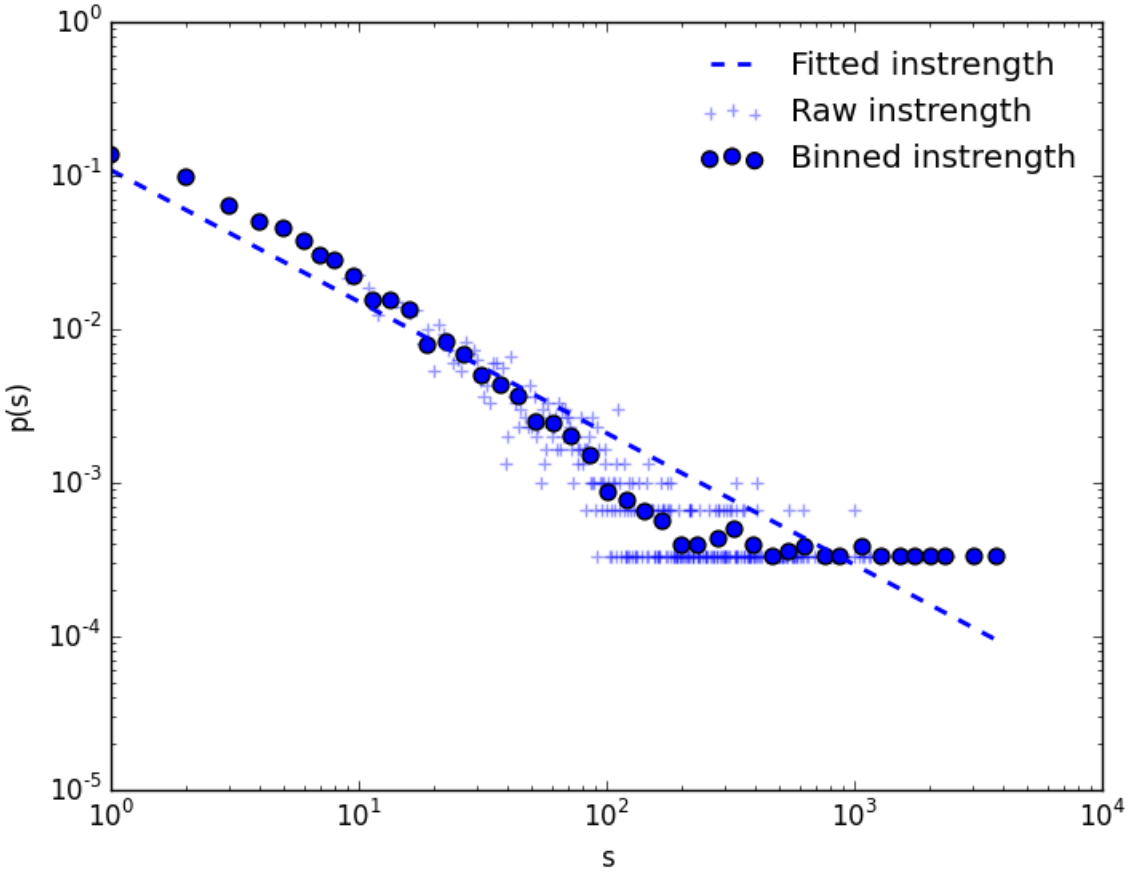





Splitting outdegree at $k = 10$, the power-law fitting parameters in the first range $\alpha = -0.593$ and standard error (i.e., RMSE) $\sigma = 0.05$; $\alpha = -1.908$ and $\sigma = 0.08$ in the second range.

# Distribution of Instrength

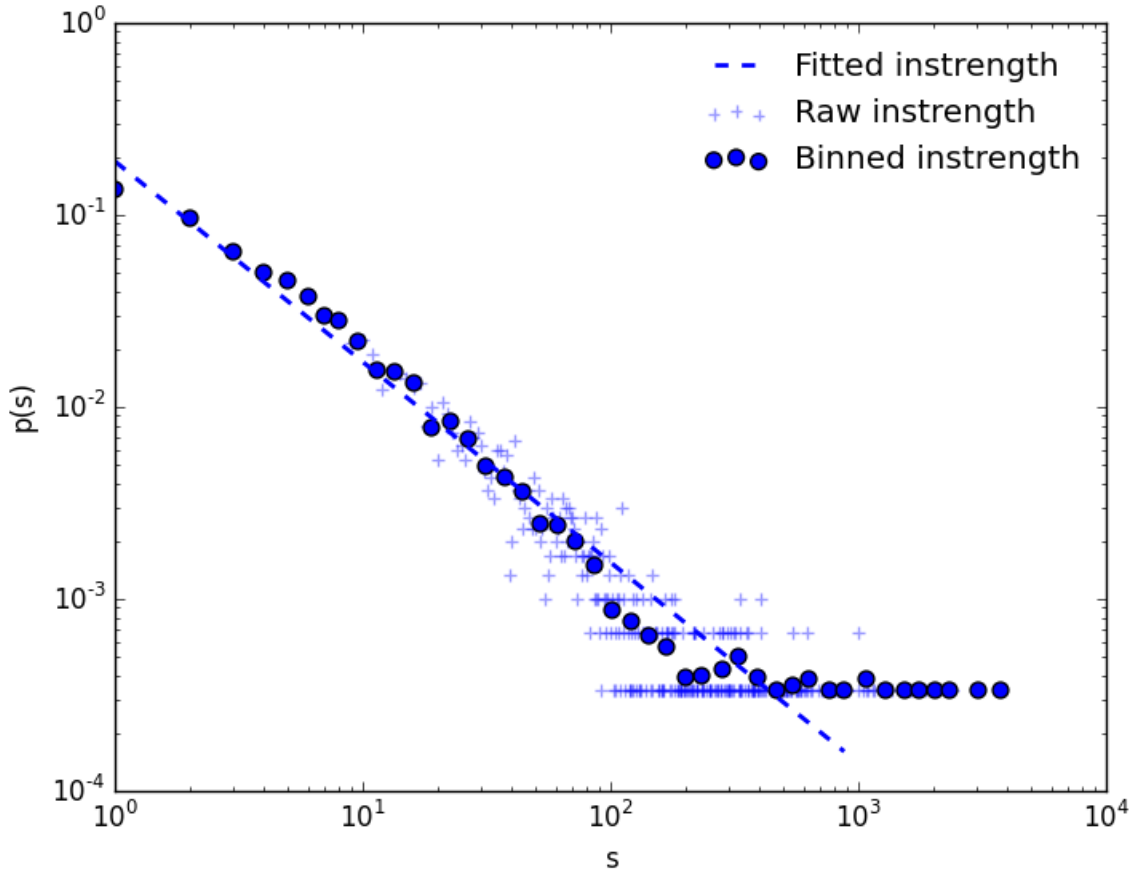





The power-law fitting parameters $\alpha = -0.8562$ and standard error (i.e., RMSE) $\sigma = 0.24$.

# Distribution of Instrength

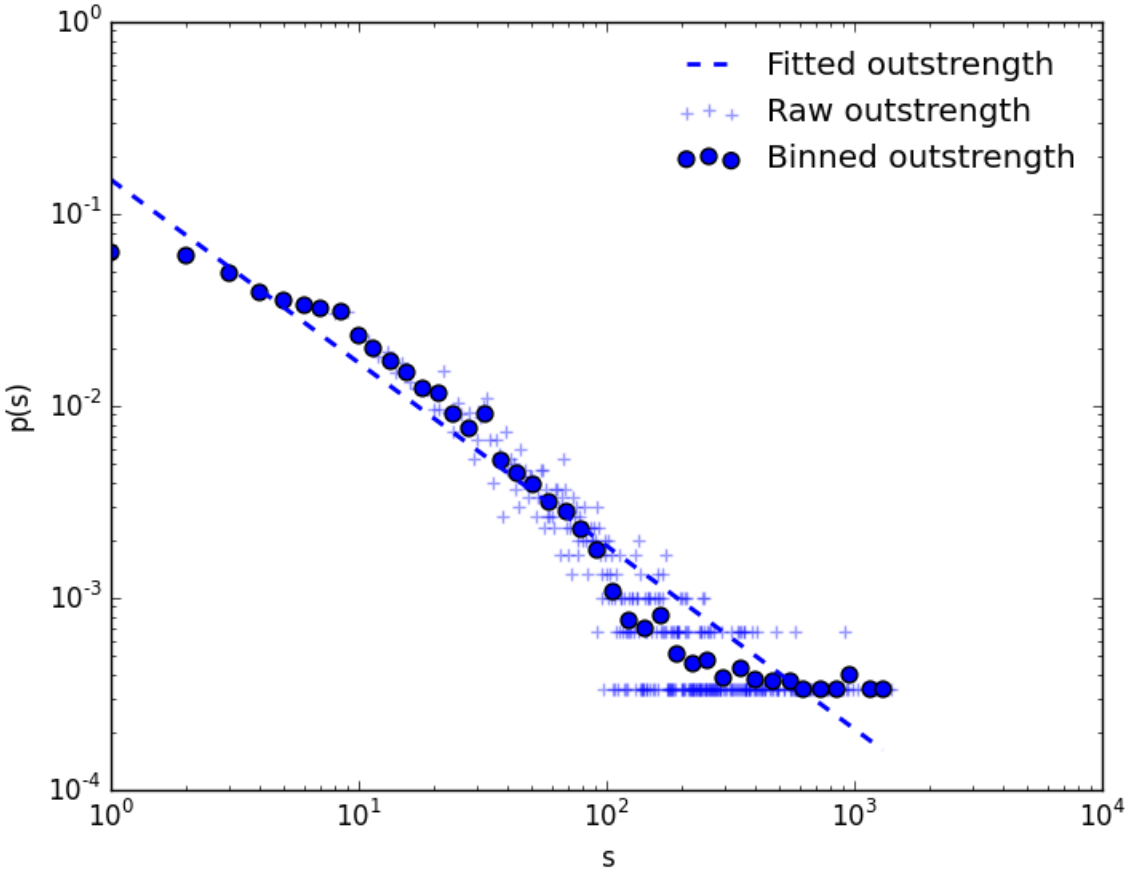





If excluding the nodes with instrength larger than 1000, the power-law fitting parameters $\alpha = -1.044$ and standard error (i.e., RMSE) $\sigma = 0.13$.

