# Node support efficacy in Congreve & Lamsdell matrices

# $Martin\ R.\ Smith\ martin.smith@durham.ac.uk$ 2019-01-23

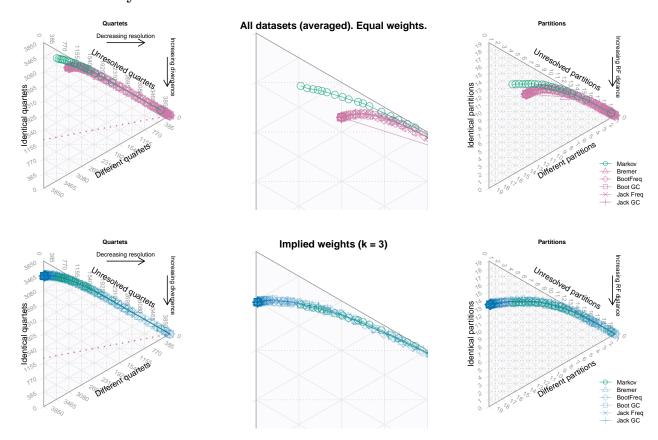
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This page depicts the analytical results of all 100 matrices generated by Congreve & Lamsdell [1] using a ternary plotting approach [2], with quartets and partitions used as distance metrics.

The most highly resolved tree is progressively reduced by collapsing nodes with a support value below an increasing threshold.

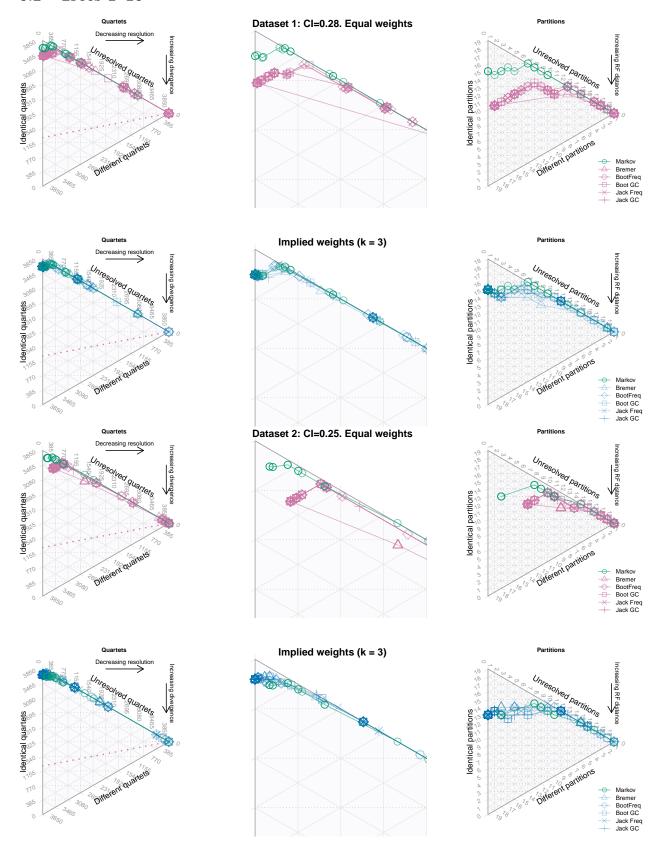
# 0.1 Summary

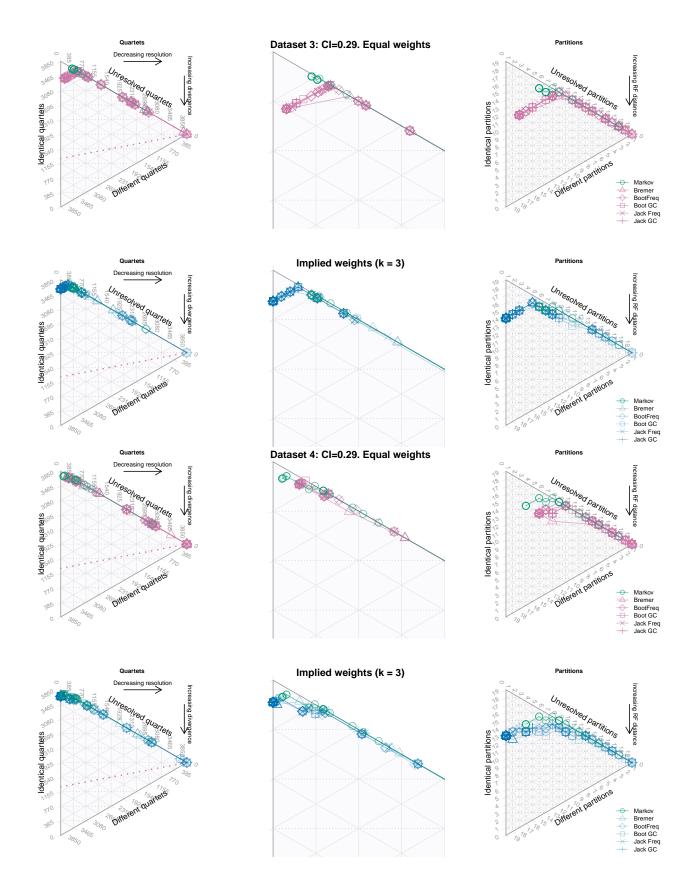


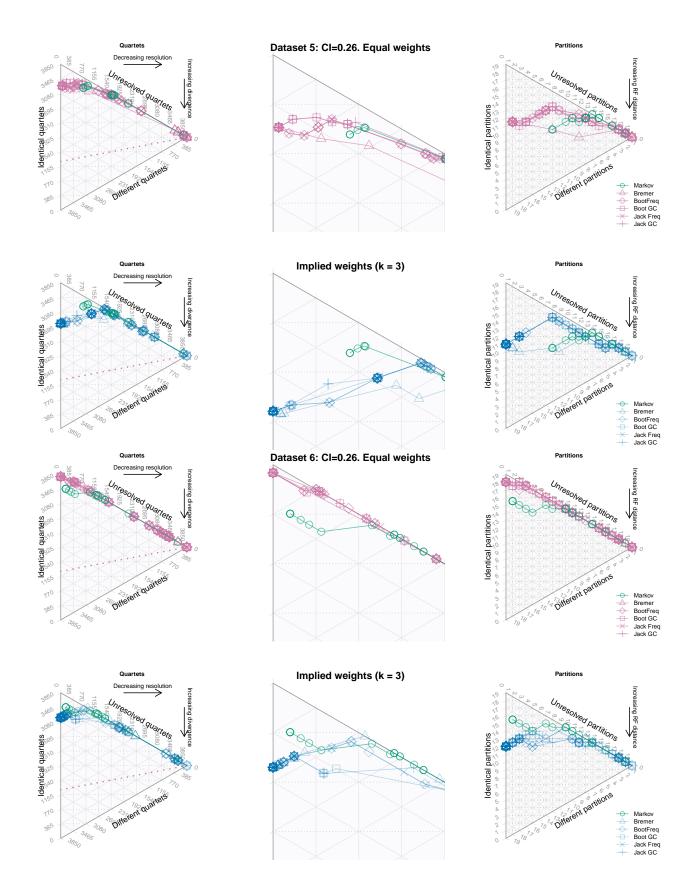
Though the Bootstrap GC metric systematically produces the lowest normalized tree distances (SD/MaxI), it is not significantly better than other methods. The following table reports P values that fail to reject the null hypothesis that the specified node support metric is equally good at ascribing incorrect nodes the lowest support values.

