Invariant Rooting Algorithm

April 24, 2015

1 Analysis of output

We have analyzed the 10-taxon datatset and also the Avian dataset. First, we will discuss the results on the 10-taxon followed by the Avian dataset.

1.1 10-taxon dataset

We have analyzed 3 replicates on the dataset from higher to lower ILS. For each of the 3 replicates of the four model conditions we have performed two experiments :-

1. Fixed quintet - we have taken a fixed quintet *['1','3','5','7','8']* and have scored the edges which a induced in the subtree of the quintet.
2. Shortest Quintet - For each edge we have taken the shortest quintet (quintets topologically closer to the edge) such that edge is induced by the quintet.

Output Format

1. For an internal node, if only one value is present, then the value represents the index of the edge leading to that node in the post order iteration.
2. For an internal node, if two values are present like v_1v_2, then the v_1 represents the index of the edge leading to that node in the post order iteration and v_2 denotes the score of that edge.
3. For a leaf node edge, if two values are present like v_1v_2, then the taxon label and the index of the edge leading to that node in the post order iteration are represented by v_1 and v_2 respectively. It means the taxon is not included in the quintet.
4. For a leaf node edge, if three values are present like $v_1v_2v_3$, then the taxon label, index of the edge leading to that node in the post order iteration and score of that edge are represented by v_1 ,v_2 and v_3 respectively.