# Distribution of Outstrength

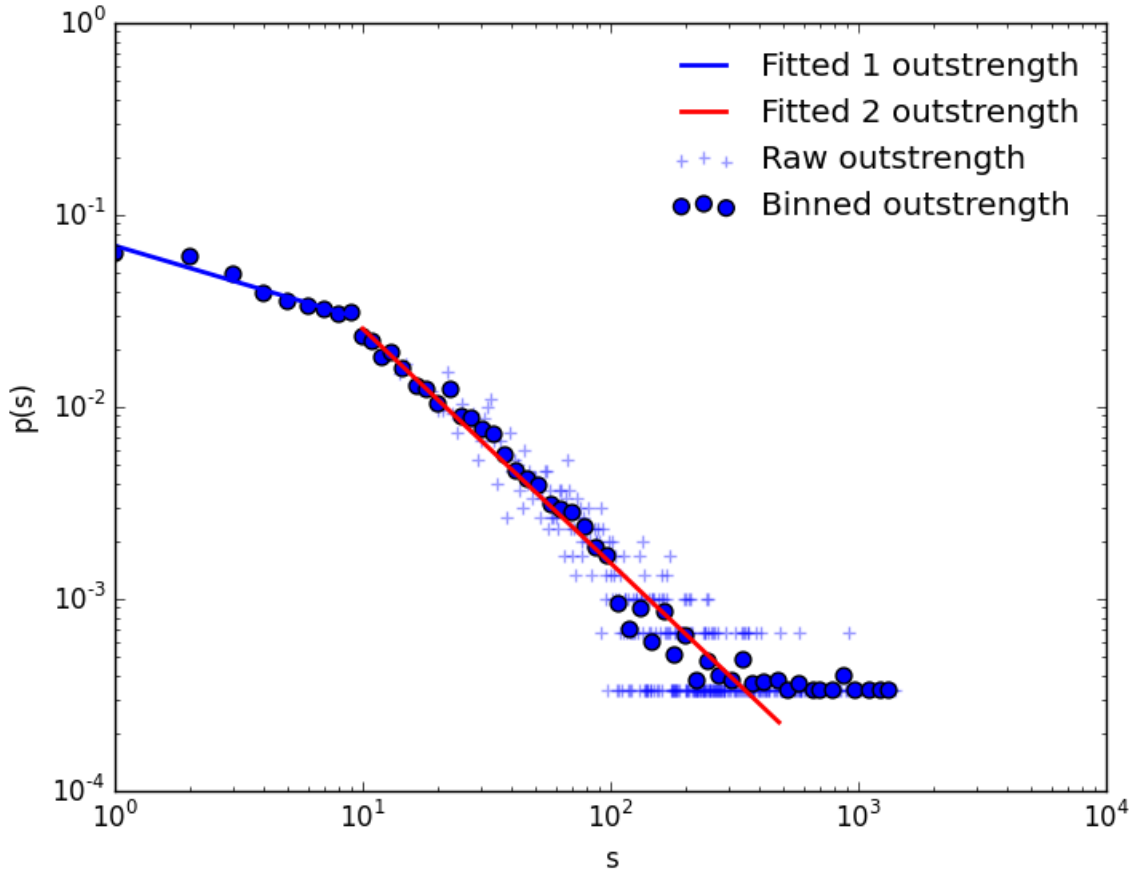





The power-law fitting parameters $\alpha = -0.9535$ and standard error (i.e., RMSE) $\sigma = 0.16$.

# Distribution of Outstrength (Splitting)

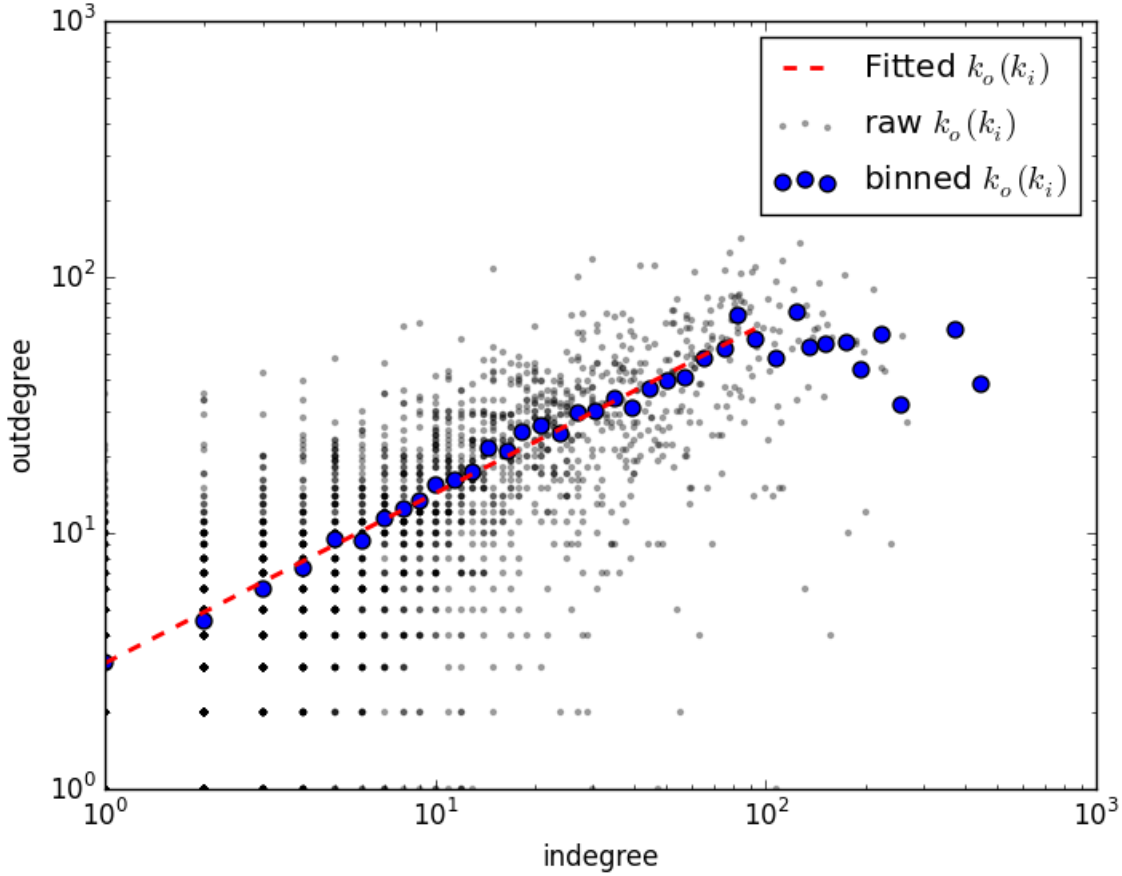





Fitting the nodes with outstrength in the range of $[1, 500]$ and splitting outdegree at $k = 10$, the power-law fitting parameters in the first range $\alpha = -0.383$ and standard error (i.e., RMSE)

# Dependence of Indegrees and Outdegrees

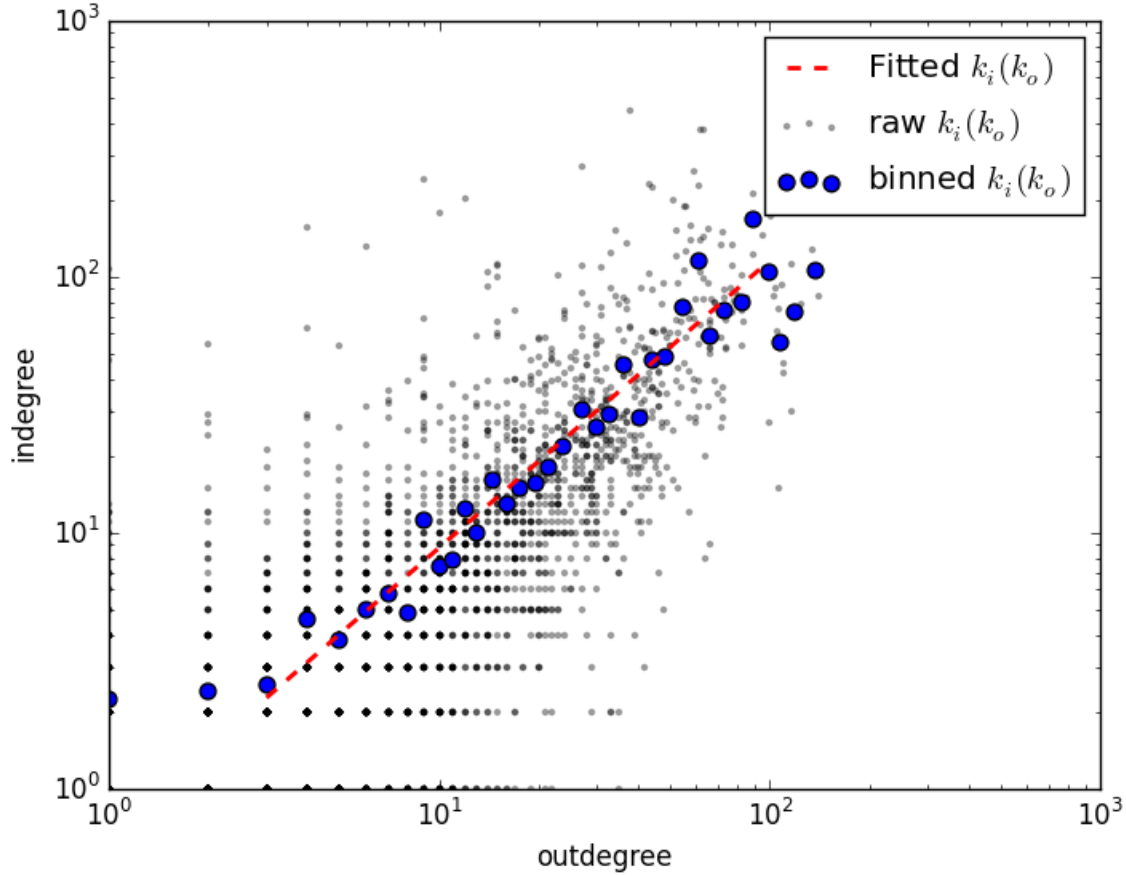





Fitting the nodes with indegree in the range of $[1, 100]$, the power-law fitting parameters $\alpha = 0.6638$ and standard error (i.e., RMSE) $\sigma = 0.03$.