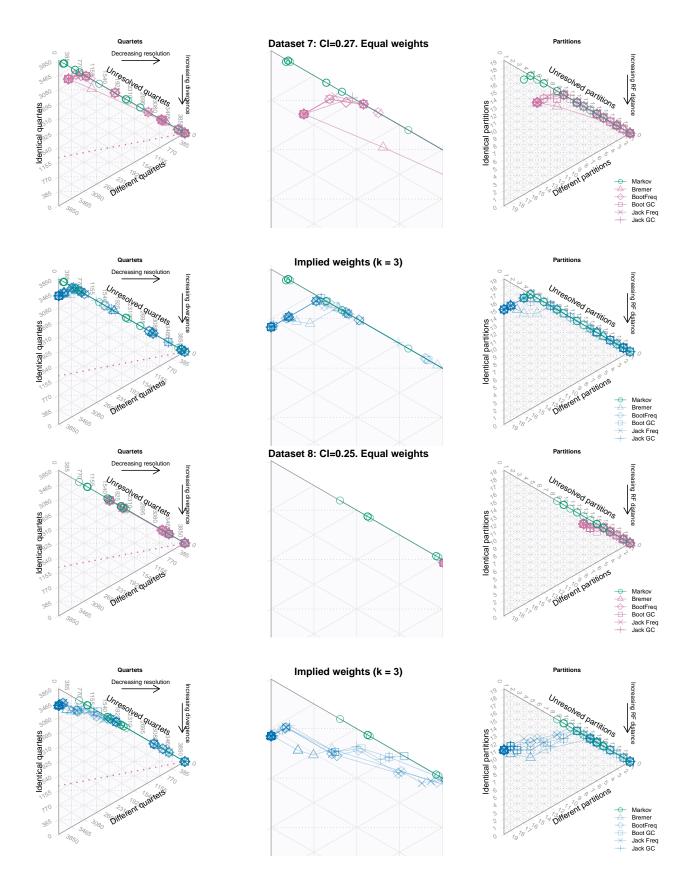
|                | eq        | k1        | k2        | k3        | k5        | kX        | kC        |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Bootstrap GC   | 1.0000000 | 1.0000000 | 1.0000000 | 1.0000000 | 1.0000000 | 1.0000000 | 1.0000000 |
| Bootstrap Freq | 0.9840650 | 0.9915189 | 0.9934145 | 0.9760370 | 0.9485781 | 0.9615921 | 0.9720185 |
| Jackknife GC   | 0.9888177 | 0.9995312 | 0.9331647 | 0.9599348 | 0.9637166 | 0.9268107 | 0.9743023 |
| Jackknife Freq | 0.9942934 | 0.9554285 | 0.9509308 | 0.9839102 | 0.8639063 | 0.9408796 | 0.9723566 |
| Bremer         | 0.4347916 | 0.3324499 | 0.5075762 | 0.4474386 | 0.3405988 | 0.2397081 | 0.8365157 |