model condition - model.10.5400000.0.000000037 - Replicate R1 - Fixed quintet

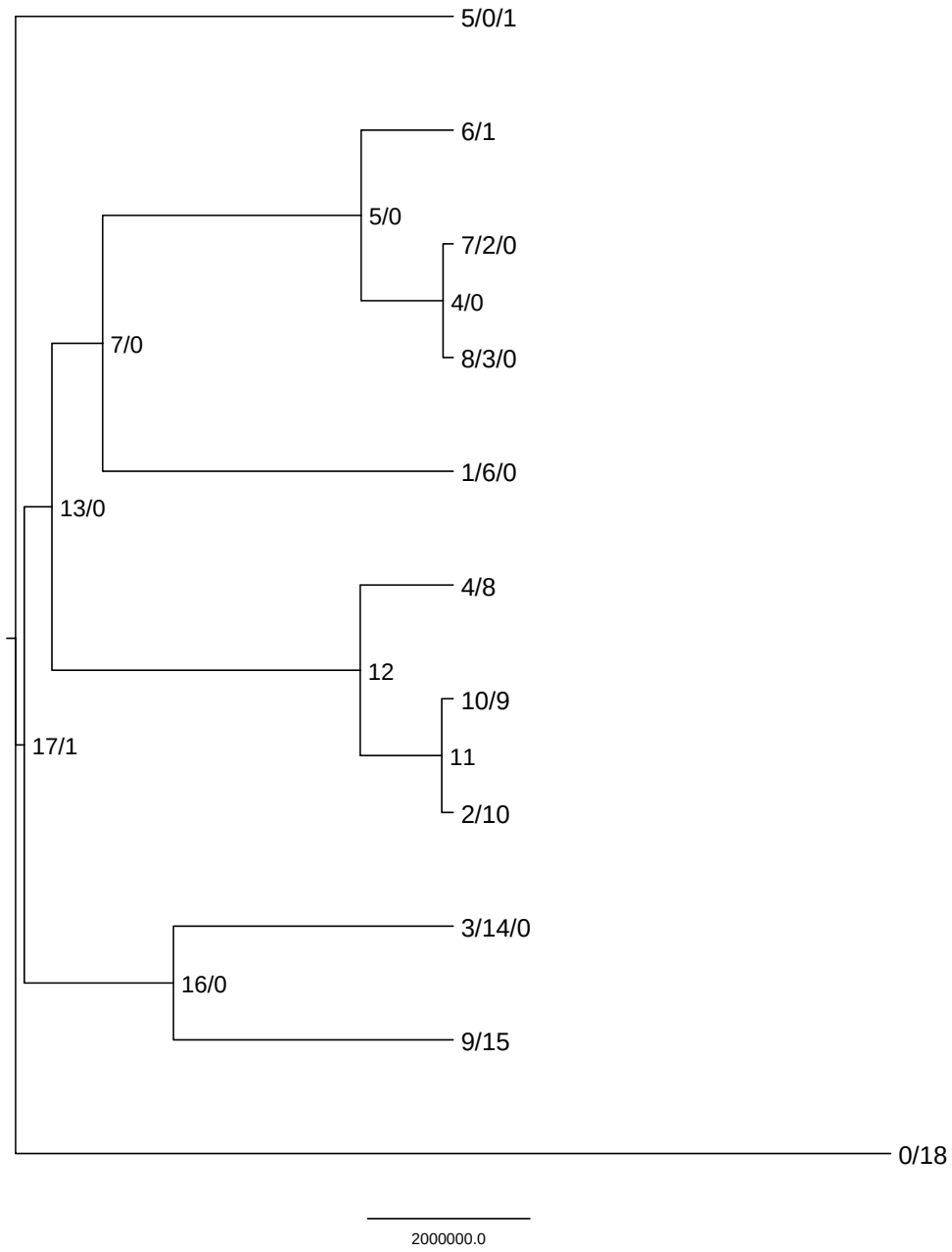

Figure 1: model condition - model.10.5400000.0.000000037 - Replicate R1 - Fixed quintet

U = [955, 23, 22, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]

model condition - model.10.5400000.0.000000037 - Replicate R3 - Fixed quintet

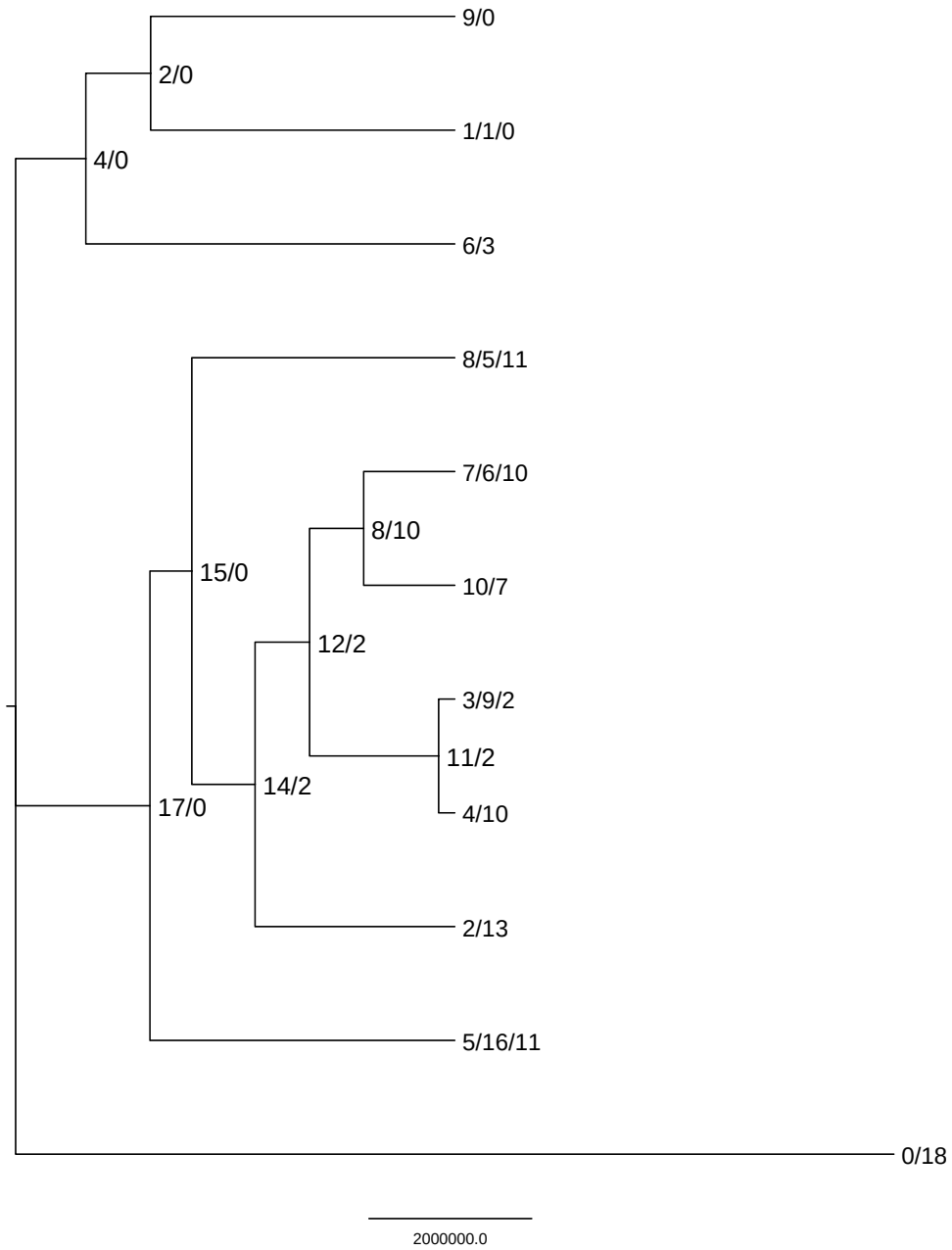

Figure 2: model condition - model.10.5400000.0.000000037 - Replicate R3 - Fixed quintet

