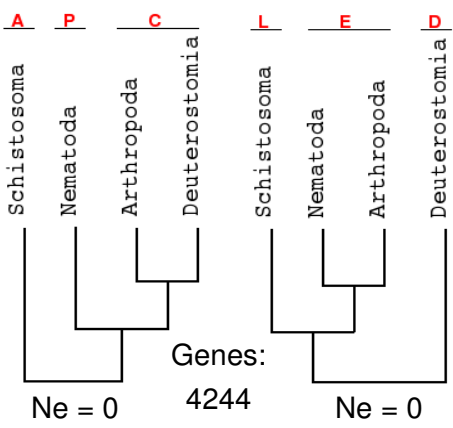
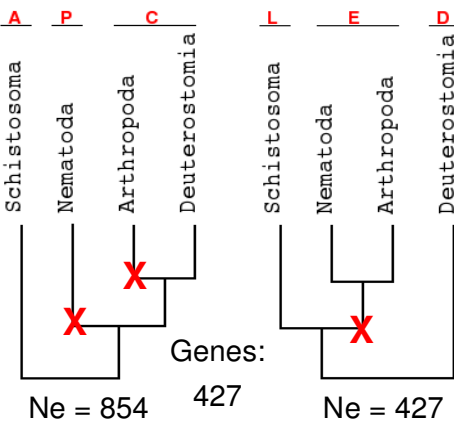


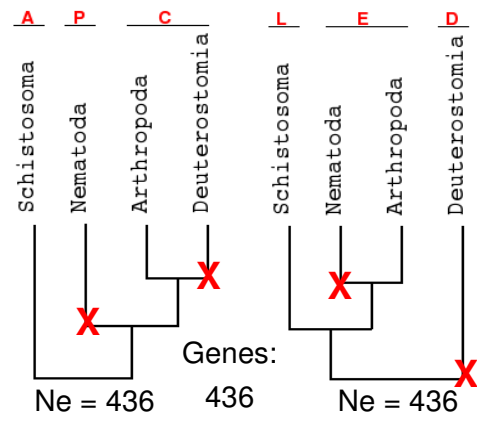
Group 1



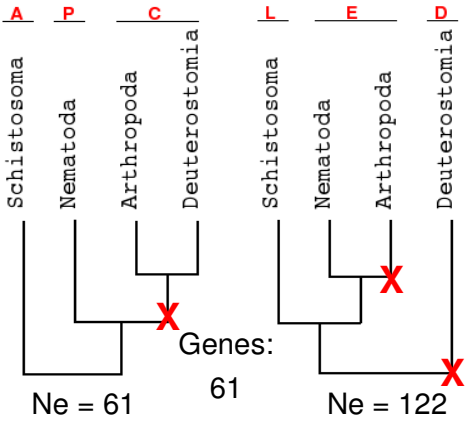
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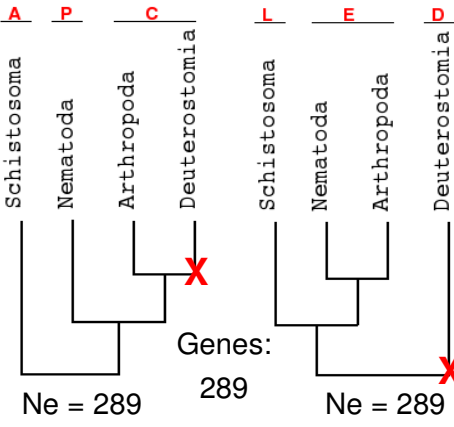
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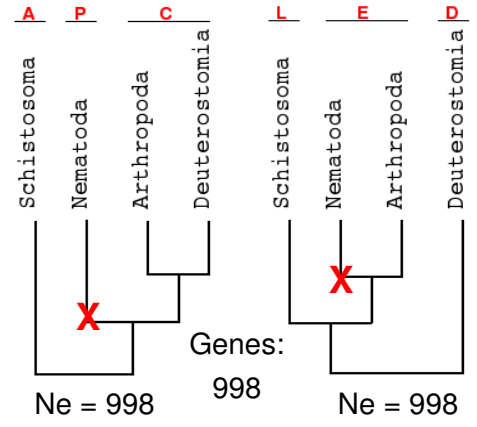
Group 4



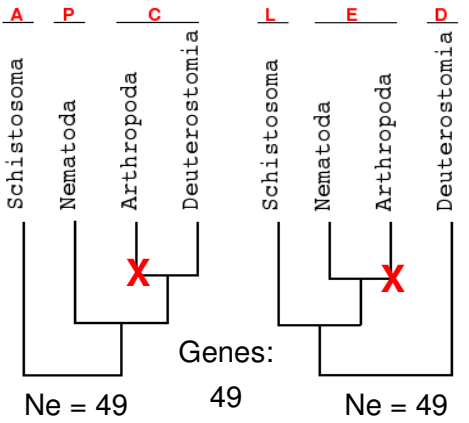
Group 5



Group 6



Group 7



$$\Delta_{APC-LED} = 3,123 - 2,757 = 366$$

100,000 bootstrap samples;

Wilcoxon Test, p-value = 2.2×10^{-16} .

Additional file 1: Schematic representation of the relationships between *S. mansoni* and three different clades, and indication of the seven groups that result from the presence or absence of *S. mansoni* genes among the organisms of each of the three clades. The two main evolutionary hypotheses for the relationships between animal phyla are shown (APC or LED). The X's represent points of gene loss for the simplest set necessary to explain the presence/absence of a gene under the given model. "Genes:" shows the number of *S. mansoni* genes identified as present in each group; "Ne=" shows the number of loss/gain events for that group under the given evolutionary hypothesis.