# Analysis of Networks

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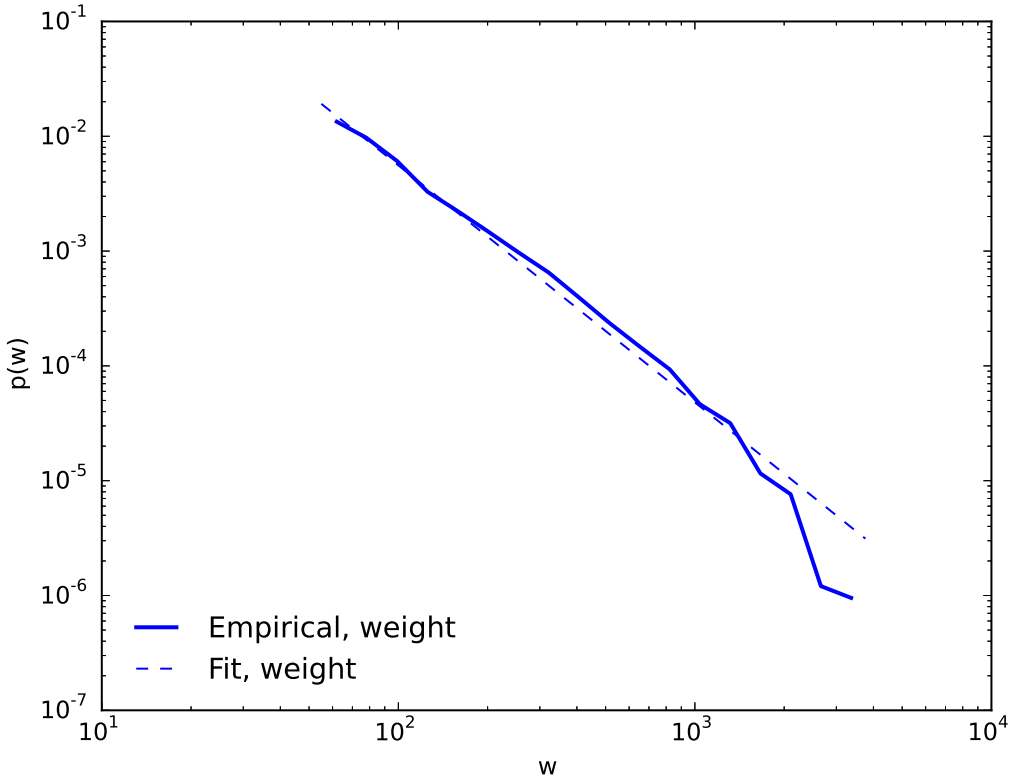
# Distribution of Link Weights

