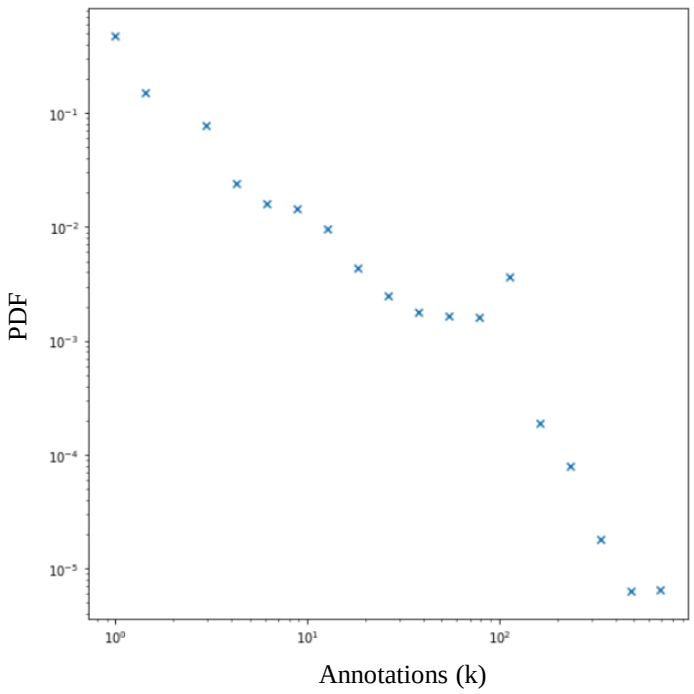
A

Benchmark BindingDB data

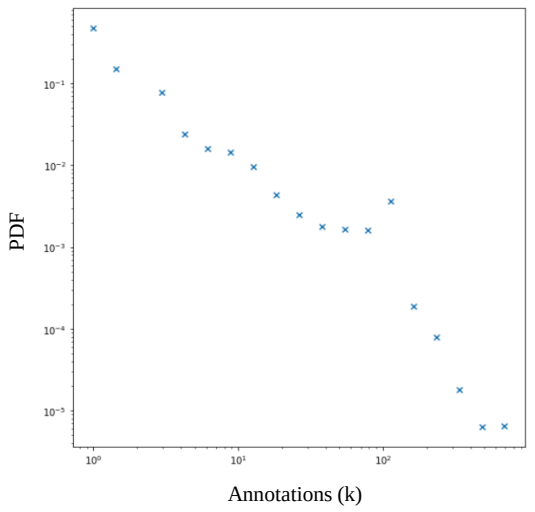
Target degree sequence

$\{d_1, d_2, \ldots, d_N\}$



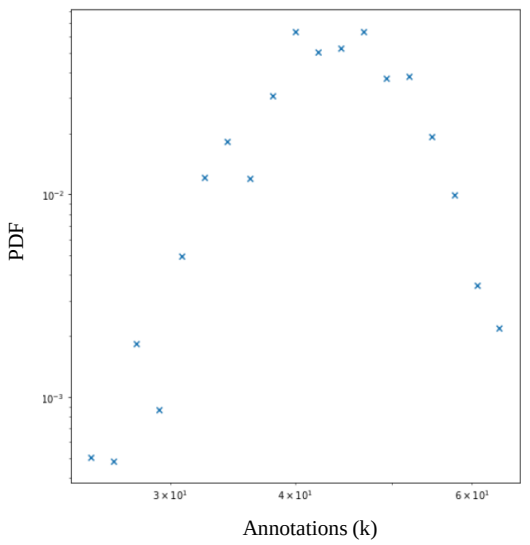
Configuration Model

Power-law degree distribution with
N=1,507
γ_p=2.8
$k_p^{min} = 1$
$k_p^{max} = 1,426$



ER Graph

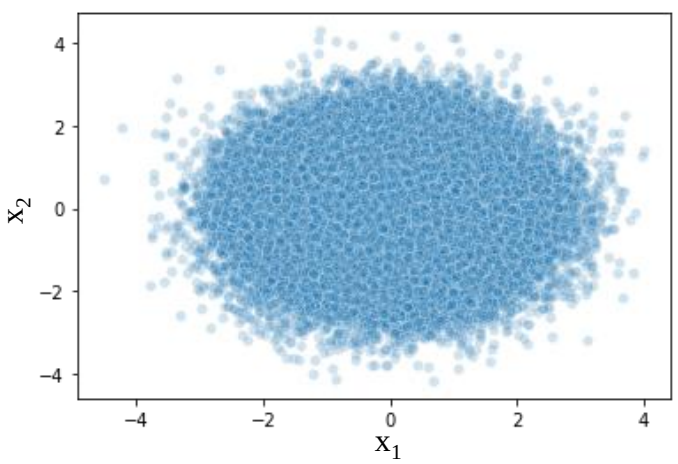
Poisson degree distribution with
N=1,507
$<k_p>$=47