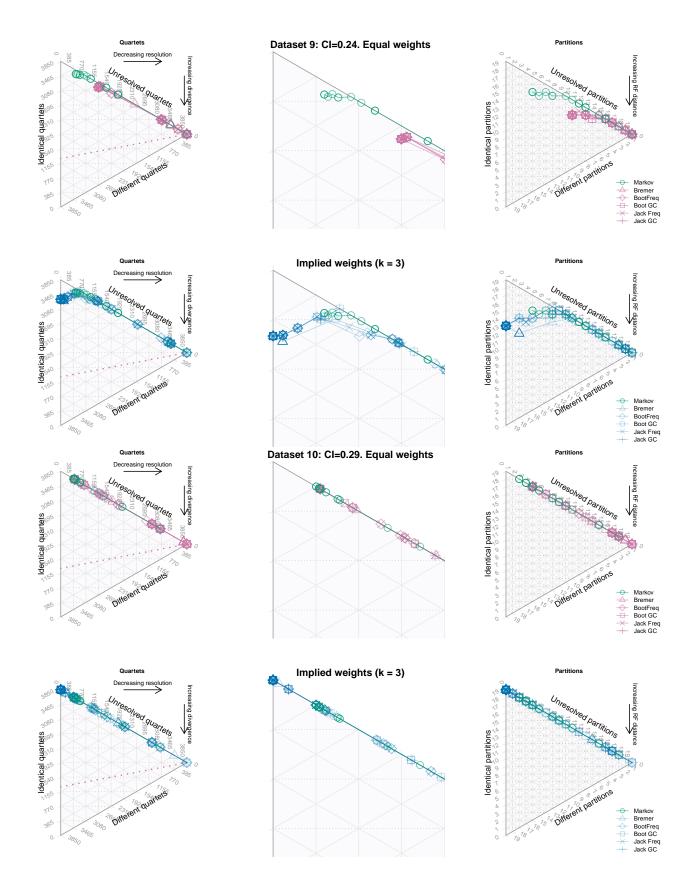
# 0.2 Trees 1–10



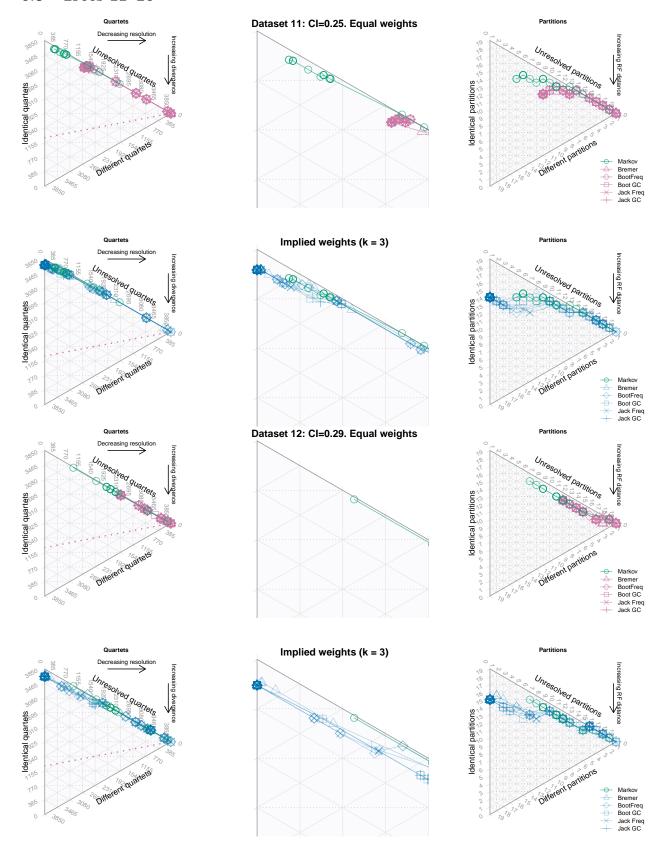


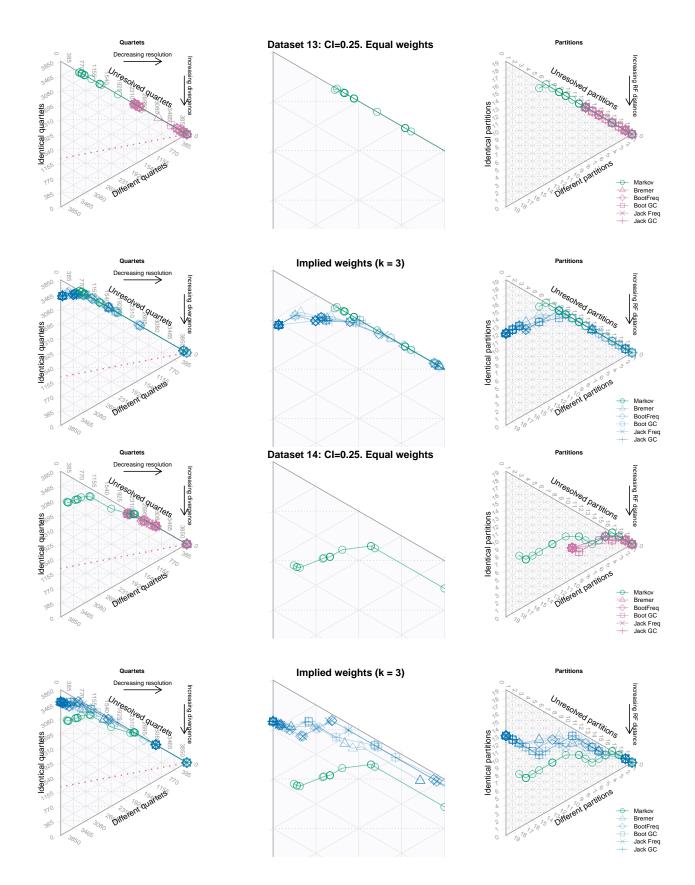


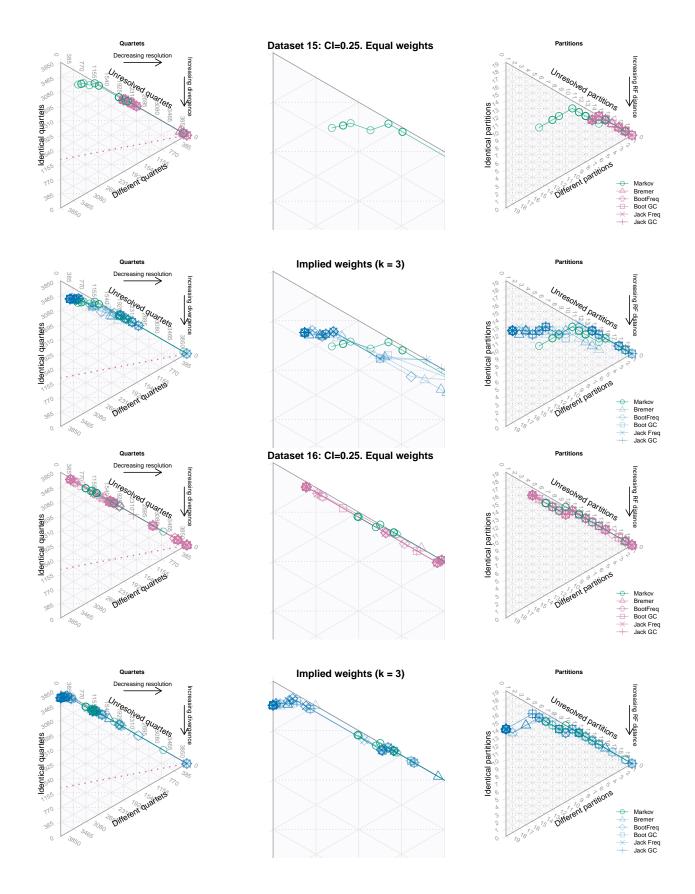


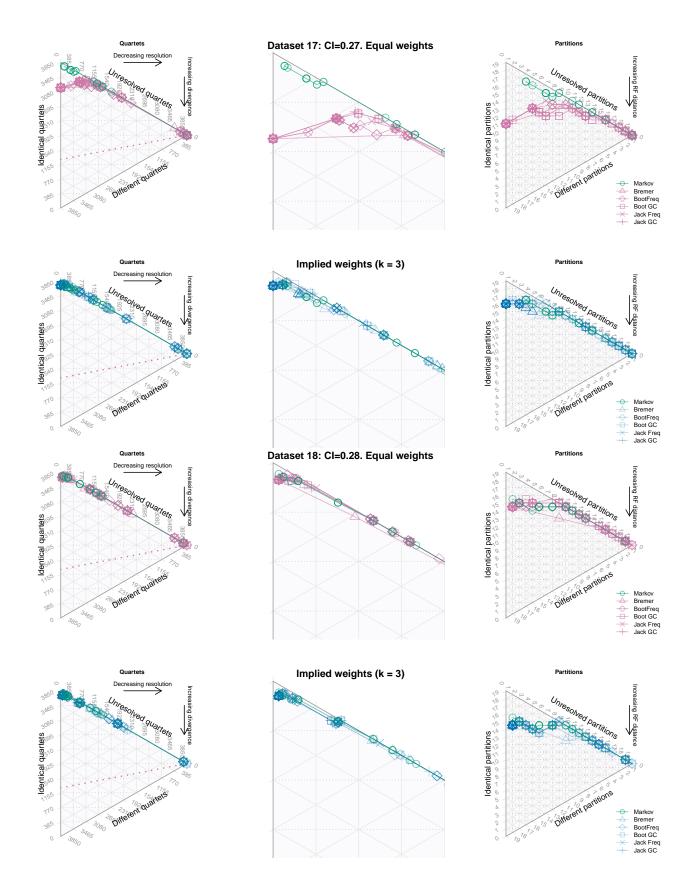


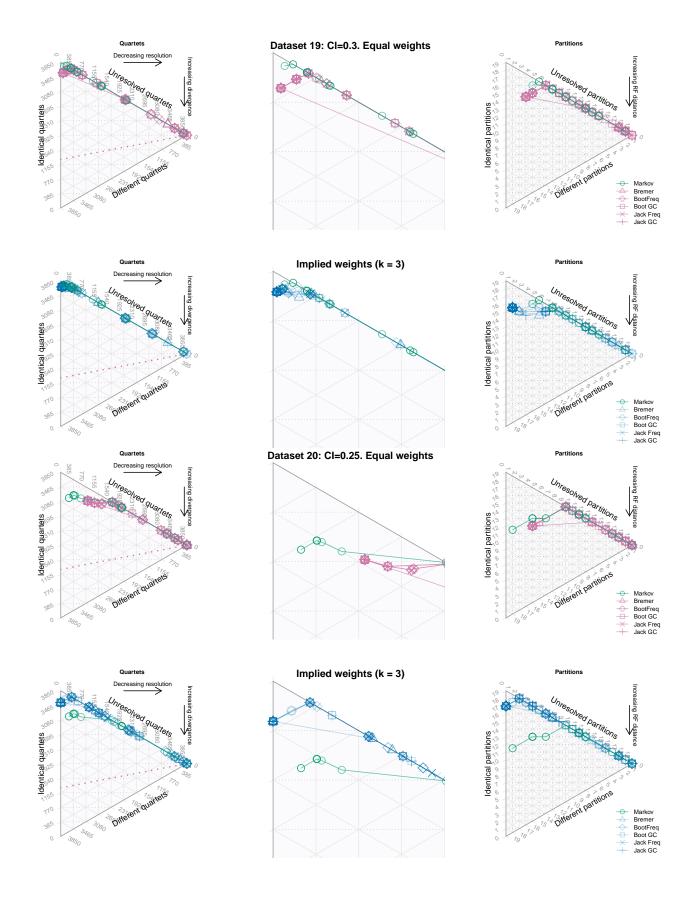
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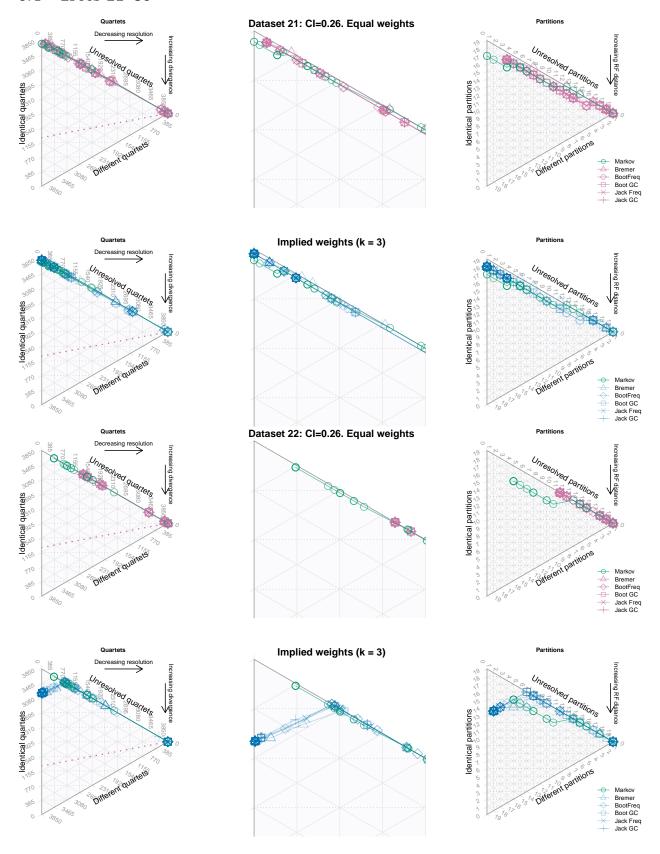