# Dependence of Outdegrees and Indegrees

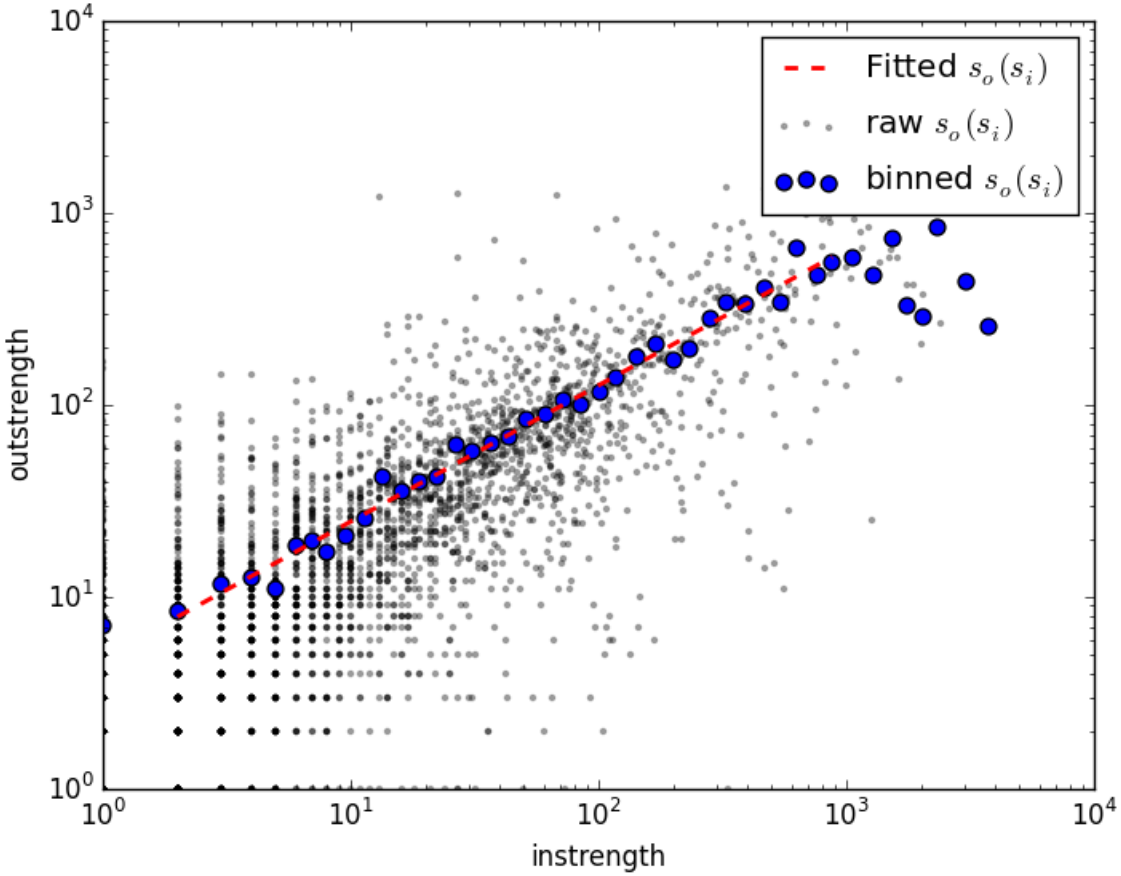





Fitting the nodes with outdegree in the range of $[3, 100]$, the power-law fitting parameters $\alpha = 1.121$ and standard error (i.e., RMSE) $\sigma = 0.09$.

# Dependence of Instrength and Outstrength

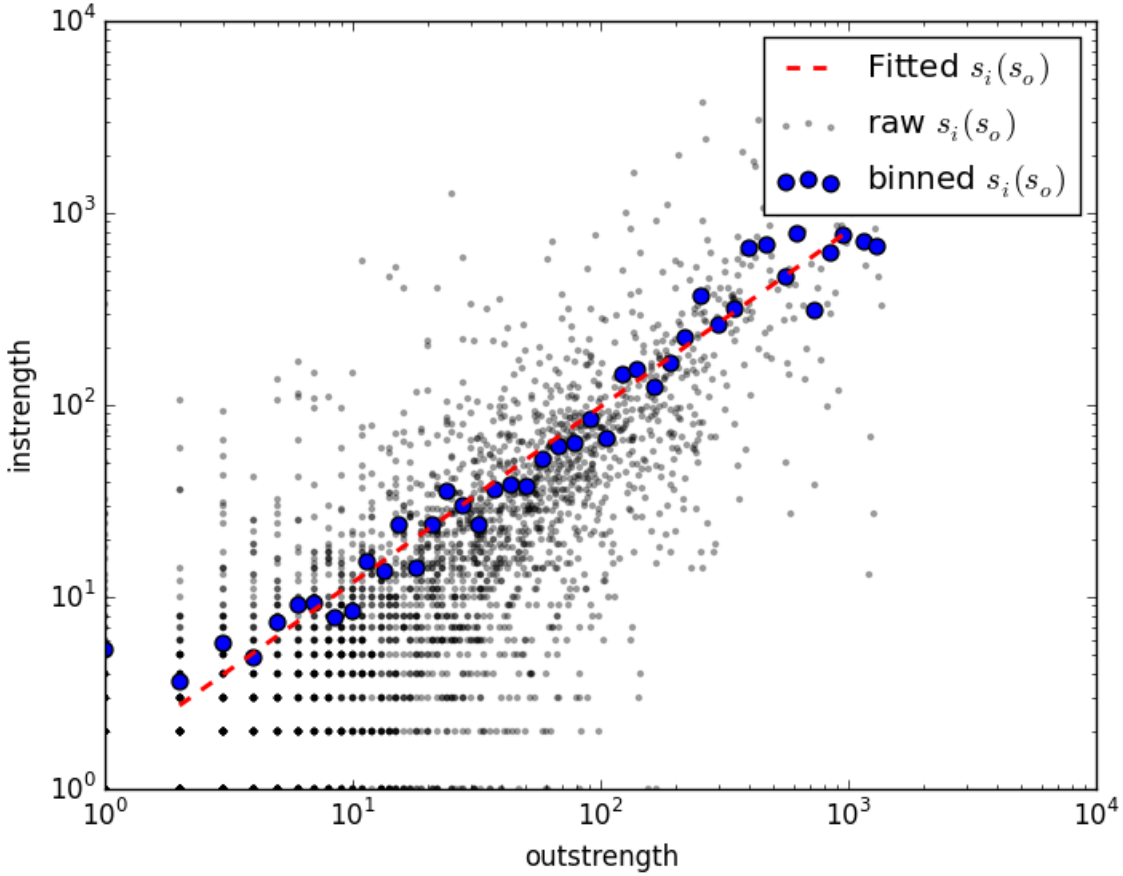





Fitting the nodes with instrength in the range of $[2, 1000]$, the power-law fitting parameters $\alpha = 0.7094$ and standard error (i.e., RMSE) $\sigma = 0.06$.

# Dependence of Outstrength and Instrength

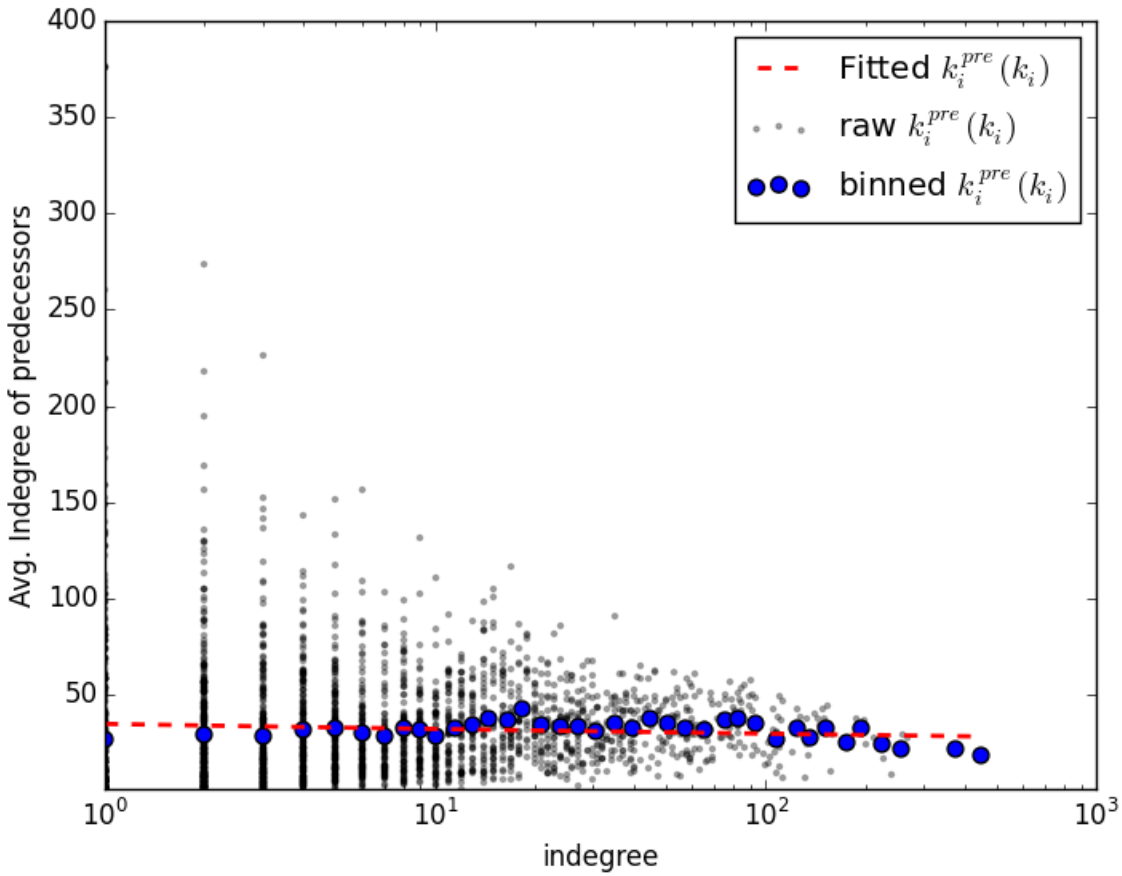





Fitting the nodes with instrength in the range of $[2, 1000]$, the power-law fitting parameters $\alpha = 0.9154$ and standard error (i.e., RMSE) $\sigma = 0.12$.

