

as to better capture the distribution of denser graphlets of size bigger than 6 (see ⁷) via a duplication oriented model to future study. Our final results are on the fractional distributions of all $K_{n,n}$'s and all $K_{n,n-1}$'s (which are all 0.55-dense complete bipartite graphs) up to $n = 5$ in each of the PPI networks we considered.

Bipartite Graph	Ecoli	Yeast	Duplication	Geometric
$K_{2,3}$	2685054	498844	337218	153
$K_{3,3}$	2188868	376186	23311	0
$K_{3,4}$	11103153	1677626	21623	0
$K_{4,4}$	5155489	852301	519	0
$K_{4,5}$	13561155	2077675	129	0
$K_{5,5}$	1125496+	659614	2	0

In the above table, it can be seen that in the E.Coli and the Yeast PPI networks, complete bipartite graphlets are abundant. However, as can be deduced from theorem 3.1, the GRGM cannot generate $K_{n,m}$'s for $n, m \geq 3$. Our experiments confirm this finding: there are no $K_{n,n}$'s and no $K_{n,n+1}$'s in the GRGM network for $n \geq 3$.

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