Supplementary Table S1

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| Metric | Description | Advantages | Shortcomings |
| Percentage of edge similarity | Percentage of branches in both query and subject trees | - Useful for large trees- Useful for trees that contain polytomies | - Does not provide specific information of the location of differences. |
| Robinson Foulds Distance | Counts number of edges present in one tree, but not the other tree | - Independent from any model of tree editing- Relies only on current characteristics of the two trees | - Sensitive to small changes in leaf nodes- Provides low amount of discrimination for large trees |
| Maximum Agreement SubTree | Determines the smallest collection of leaves that, when removed, induce the same tree | - Useful for sizeable collections of trees- Useful for smaller trees with “rogue” taxa (taxa whose placement is unclear) | - Requiring exact agreement is computationally demanding and may lead to inaccurate results |
| Edit distance metrics (Nearest Neighbor Interchange, Subtree Prune and Regraft, Tree Bisection and Reconnection) | Smallest number of allowed operations that will transform one tree into another | - Useful for smaller trees- Useful for when the change operations done on trees are known | - NP-hard- Unclear which operations to use |