

S1 Table Estimated p-values (std). Each empirical graph is associated with an estimated p -value (\hat{p}) of being an outcome of an Erdős-Rényi, Fitness scale-free model, a Watts-Strogatz small world or a Geometric model. As in Table 1, empirical graphs are sorted according to their order. ($\hat{p}^* < 0.05$, $\hat{p}^{**} < 0.01$ and $\hat{p}^{***} \leq 0.001$)

| Graph | Standardised p -value | | | |
|----------|-------------------------|------------|----------------|-----------|
| | Erdős-Rényi | Scale-Free | Watts-Strogatz | Geometric |
| Graph 1 | 0.001*** | 0.001*** | 0.001*** | 0.095 |
| Graph 2 | 0.001*** | 0.001*** | 0.001*** | 0.160 |
| Graph 3 | 0.001*** | 0.001*** | 0.002** | 0.092 |
| Graph 4 | 0.001*** | 0.020* | 0.001*** | 0.039* |
| Graph 5 | 0.001*** | 0.001*** | 0.001*** | 0.102 |
| Graph 6 | 0.001*** | 0.001*** | 0.001*** | 0.001*** |
| Graph 7 | 0.001*** | 0.001*** | 0.001*** | 0.003** |
| Graph 8 | 0.001*** | 0.001*** | 0.001*** | 0.004** |
| Graph 9 | 0.001*** | 0.001*** | 0.001*** | 0.003** |
| Graph 10 | 0.001*** | 0.001*** | 0.001*** | 0.173 |