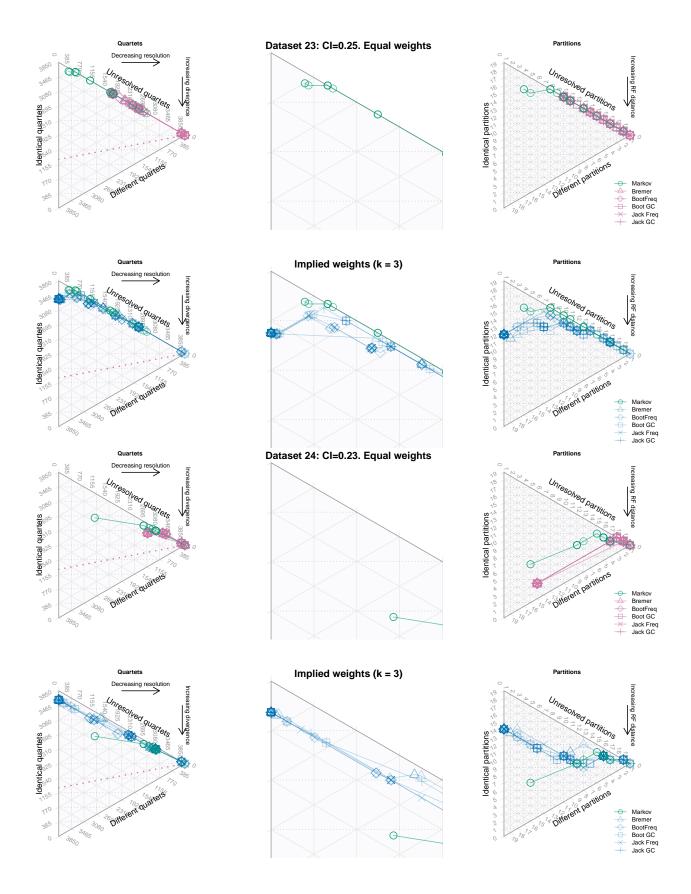


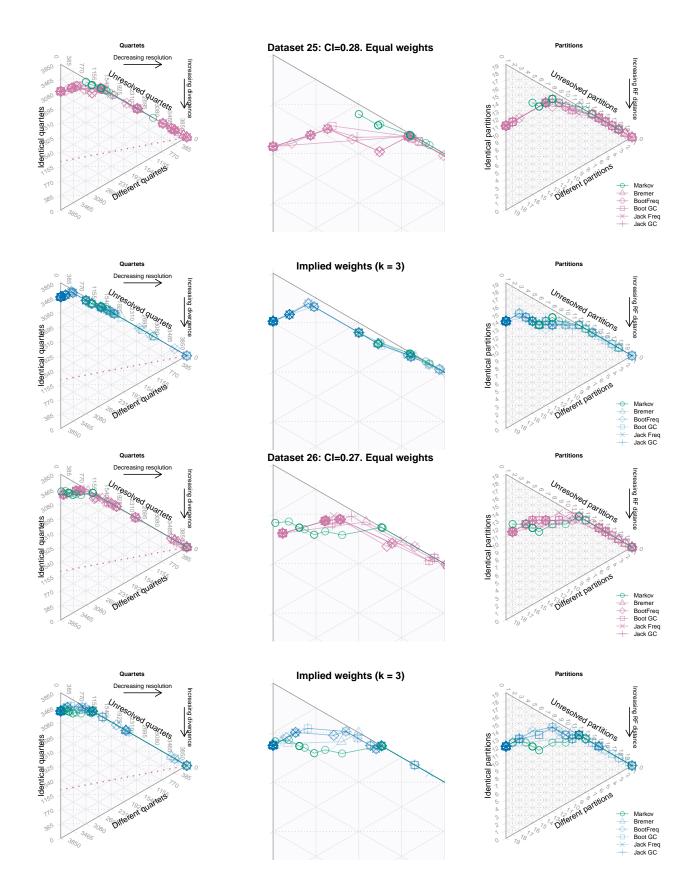


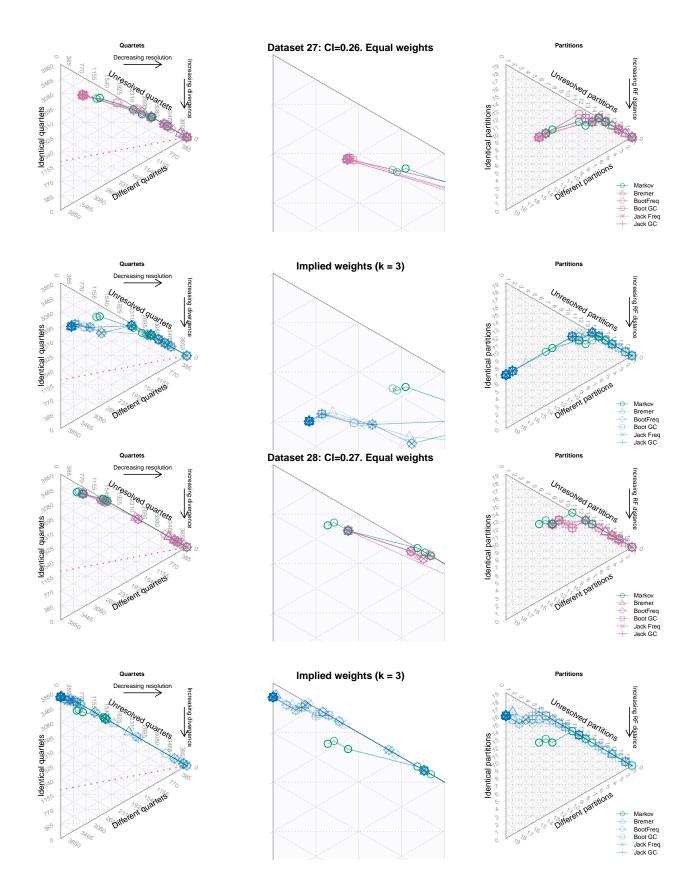


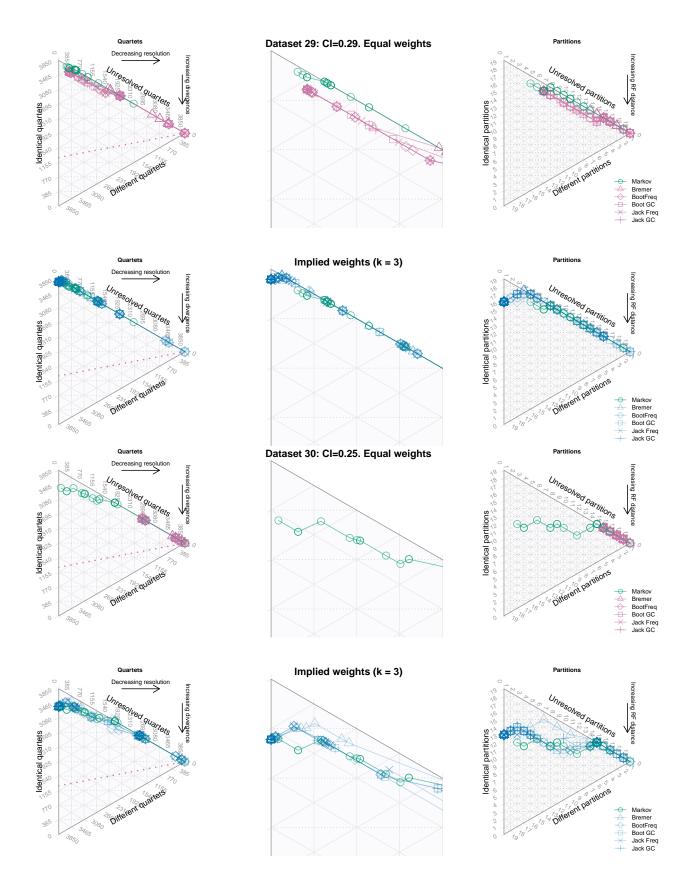
#### 0.4 Trees 21-30



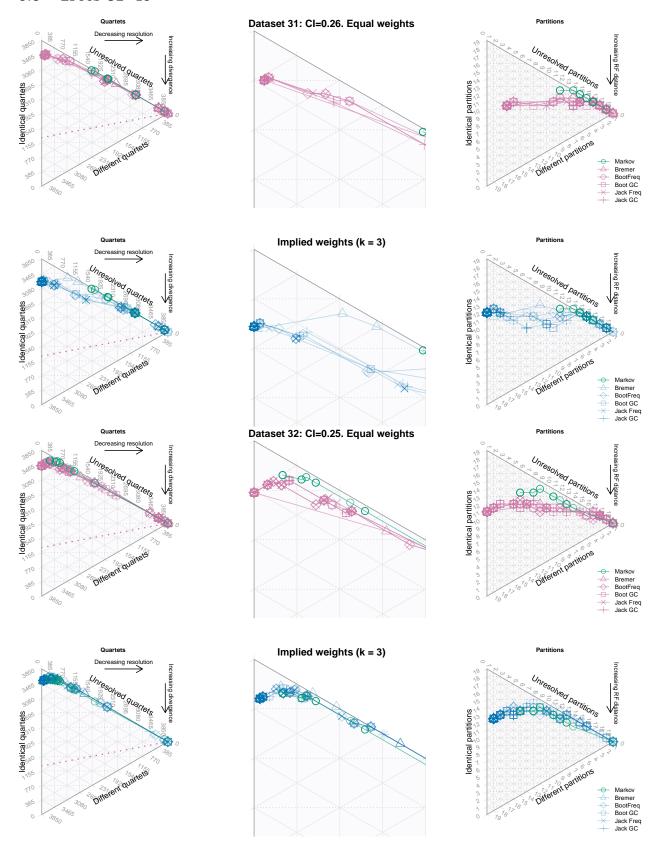