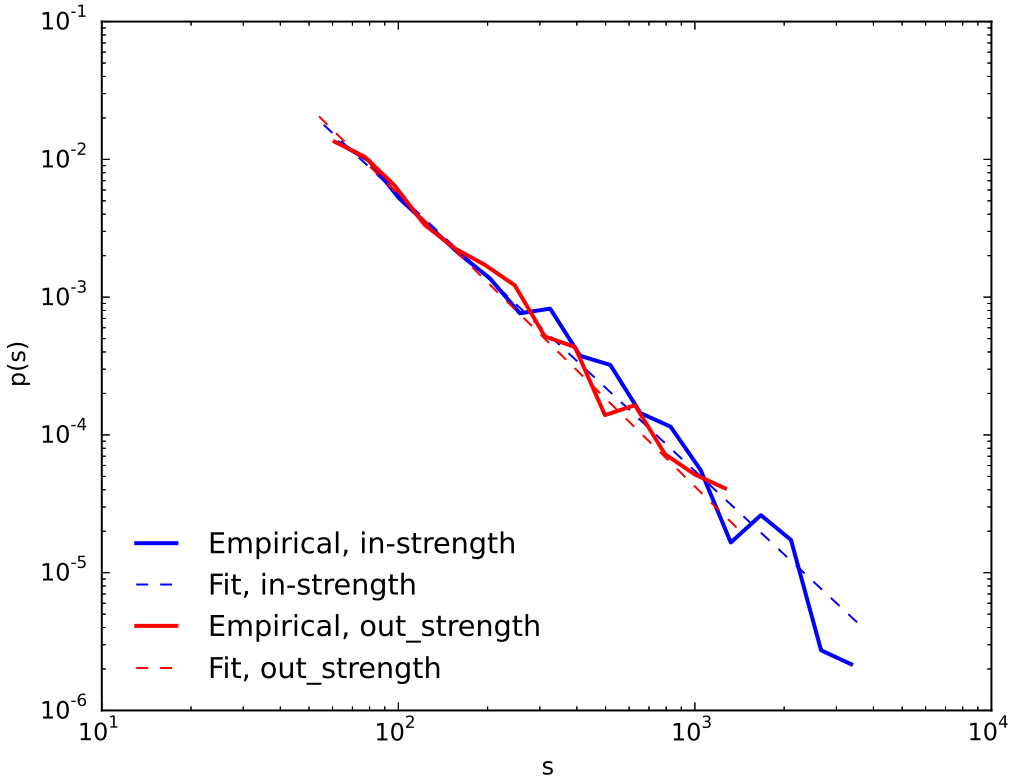





The figure is the probability density function (PDF) of the $W$ matrix, including in-strength and out-strength, where $\alpha = 2.05$ and standard error (i.e., RMSE) $\sigma = 0.029$ (The power-law distributions are formulated with: $p(x) \propto x^{-\alpha}$).

# Distribution of Strength

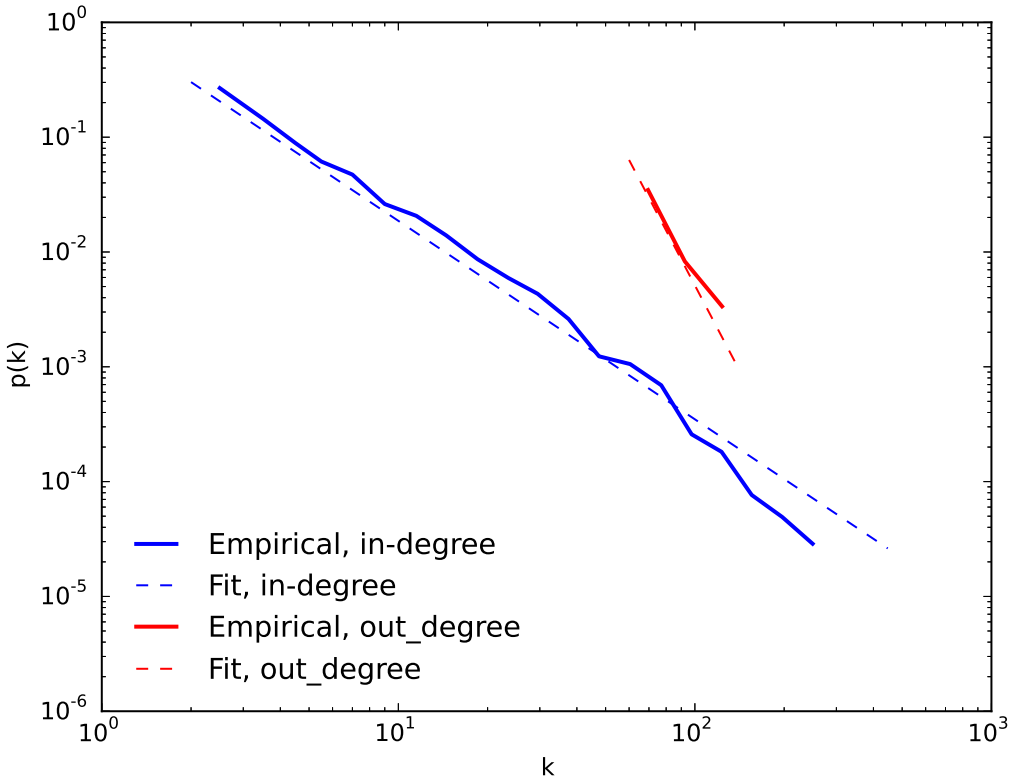





The figure is obtained by in/out strength plus one. The PDF of in-strength are fitted by a power-law with $\alpha = 2.01$ and $\sigma = 0.041$. The PDF of out-strength are fitted by a power-law with $\alpha = 2.12$ and $\sigma = 0.041$.

