



Fig. 4.17. Mathematical model of nucleotide substitution. *Left:* Nucleotide substitutions are modelled as transitions in a 4-element state space. The transition probabilities depend on the phylogenetic time $w = \lambda t$, where t is physical time, and λ is an unknown nucleotide substitution rate. *Right:* Dependence of the transition probabilities (vertical axis) on w (horizontal axis). The graphs were obtained from the Kimura model (4.16) with a transition–transversion ratio of 2.