# Dependence of Indegree and Avg. Indegree of Predecessors

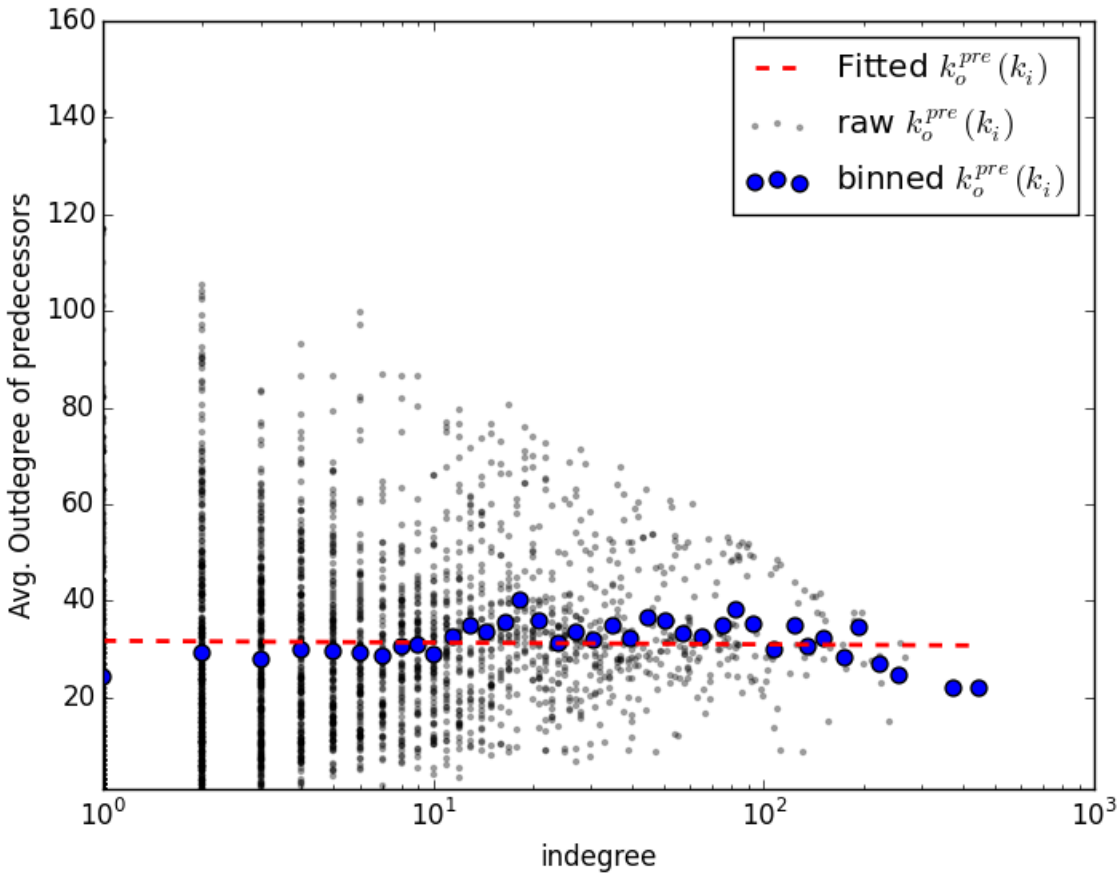





The power-law fitting parameters $\alpha = -0.03401$ and standard error (i.e., RMSE) $\sigma = 0.07$.

# Dependence of Indegree and Avg. Outdegree of Predecessors

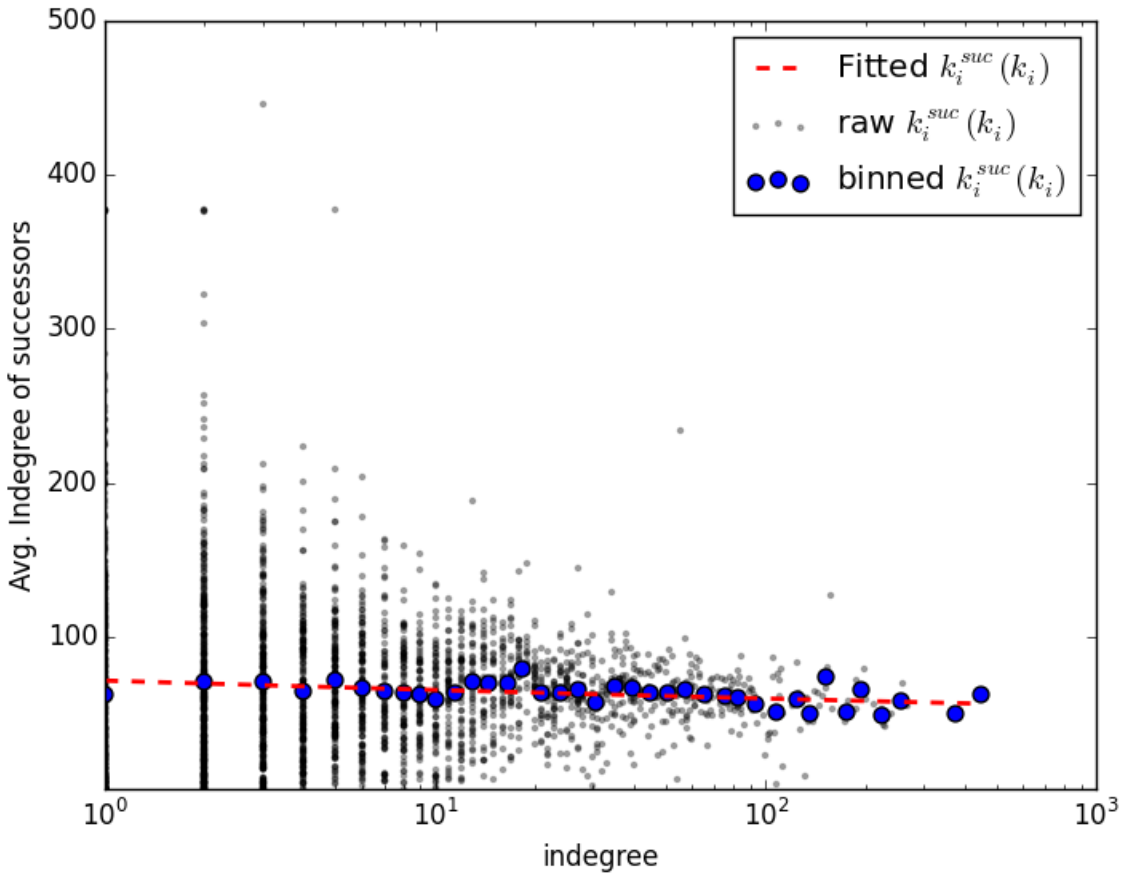





The power-law fitting parameters $\alpha = -0.005108$ and standard error (i.e., RMSE) $\sigma = 0.05$.

# Dependence of Indegree and Avg. Indegree of Successors

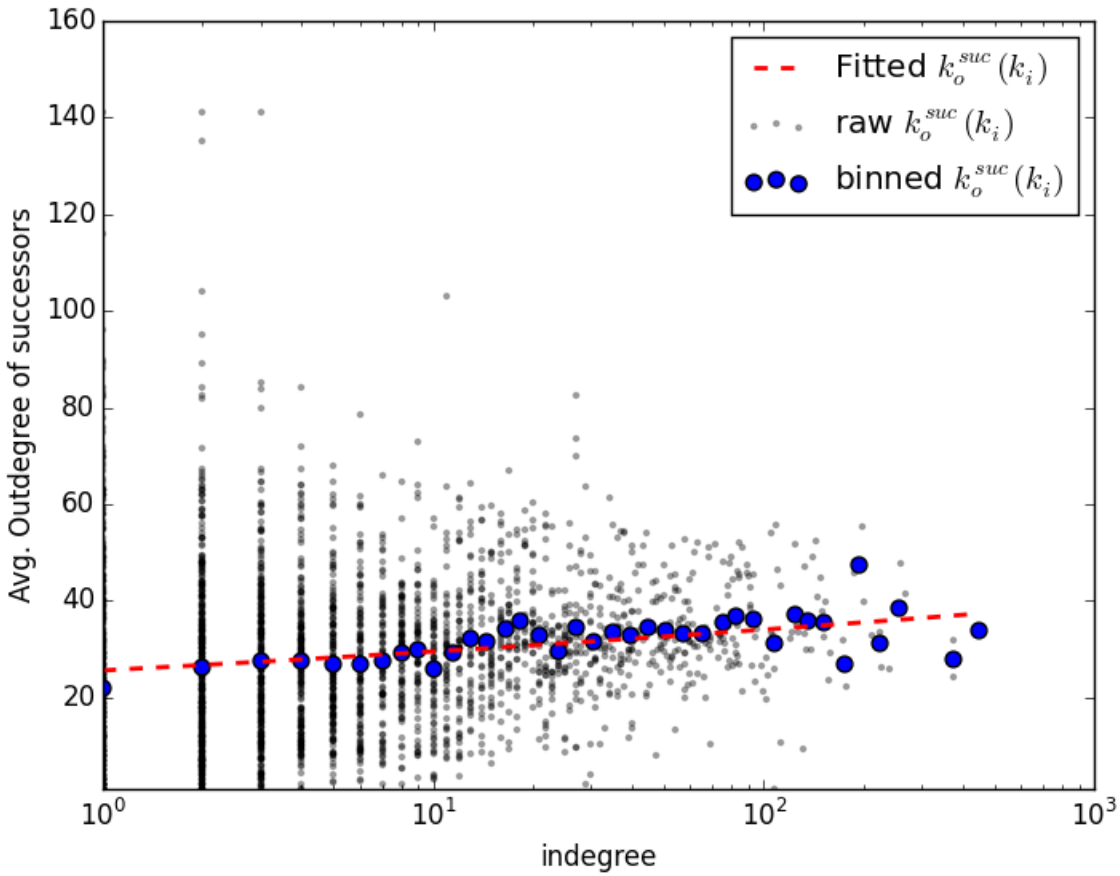





The power-law fitting parameters $\alpha = -0.03862$ and standard error (i.e., RMSE) $\sigma = 0.04$.