# Distribution of Degrees

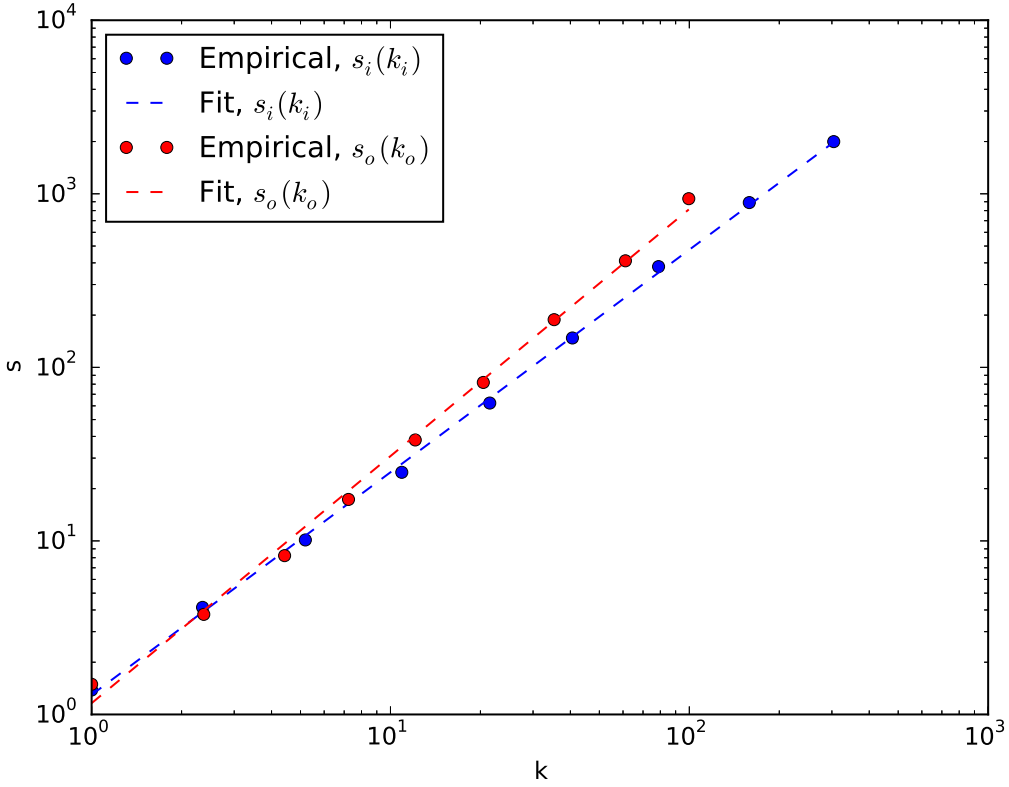





The figure is obtained by in/out degrees plus one. The probability density function (PDF) of in-degrees are fitted by a power-law with $\alpha = 1.73$ and $\sigma = 0.012$. The PDF of out-degrees are fitted by a power-law with $\alpha = 4.92$ and $\sigma = 0.423$.