U = [799, 83, 92, 14, 0, 2, 0, 0, 2, 0, 0, 2, 6, 0, 0]

model condition - model.10.1800000.0.000000111 - Replicate R1 - Fixed quintet

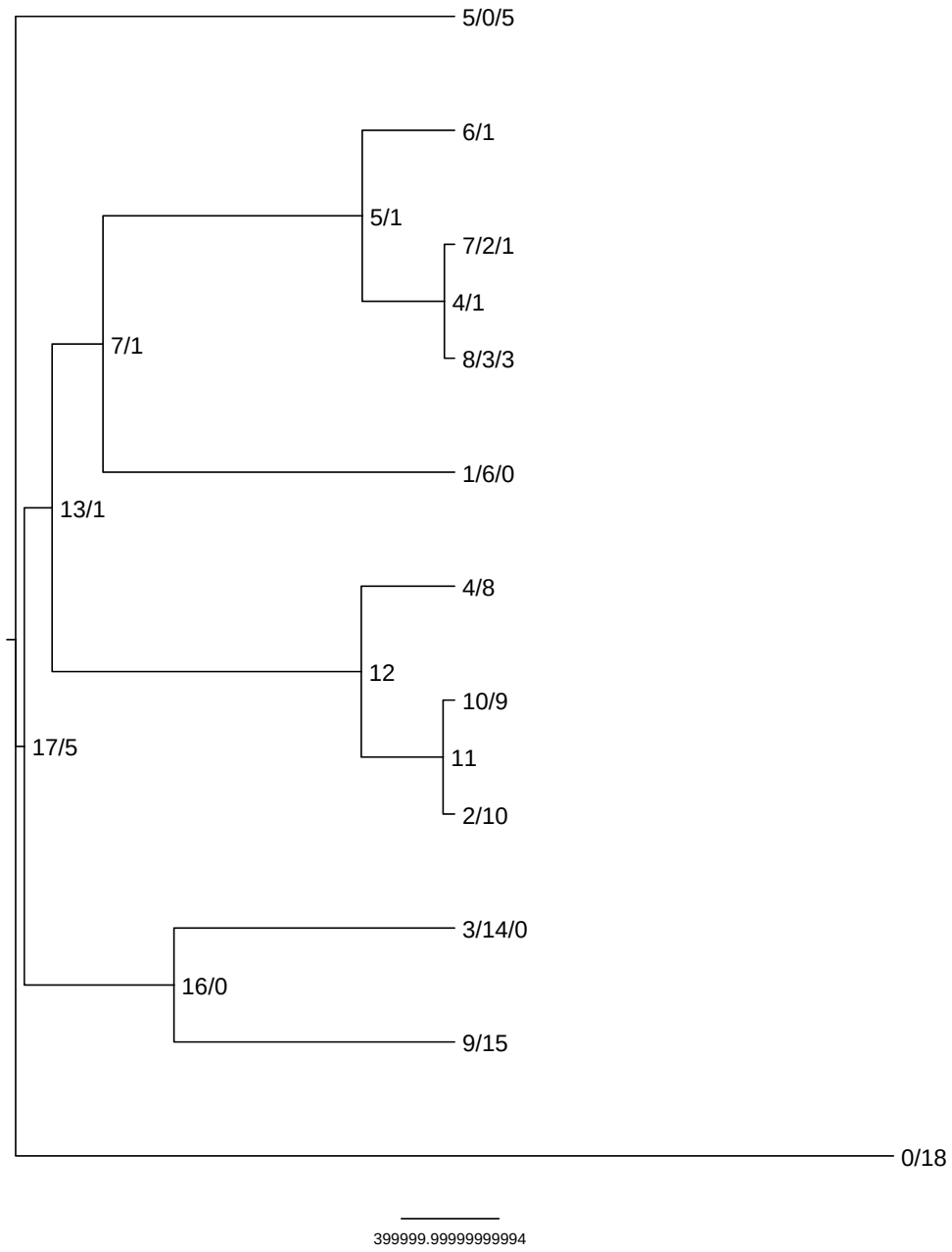

Figure 3: model condition - model.10.1800000.0.000000111 - Replicate R1 - Fixed quintet