# Dependence of Indegree and Avg. Outdegree of Successors

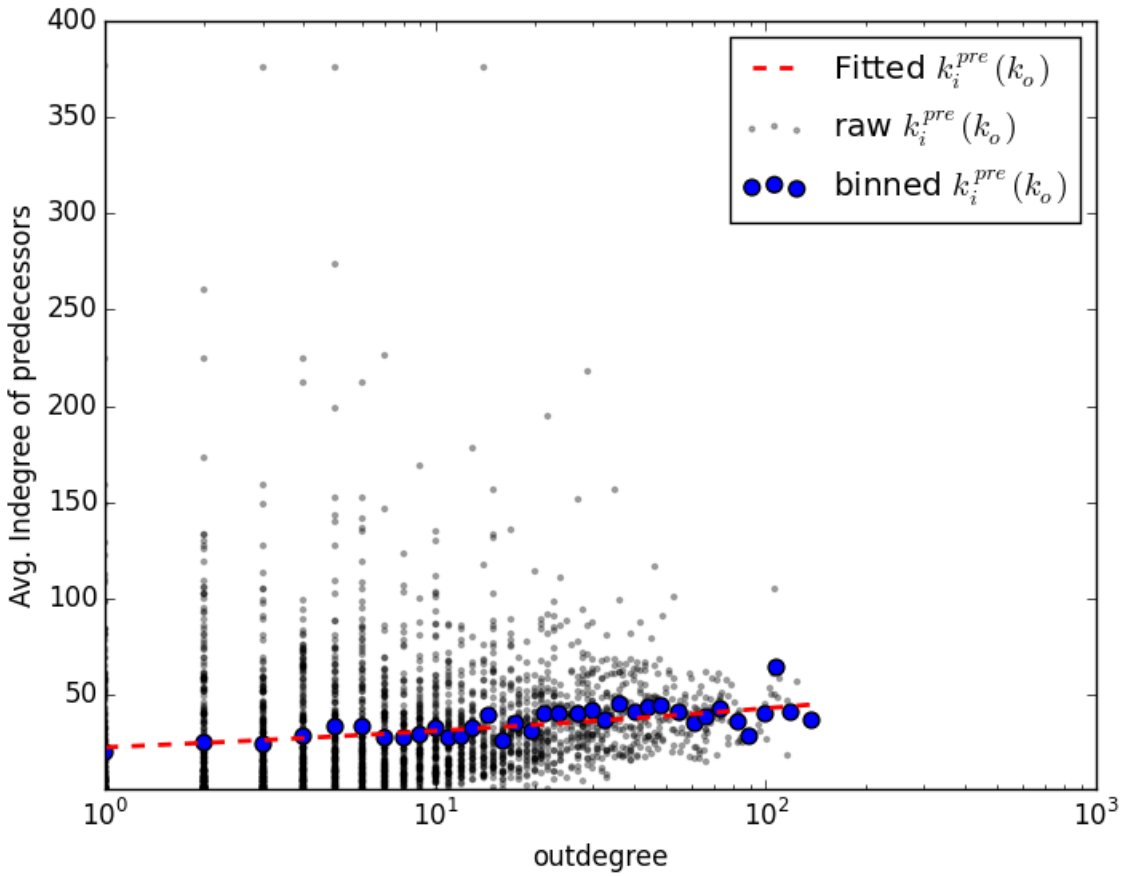





The power-law fitting parameters $\alpha = 0.06204$ and standard error (i.e., RMSE) $\sigma = 0.04$.

# Dependence of Outdegree and Avg. Indegree of Predecessors

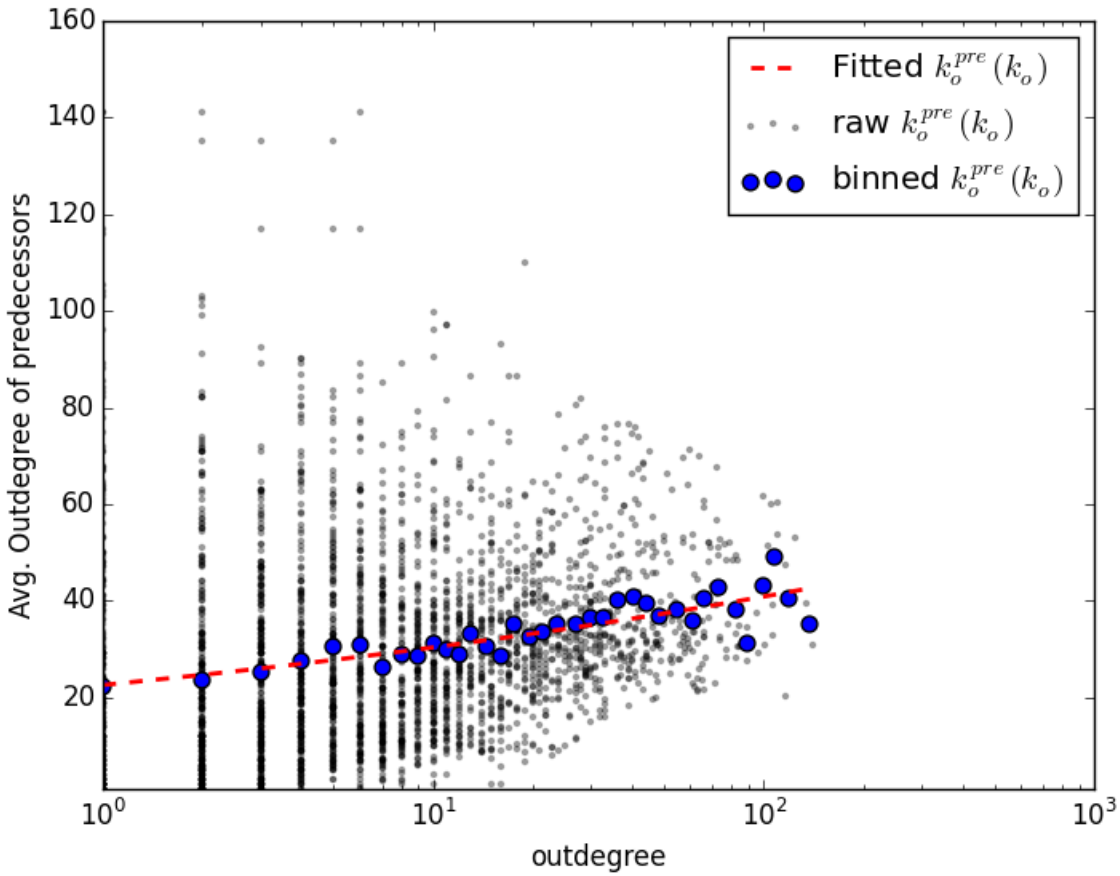





The power-law fitting parameters $\alpha = 0.1387$ and standard error (i.e., RMSE) $\sigma = 0.06$.

# Dependence of Outdegree and Avg. Outdegree of Predecessors

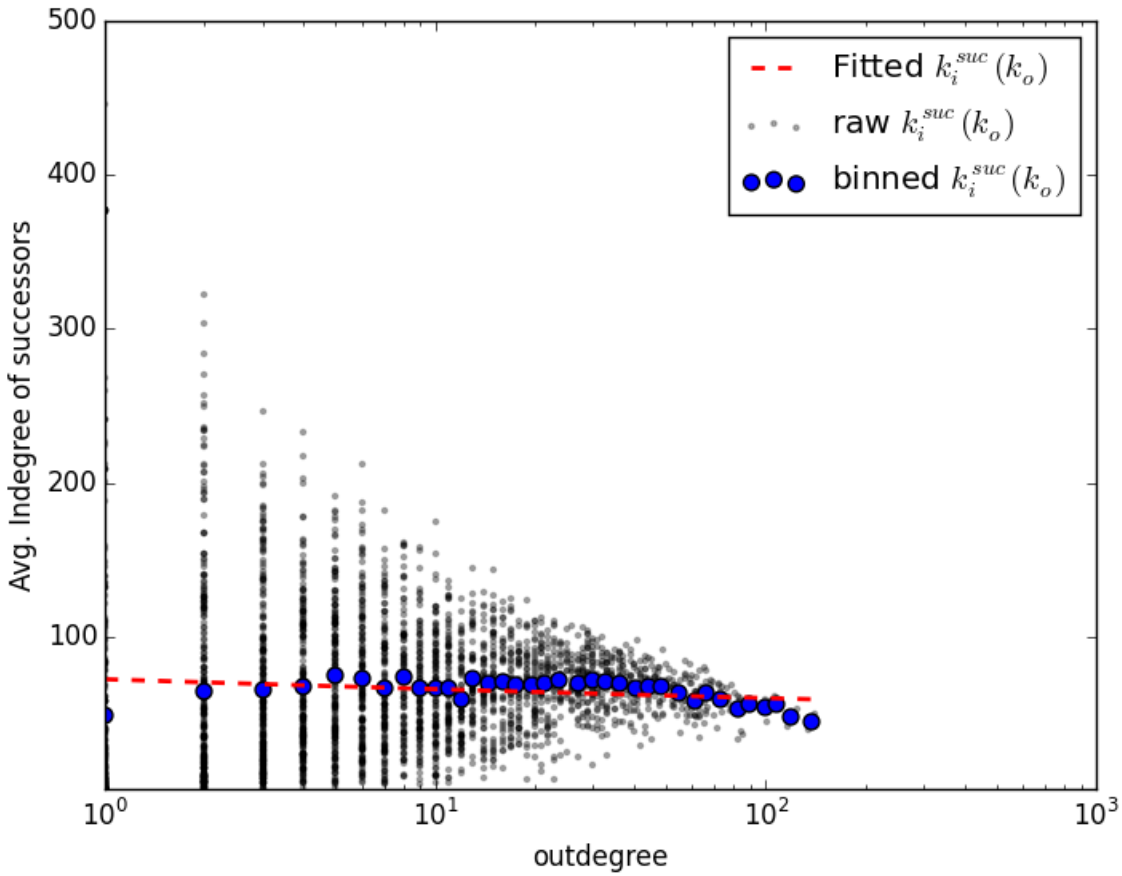





The power-law fitting parameters $\alpha = 0.1293$ and standard error (i.e., RMSE) $\sigma = 0.03$.