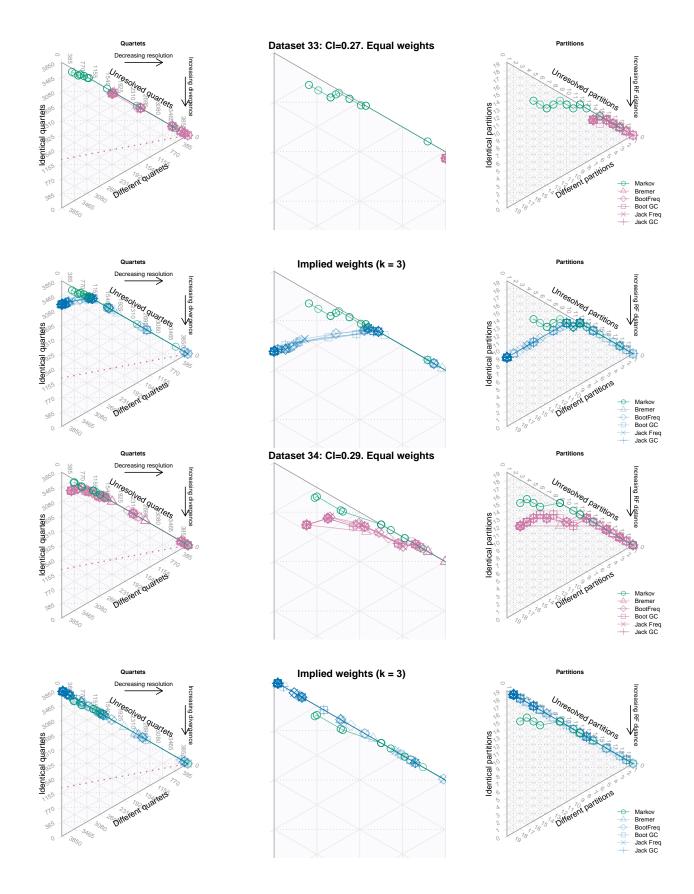


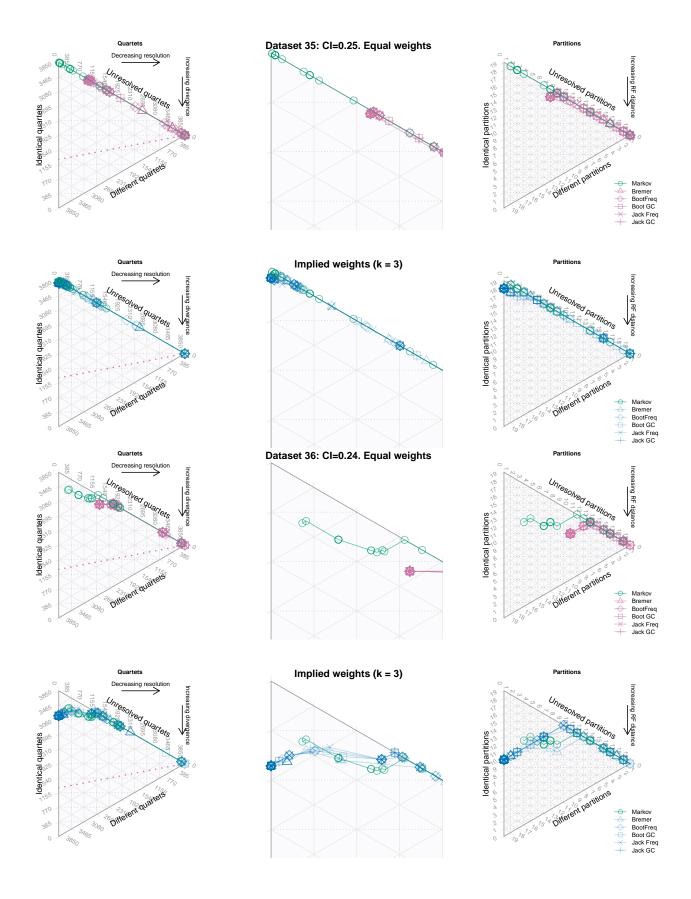


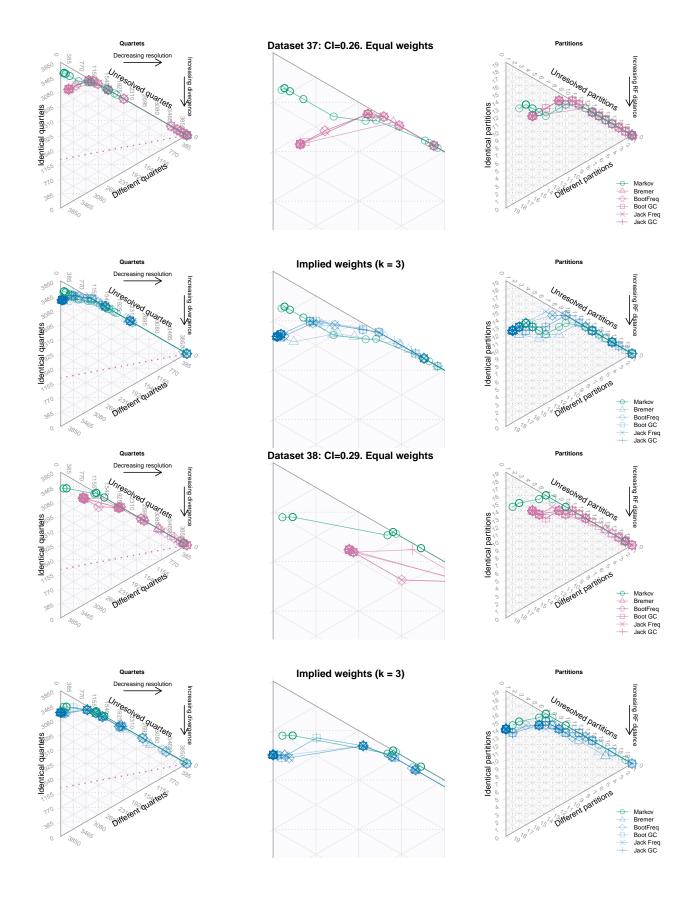


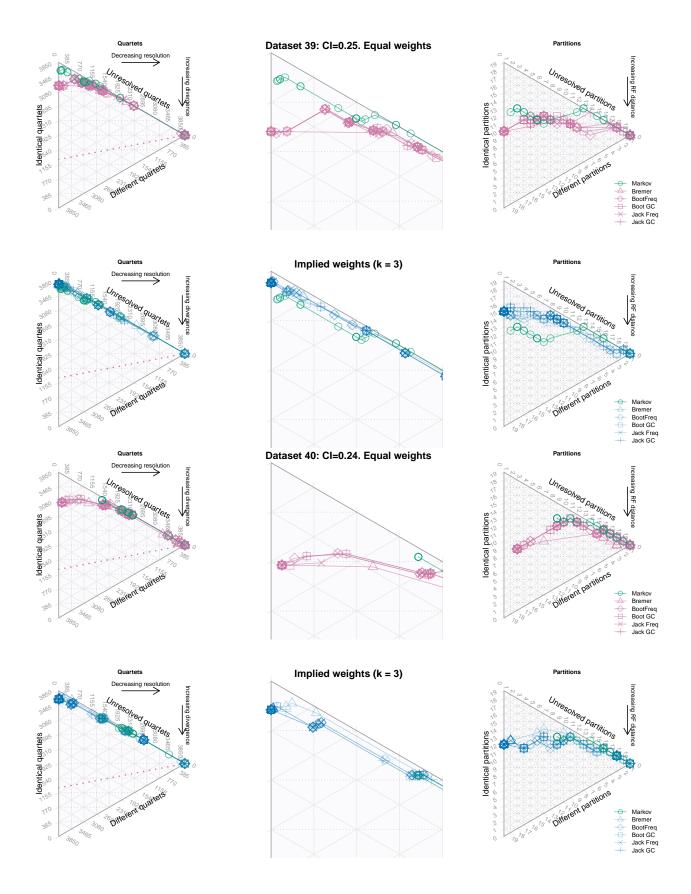
# 0.5 Trees 31-40



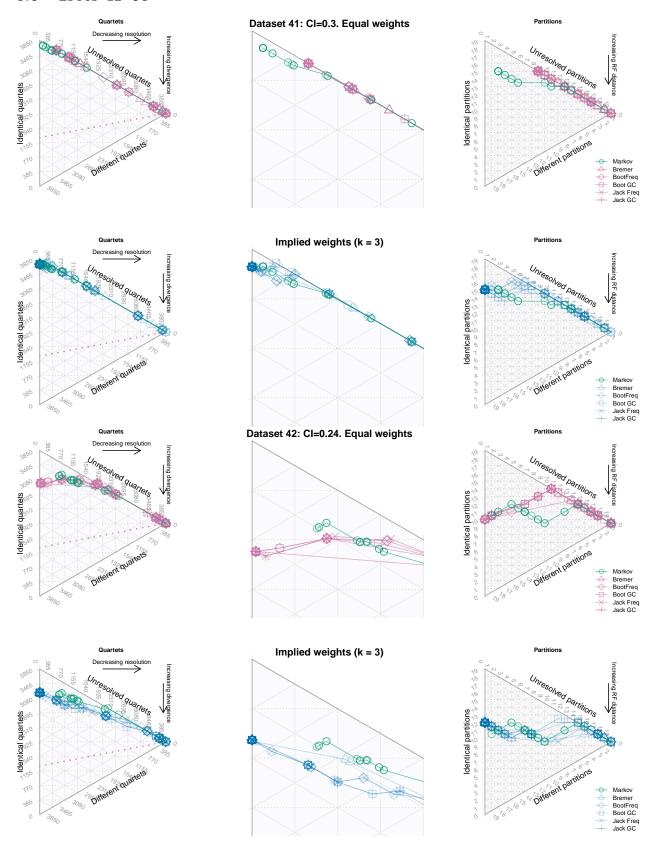