U = [681, 155, 153, 2, 3, 1, 0, 0, 1, 0, 0, 0, 4, 0, 0]

model condition - model.10.1800000.0.000000111 - Replicate R2- Fixed quintet

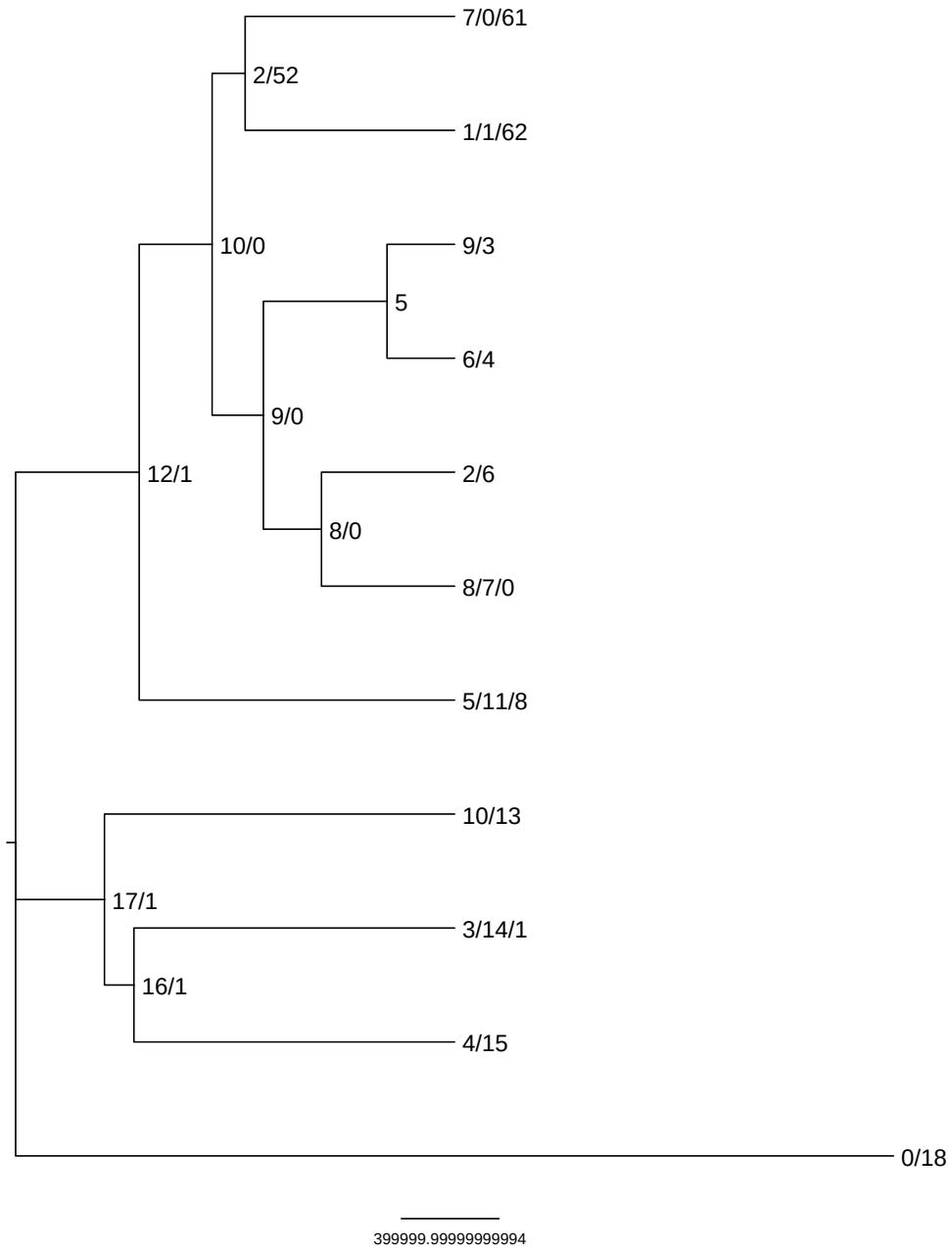

Figure 4: model condition - model.10.1800000.0.000000111 - Replicate R2- Fixed quintet