# Dependence of Outdegree and Avg. Indegree of Successors

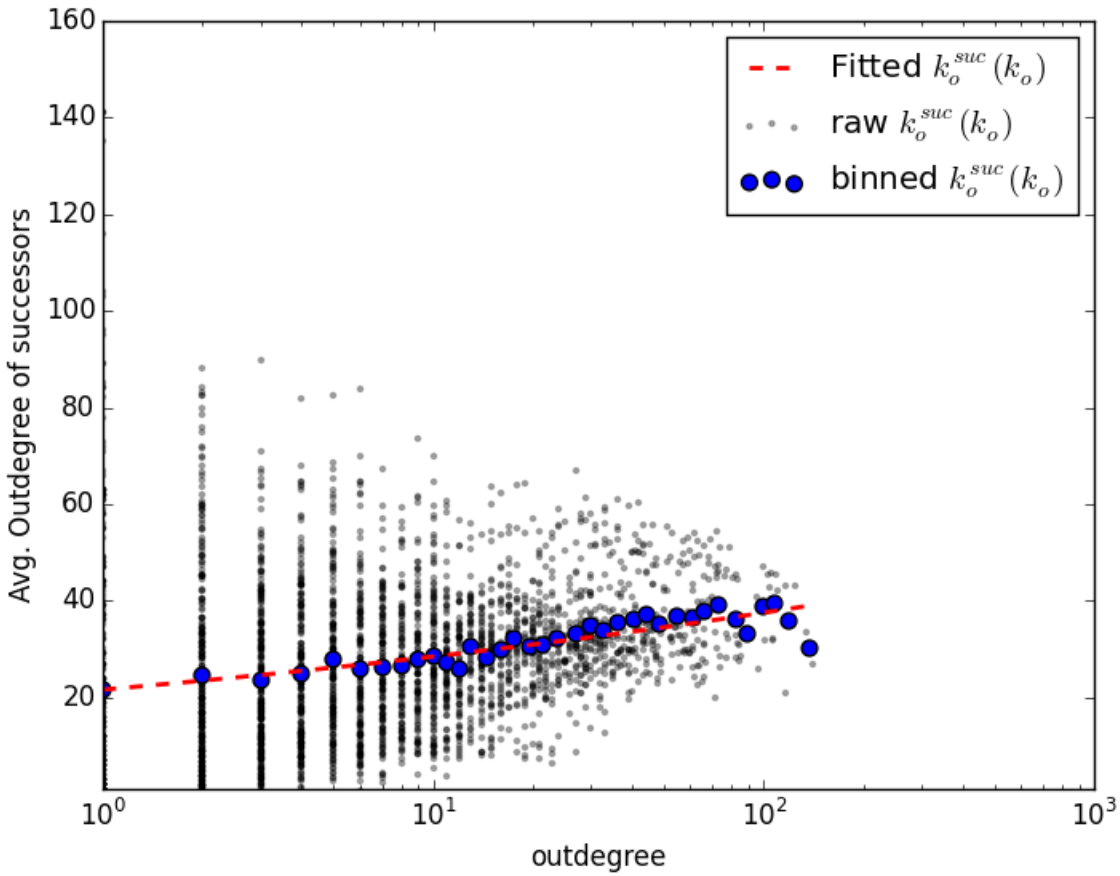





The power-law fitting parameters $\alpha = -0.04032$ and standard error (i.e., RMSE) $\sigma = 0.05$.

# Dependence of Outdegree and Avg. Outdegree of Successors

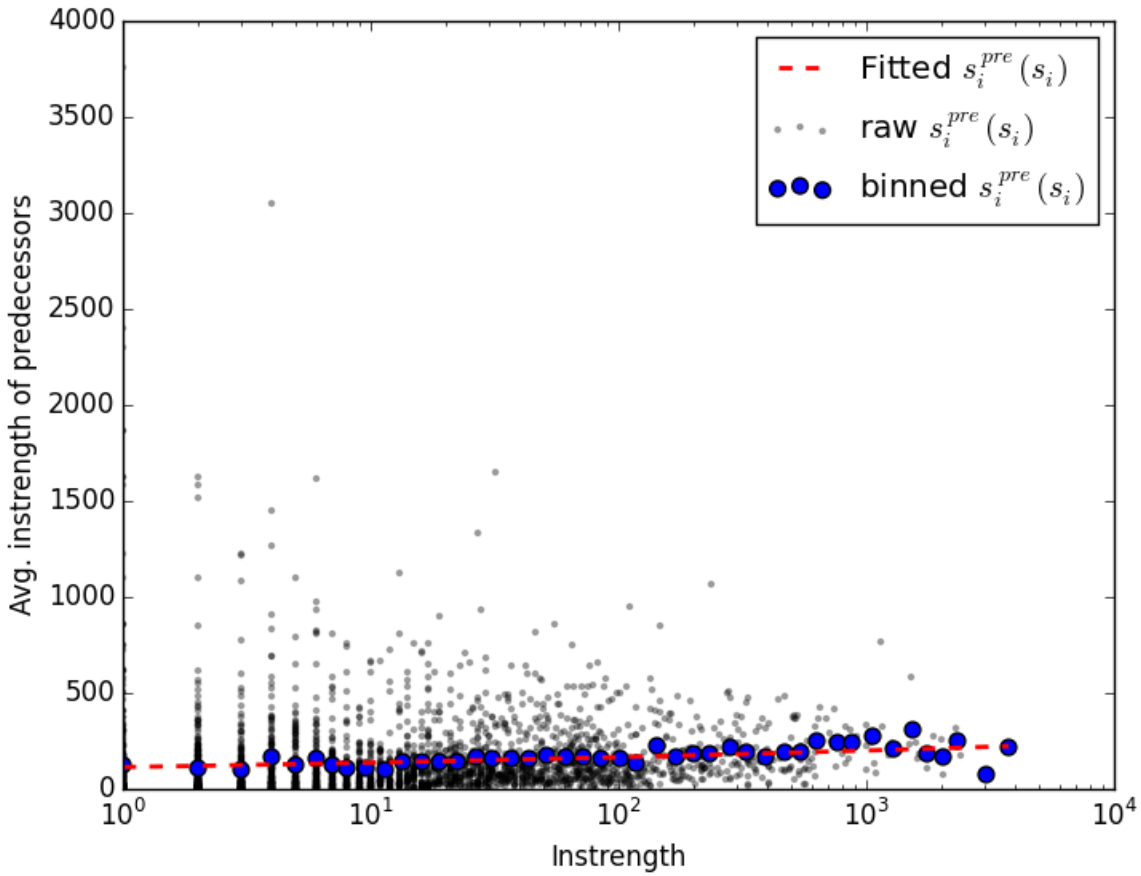





The power-law fitting parameters $\alpha = 0.1202$ and standard error (i.e., RMSE) $\sigma = 0.02$.

# Dependence of Instrength and Avg. Instrength of Predecessors

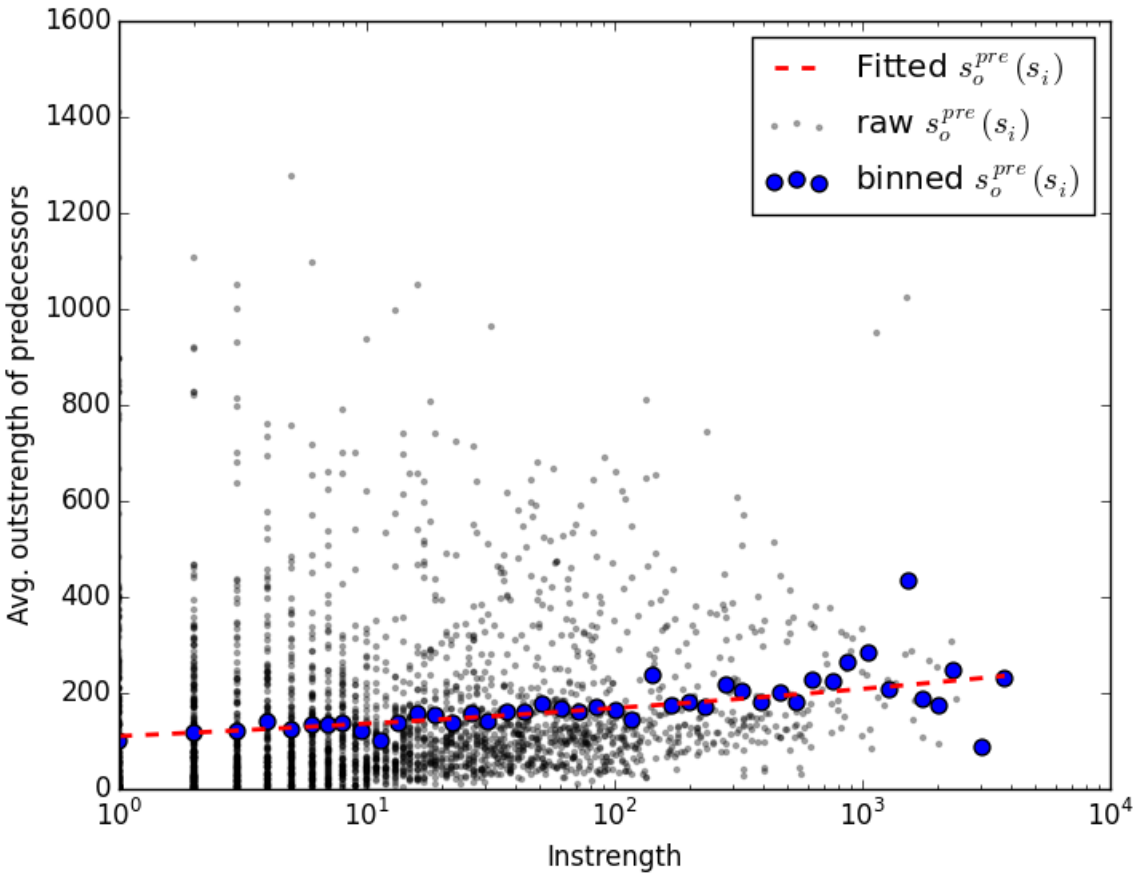





The power-law fitting parameters $\alpha = 0.08118$ and standard error (i.e., RMSE) $\sigma = 0.09$.

