

Figure S1: Expected normalised branch lengths. Estimates of the expected normalized branch lengths  $\mathbb{E}\left[R_i^{(a)}\right]$ , with  $R_i^{(a)} := \frac{B_i^{(a)}}{B^{(a)}}$  with  $B_i^{(a)}$  denoting the random total length of *active* branches subtending *i* leaves, and  $B^{(a)}$  the sum of  $B_i^{(a)}$ ; with all n = 100 sampled lines assumed active, and values of *c*, *K*, *d* as shown. The values labelled 6+ denote the collected tail  $\overline{R}_6^{(a)} + \cdots + \overline{R}_{99}^{(a)}$ . All estimates based on  $10^5$  replicates.