U = [302, 93, 92, 131, 55, 63, 1, 3, 59, 2, 4, 45, 136, 7, 7]

model condition - model.10.600000.0.000000333 - Replicate R1 - Fixed quintet

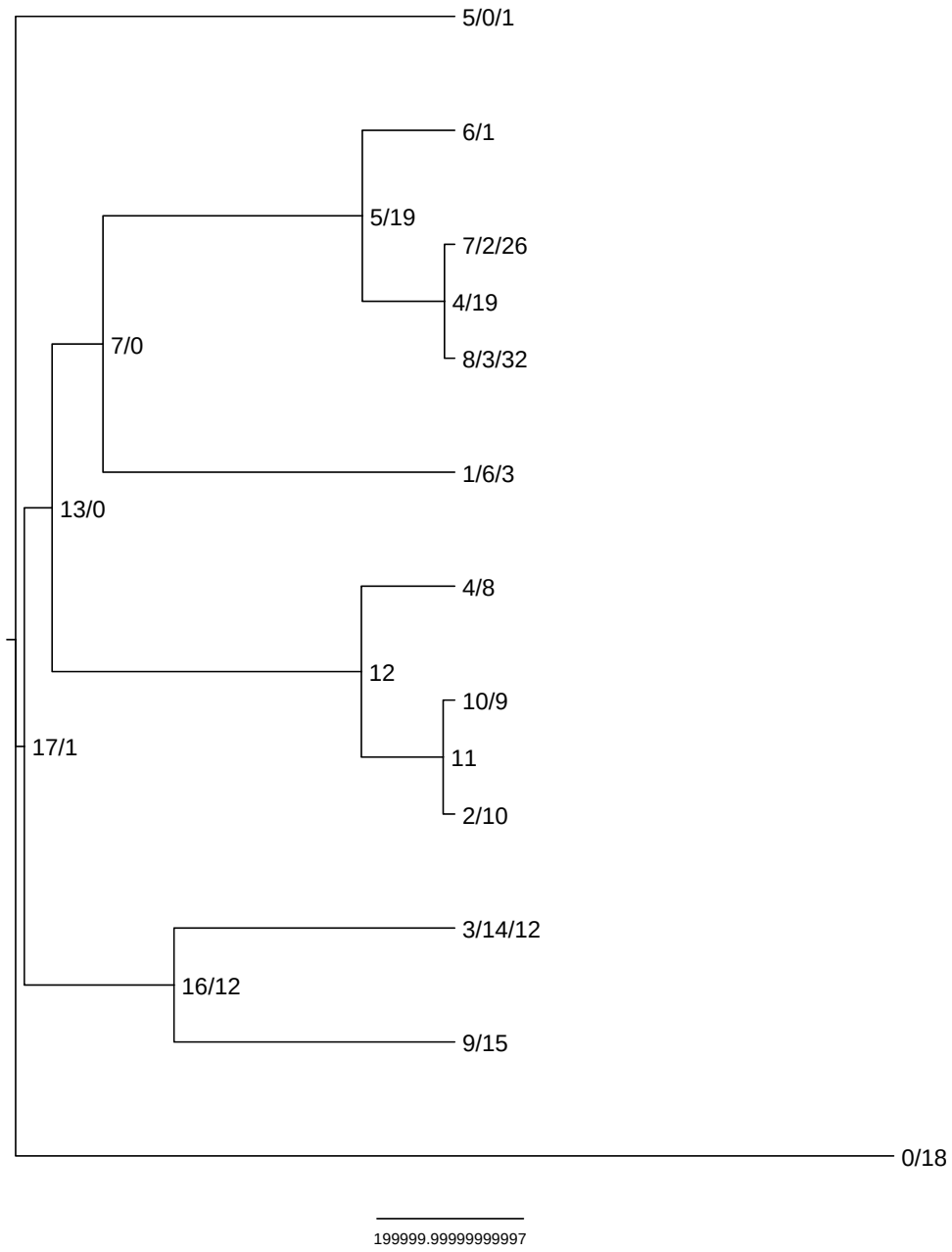

Figure 5: model condition - model.10.600000.0.000000333 - Replicate R1 - Fixed quintett

U = [362, 203, 202, 28, 24, 32, 10, 12, 28, 6, 10, 29, 38, 7, 9]