# Dependence of Instrength and Avg. Outstrength of Predecessors

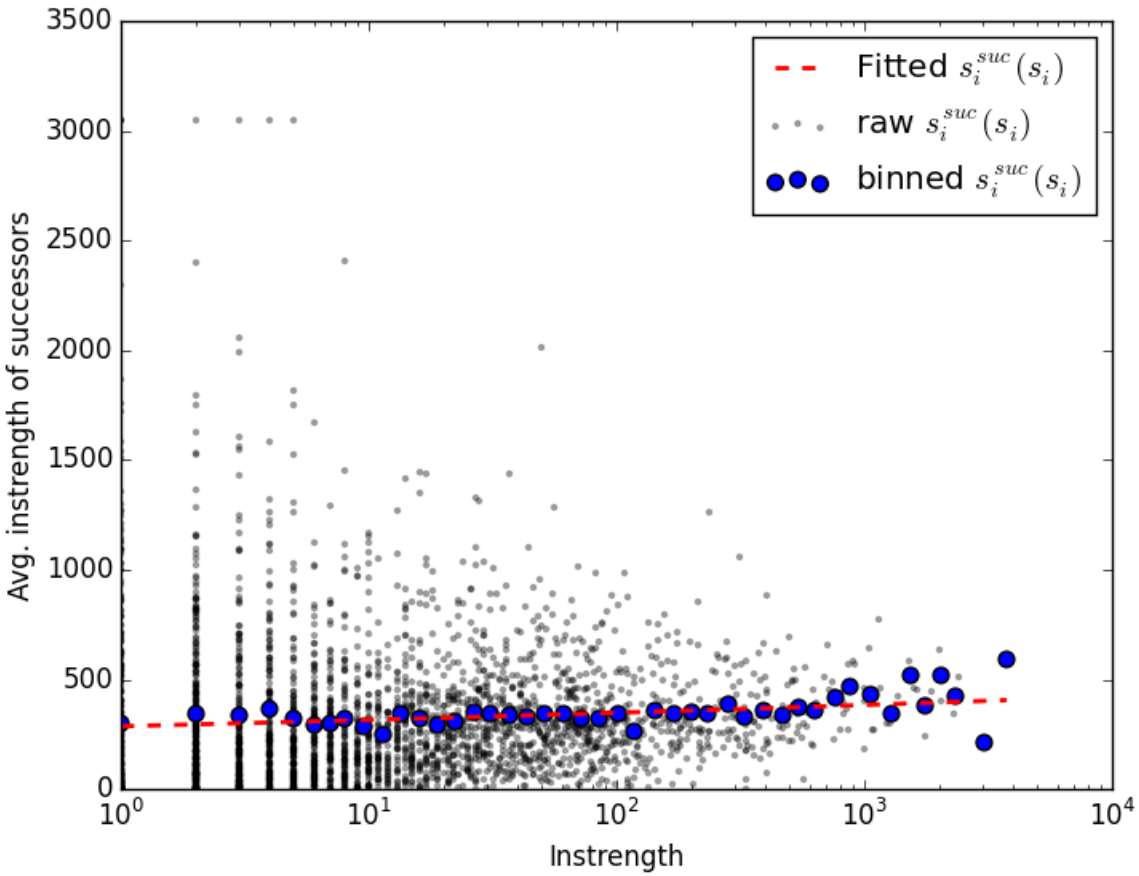





The power-law fitting parameters $\alpha = 0.09193$ and standard error (i.e., RMSE) $\sigma = 0.09$.

# Dependence of Instrength and Avg. Instrength of Successors

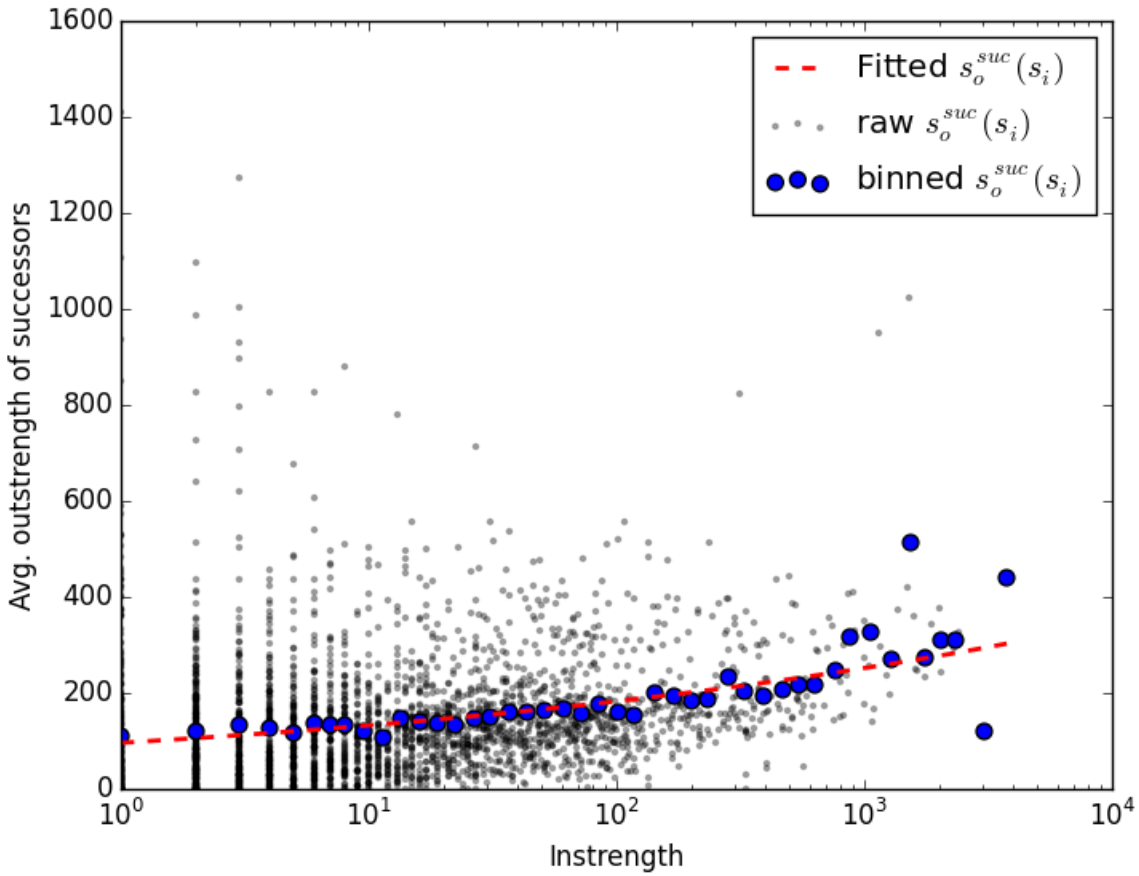





The power-law fitting parameters $\alpha = 0.04223$ and standard error (i.e., RMSE) $\sigma = 0.06$.

# Dependence of Instrength and Avg. Outstrength of Successors

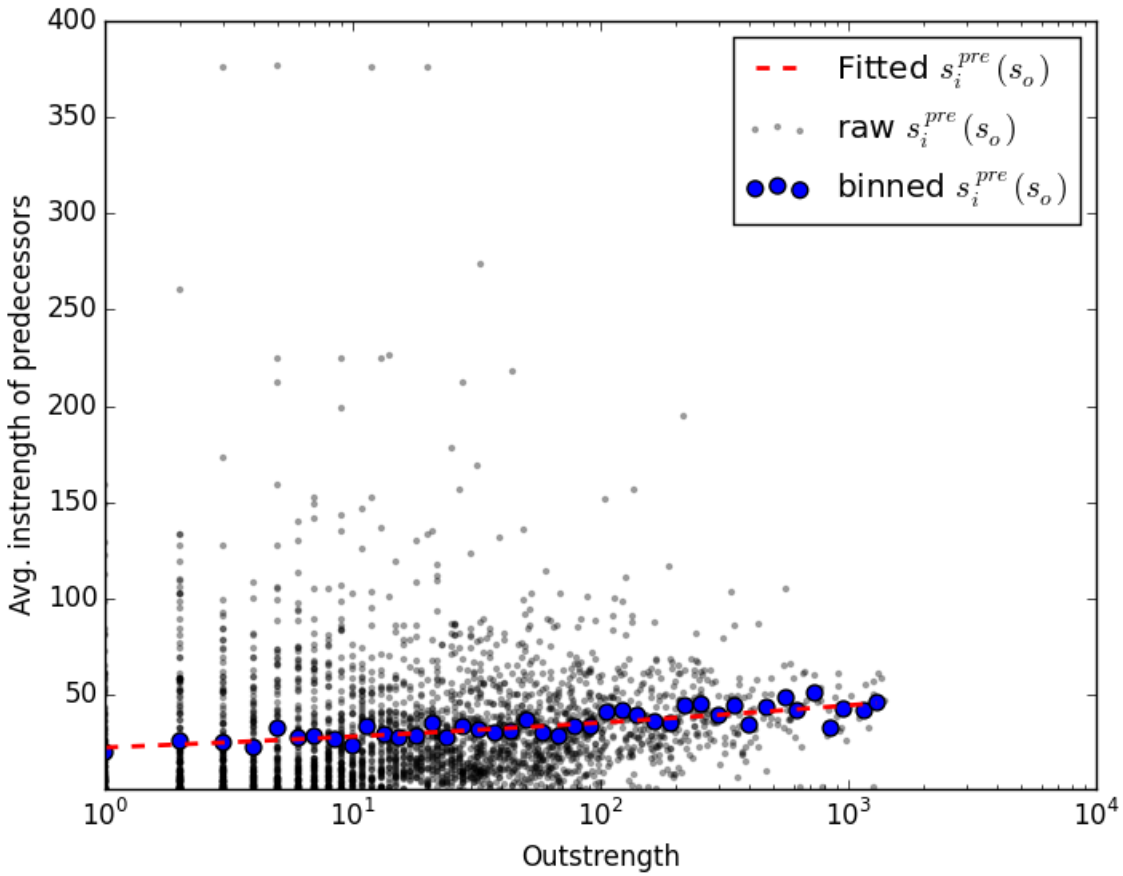





The power-law fitting parameters $\alpha = 0.1385$ and standard error (i.e., RMSE) $\sigma = 0.08$.