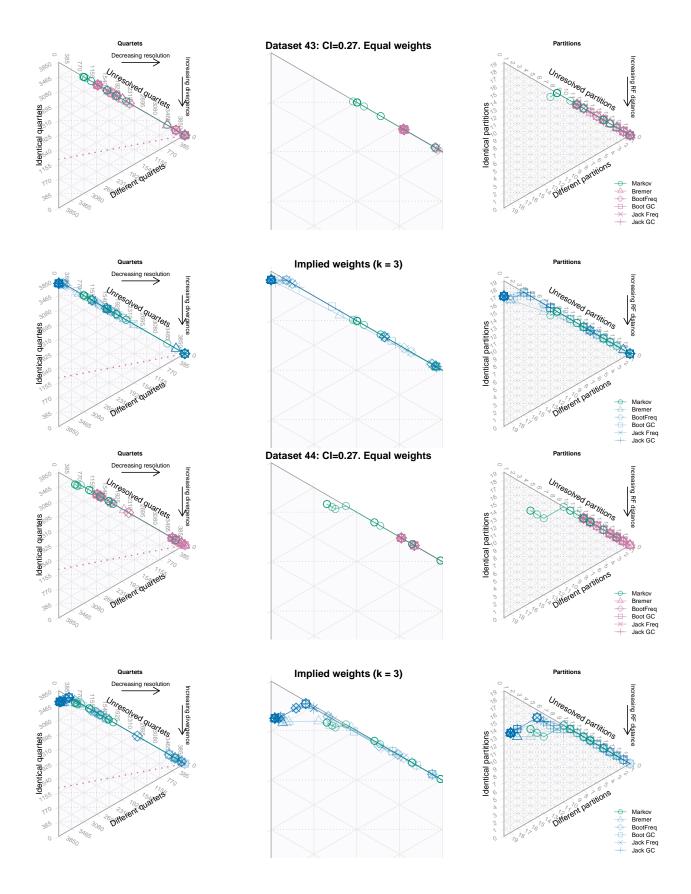


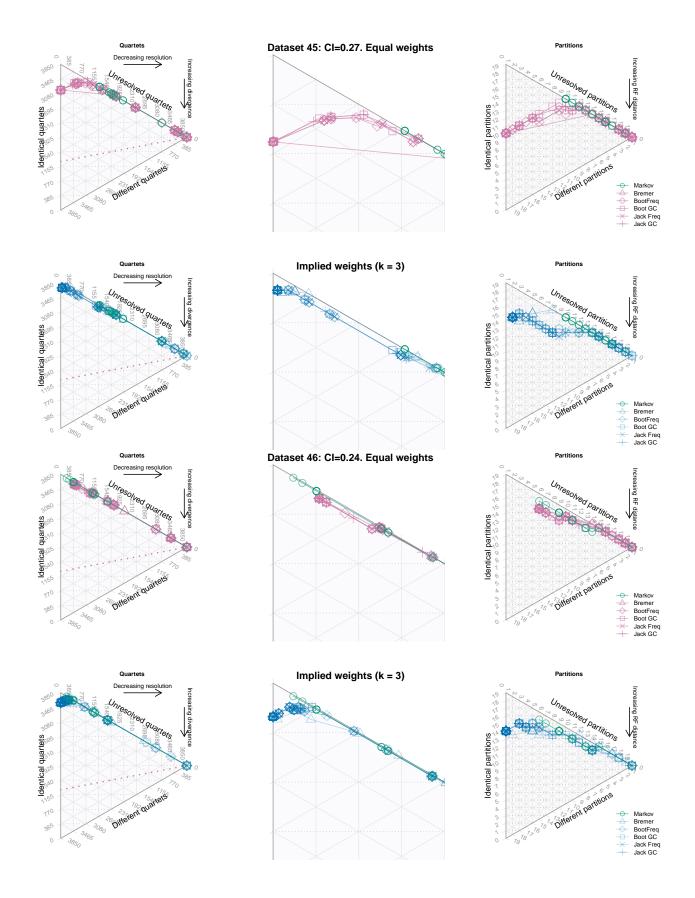


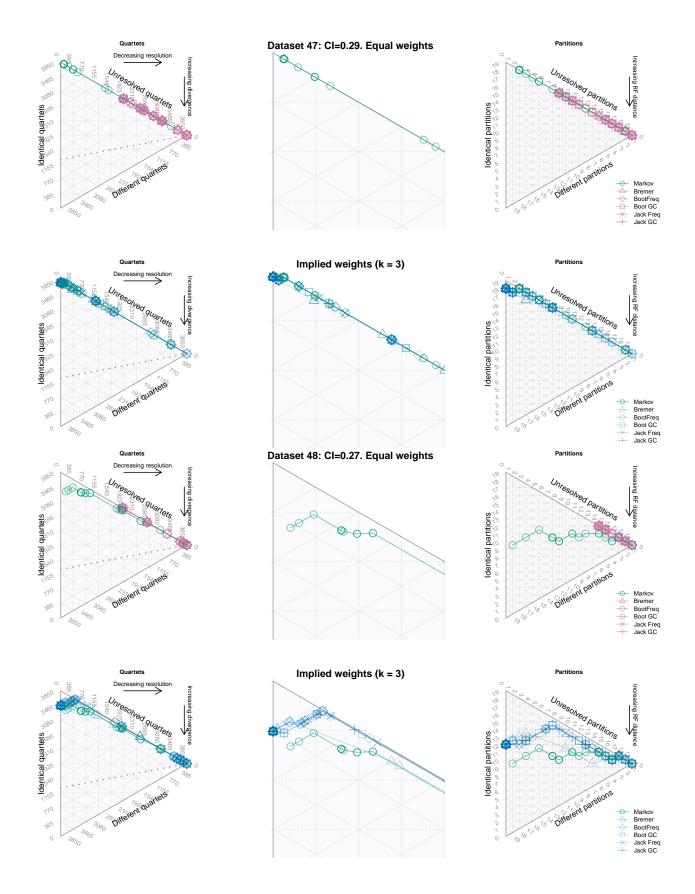


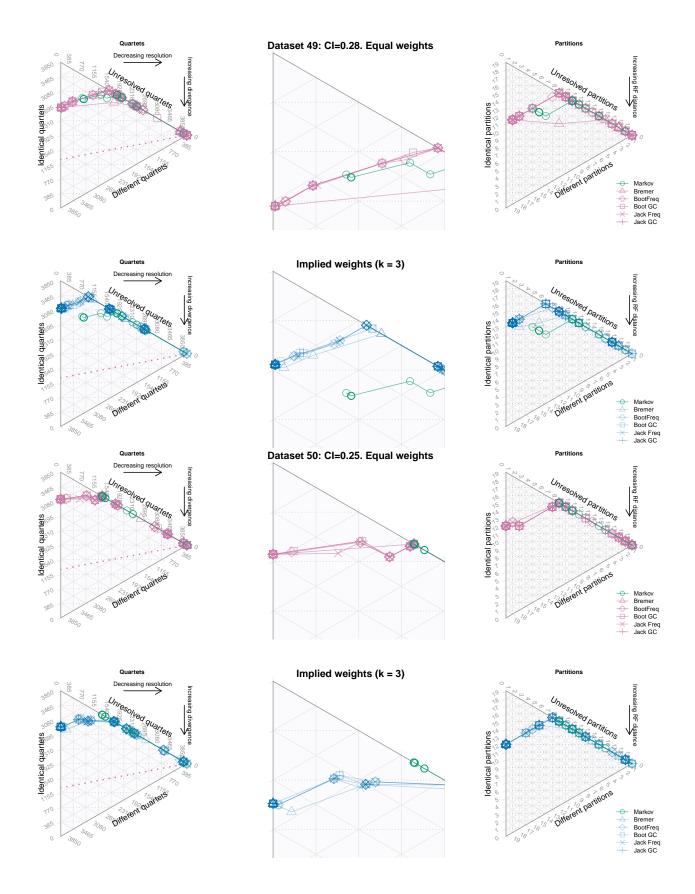
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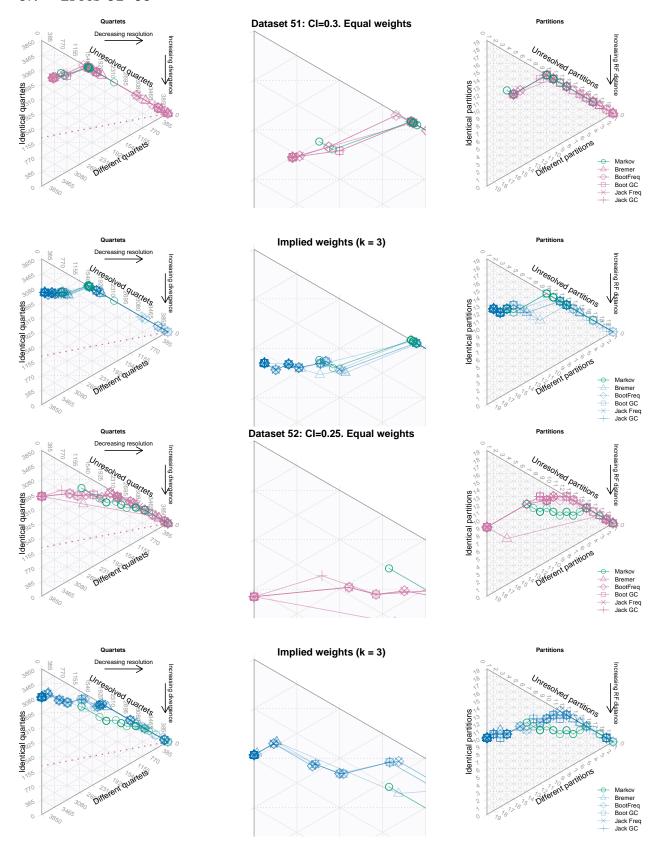