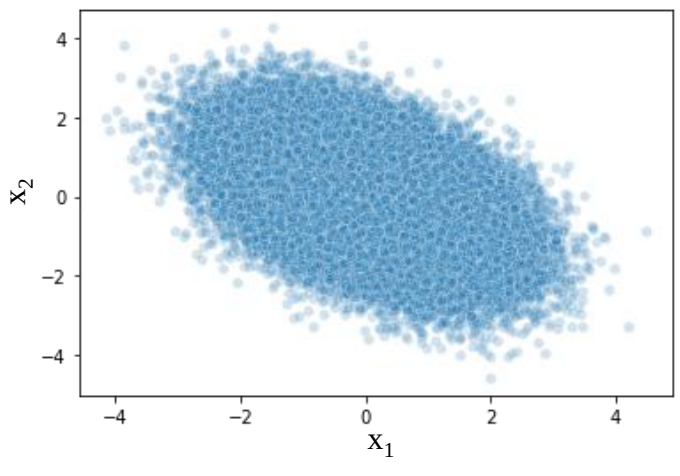
B

Gaussian Copulas

$c_{Spearman} = 0$



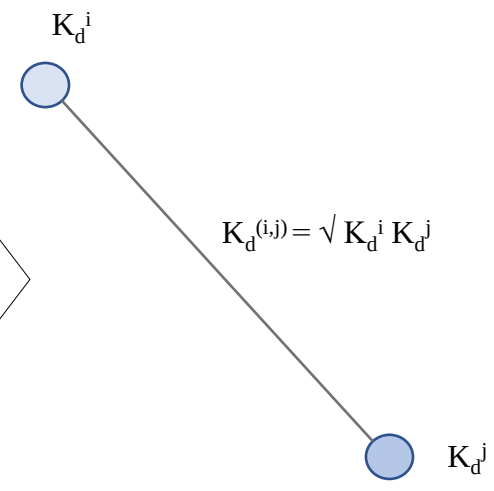
$c_{Spearman} = -0.47$



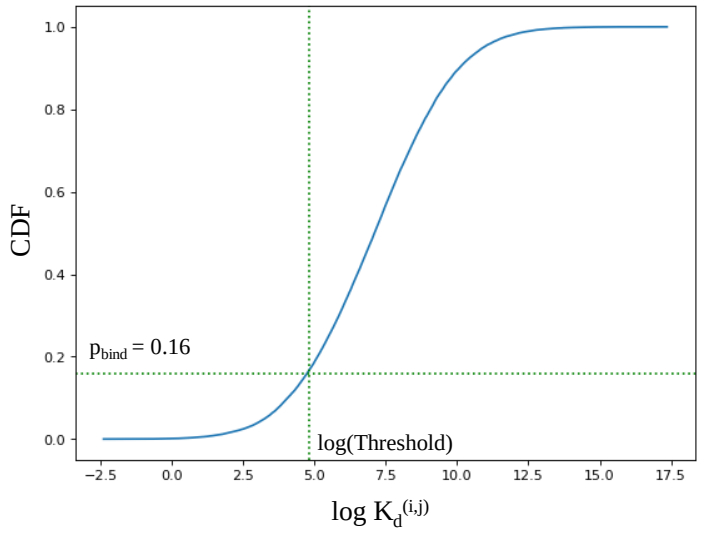
k_i = degree_seq_CDF^{-1} (U1)

$\log(<K_d>^i) = <\log(K_d)> + \sigma_{\log(Kd)} *$ Gaussian_CDF^{-1} (U2)

For each edge containing node i,
$K_d{}^i = \exp(\text{Gaussian}(\log(<K_d>^i), \sigma^{k_i}_{\log(Kd)}))$



C



$K_d^{(i,j)} <$ Threshold

Positive Edge

$K_d^{(i,j)} \geq$ Threshold

Negative Edge

Unipartite Version