# Dependence of Outstrength and Avg. Instrength of Predecessors

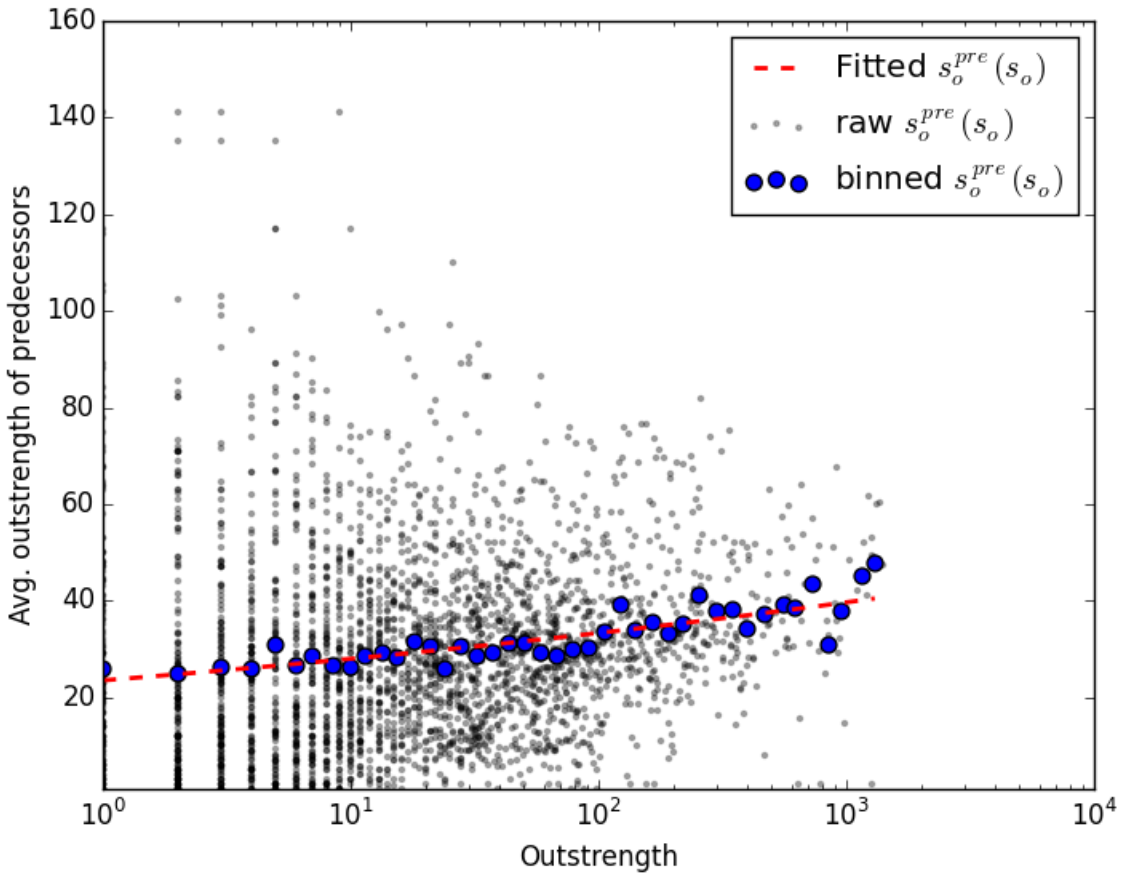





The power-law fitting parameters $\alpha = 0.09821$ and standard error (i.e., RMSE) $\sigma = 0.04$.

# Dependence of Outstrength and Avg. Outstrength of Predecessors

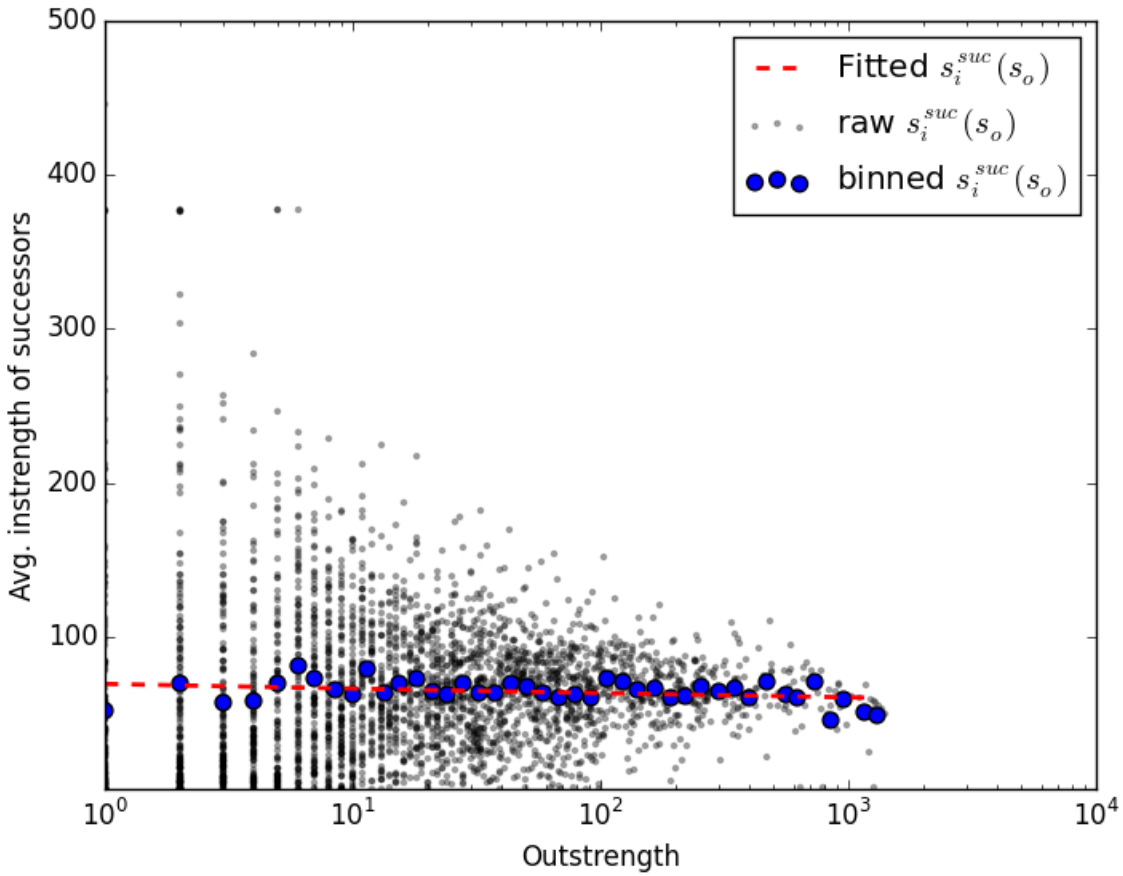





The power-law fitting parameters $\alpha = 0.07583$ and standard error (i.e., RMSE) $\sigma = 0.03$.

# Dependence of Outstrength and Avg. Instrength of Successors

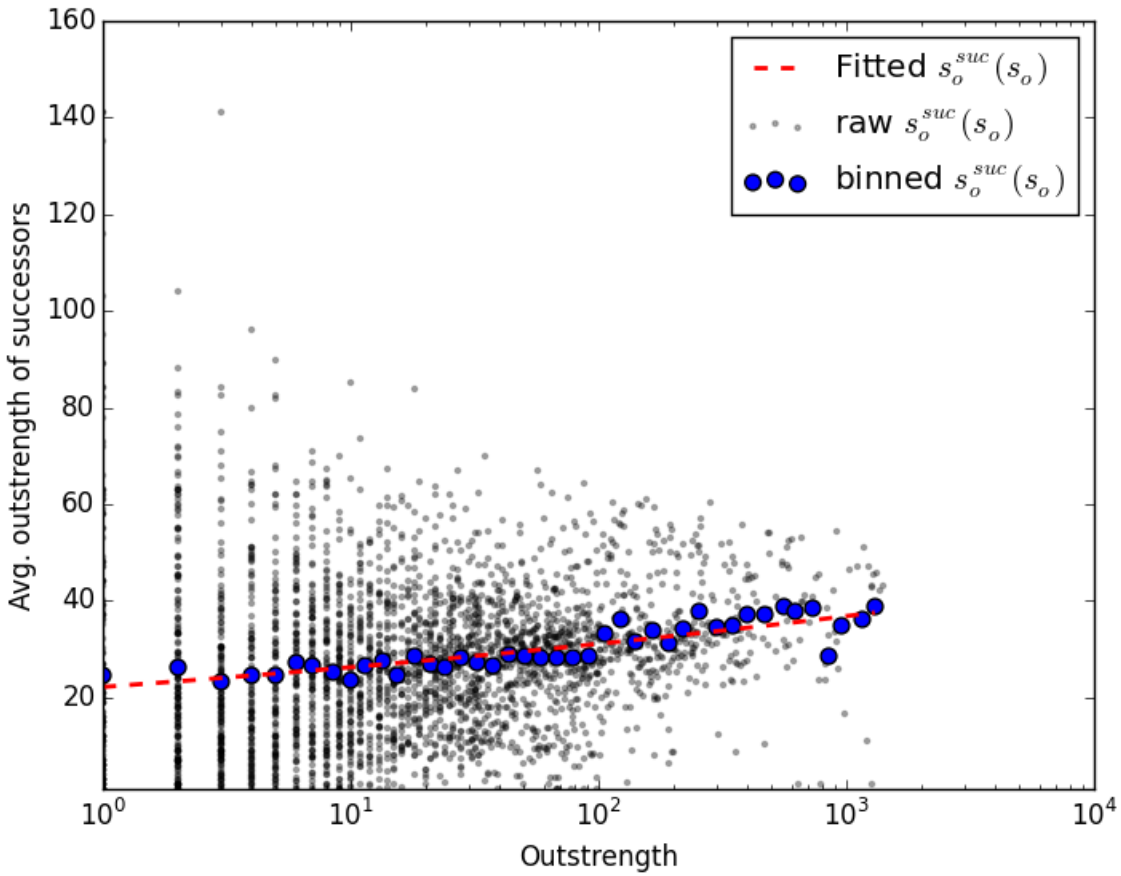





The power-law fitting parameters $\alpha = -0.01945$ and standard error (i.e., RMSE) $\sigma = 0.04$.

# Dependence of Outstrength and Avg. Outstrength of Successors






The power-law fitting parameters $\alpha = 0.0736$ and standard error (i.e., RMSE) $\sigma = 0.03$.

# The End