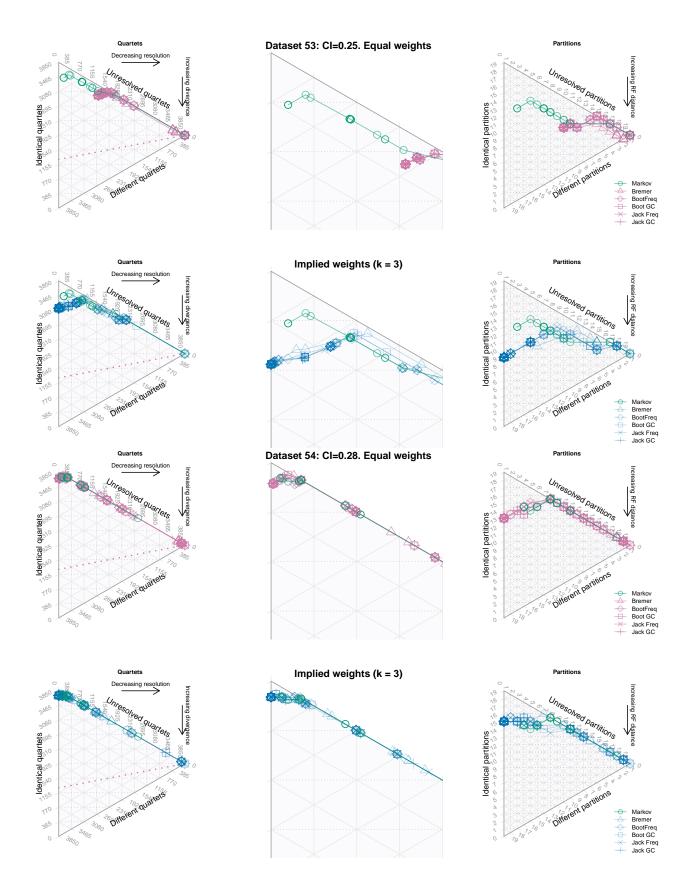


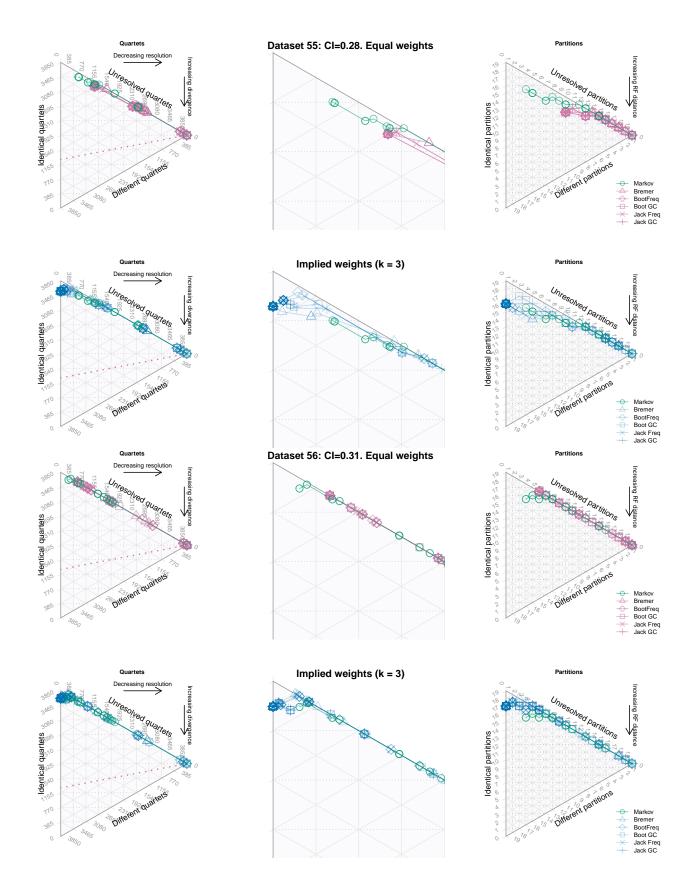


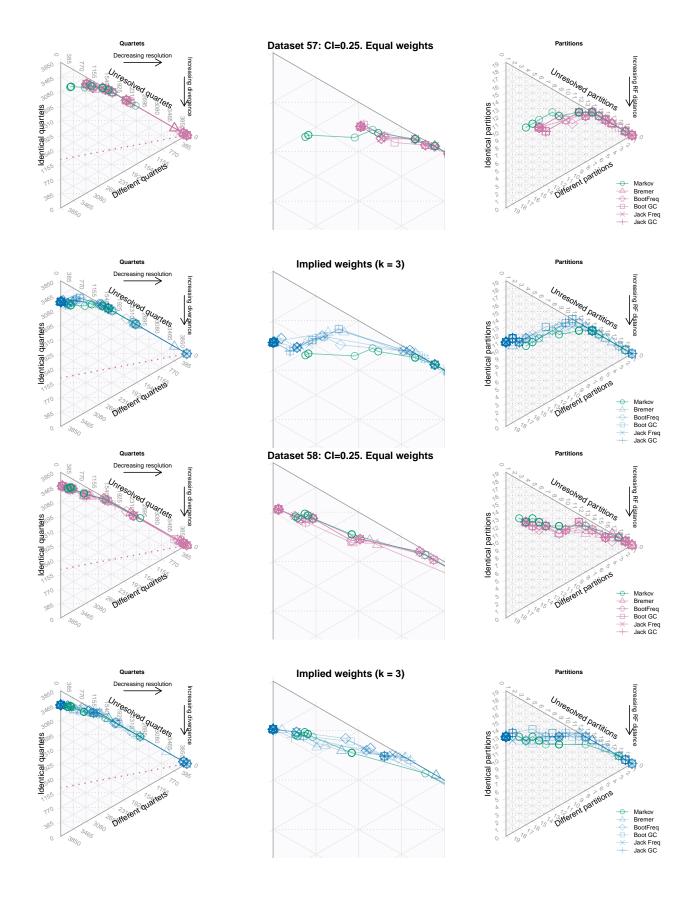


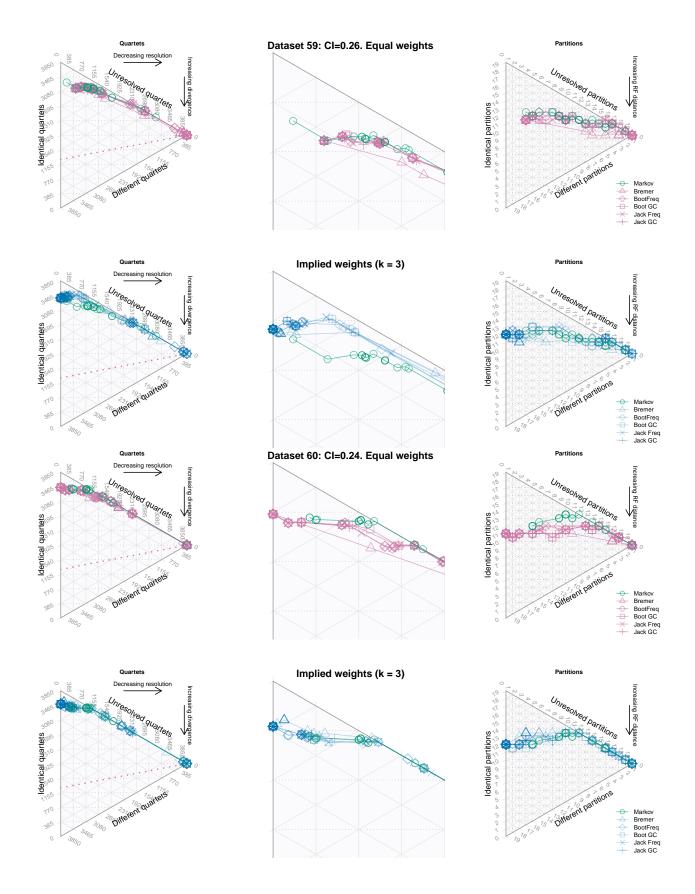
