

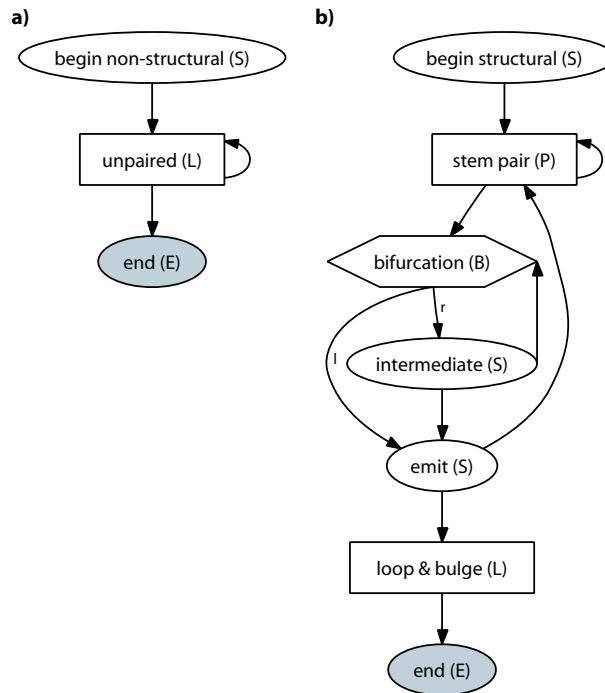


Figure S6: Transition graphs of the non-structural component **(a)** and the structural component **(b)** of the phylo-SCFGs. The state types are given in parenthesis. Arrows indicate possible state transitions. The transition from the *bifurcation* state leads to two states, a left (l) and a right (r), as indicated on the graph. The *unpaired* and the *loop & bulge* states have associated single-column emission distributions (specified by a single-nucleotide phylogenetic model). The *stem pair* state has an associated di-column emission distribution (specified by a di-nucleotide phylogenetic model).