# Dependence of Strength and Degrees

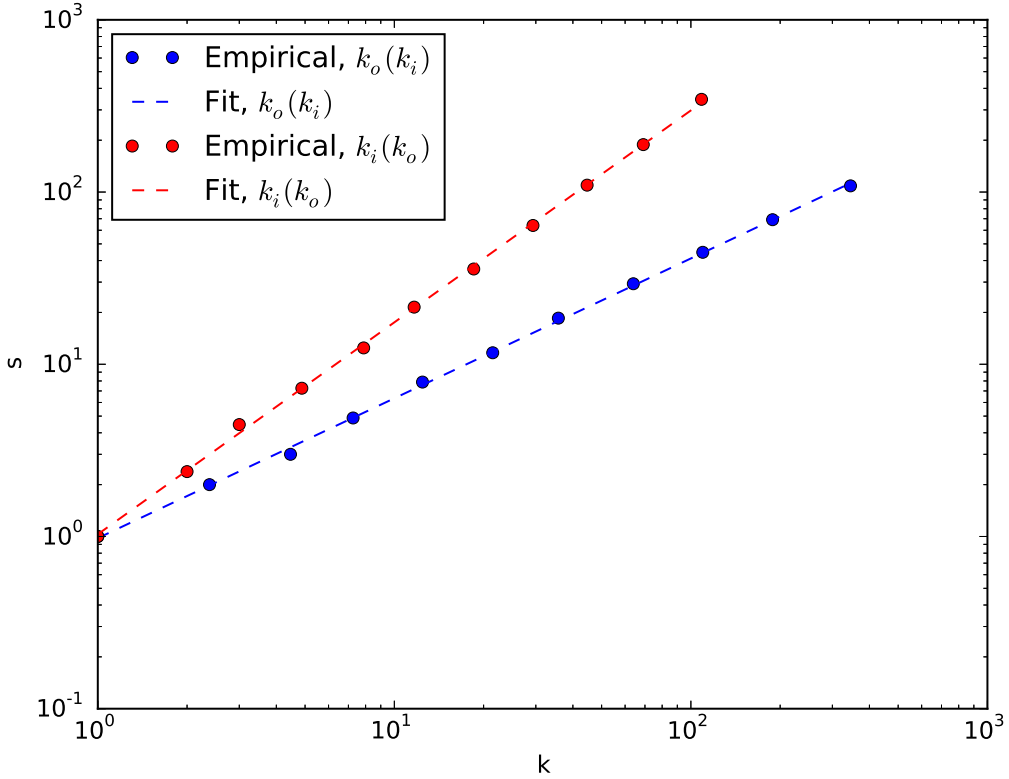





The figure is obtained by in/out degrees and in-out degrees plus one. The dependence of in-strength and in-degrees are fitted by a power-law with $\alpha = 1.282$ and $\sigma = 0.027$. The PDF of out-degrees are fitted by a power-law with $\alpha = 1.424$ and $\sigma = 0.052$.

# Dependence of In-degrees and Out-degrees

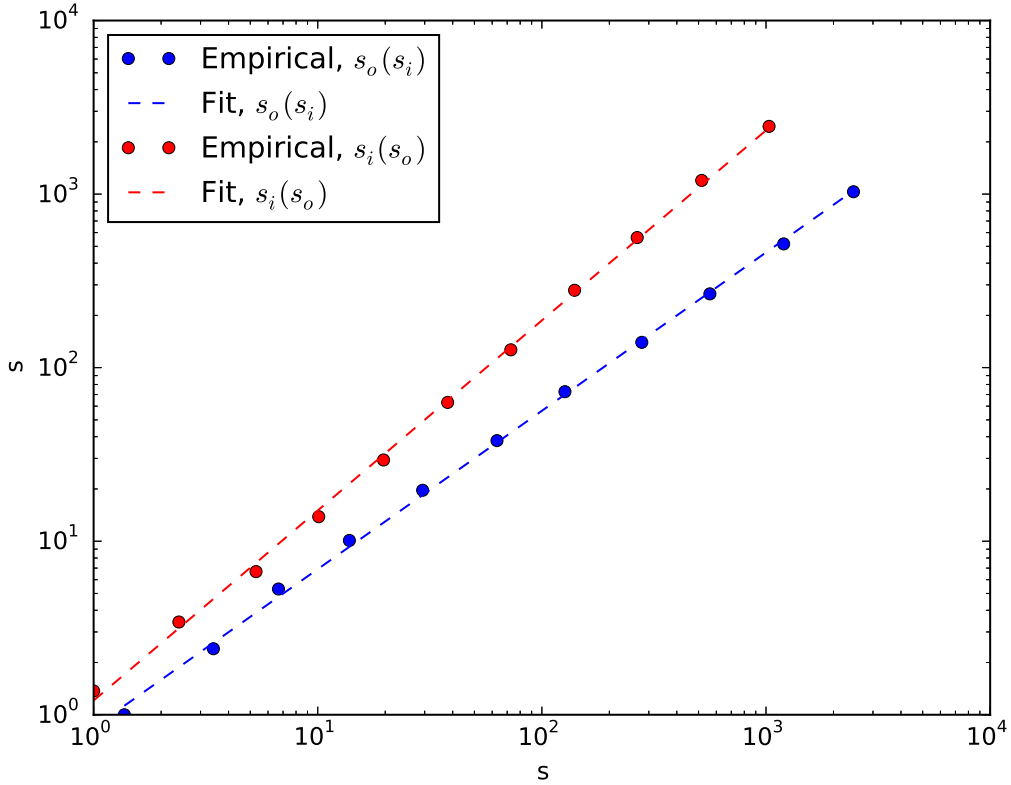





The figure is obtained by in/out degrees (without plus one). The $k_o(k_i)$ fitted by a power-law with $\alpha = 0.8121$ and $\sigma = 0.016$. The $k_i(k_o)$ is fitted by a power-law with $\alpha = 1.231$ and $\sigma = 0.019$.

# Dependence of In-strength and Out-strength






The figure is obtained by in/out strength (without plus one). The $s_o(s_i)$ fitted by a power-law with $\alpha = 0.9123$ and $\sigma = 0.028$. The $s_i(s_o)$ is fitted by a power-law with $\alpha = 1.095$ and $\sigma = 0.031$.

# The End