

TABLE 27.5. Number of possible branching patterns versus number of OTUs

Taxa	Rooted Trees ^a	Unrooted Trees ^b
3	3	1
4	15	3
5	105	15
6	945	105
7	10,395	945
8	135,135	10,395
9	2,027,025	135,135
10	34,459,425	2,027,025

$${}^a N_r = (2n - 3) \times (2n - 5) \times (2n - 7) \times \dots \times 3 \times 1 = (2n - 3)! / [2^{n-2} \times (n - 2)!].$$

$${}^b N_u = (2n - 5) \times (2n - 7) \times \dots \times 3 \times 1 = (2n - 5)! / [2^{n-3} \times (n - 3)!].$$