#### 0.7 Trees 51-60



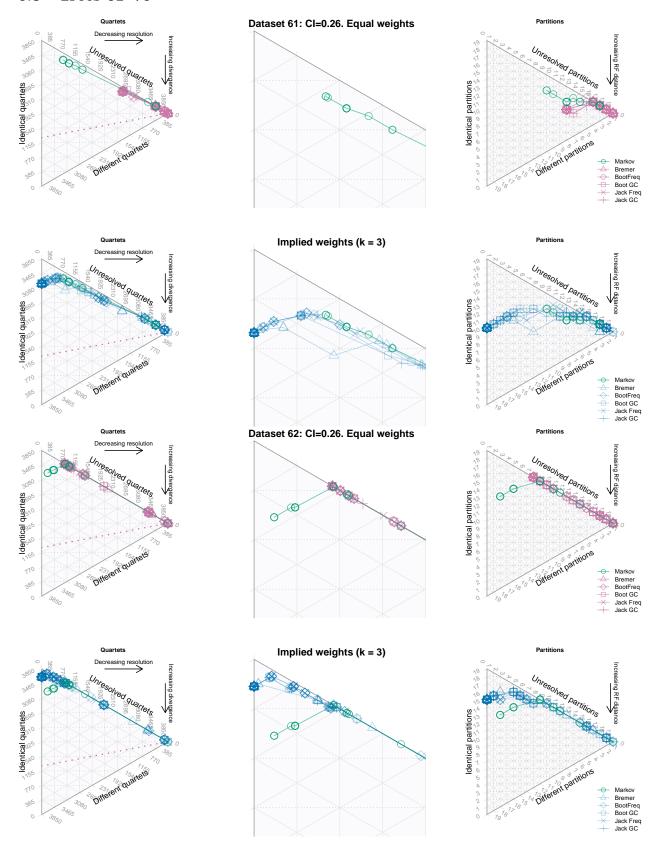


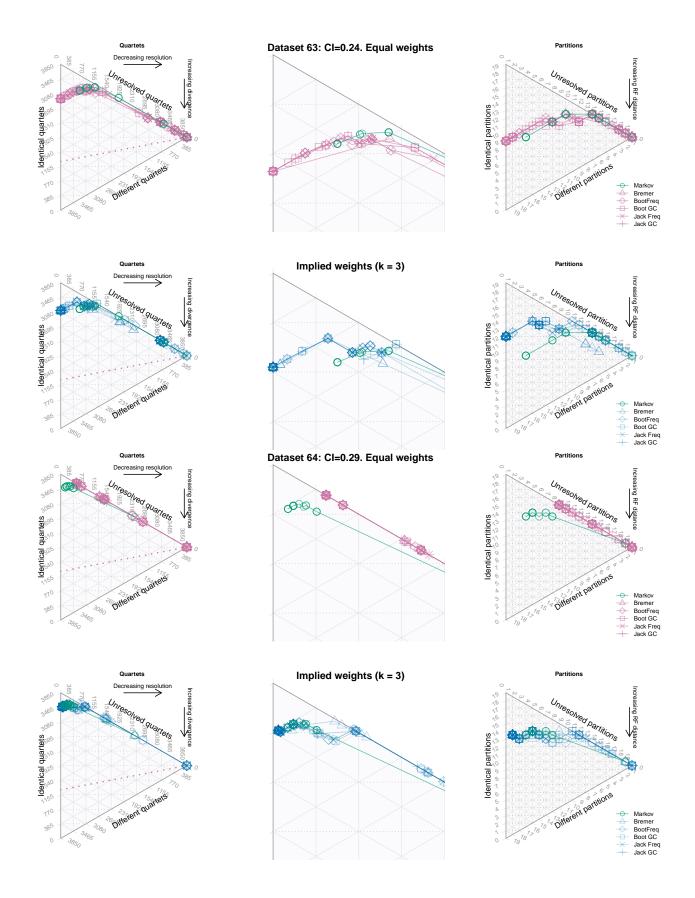


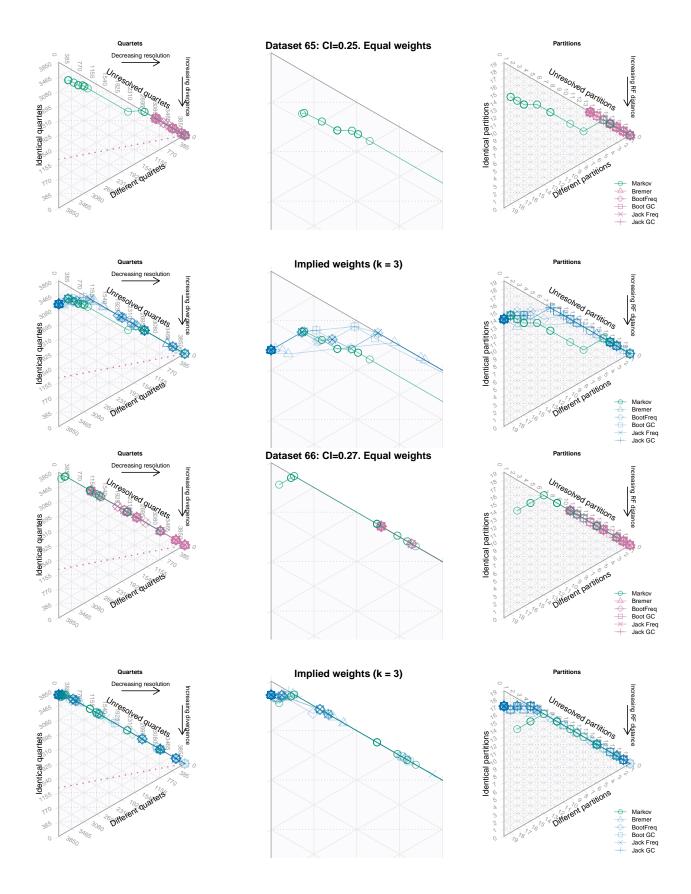


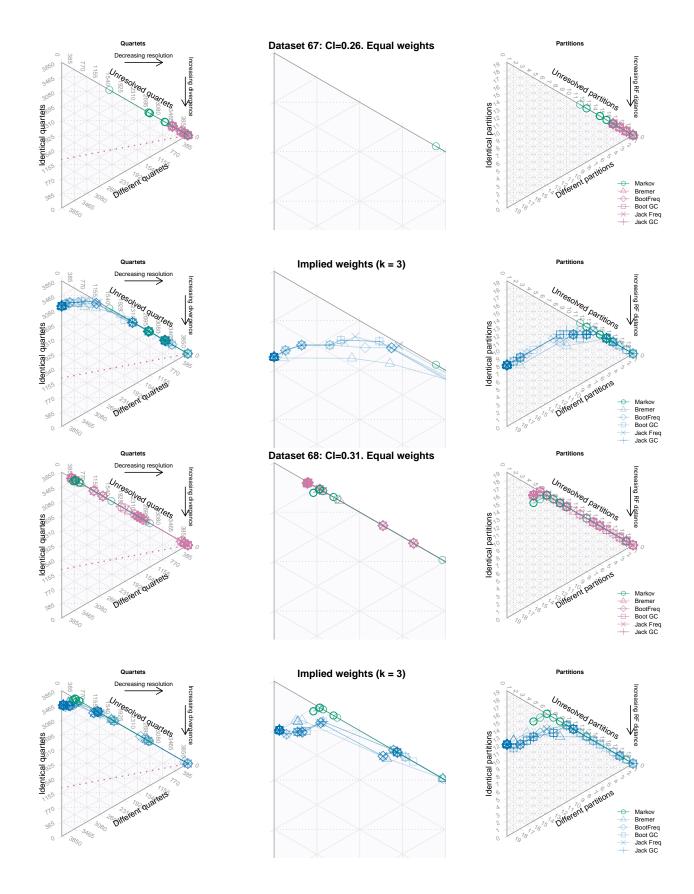


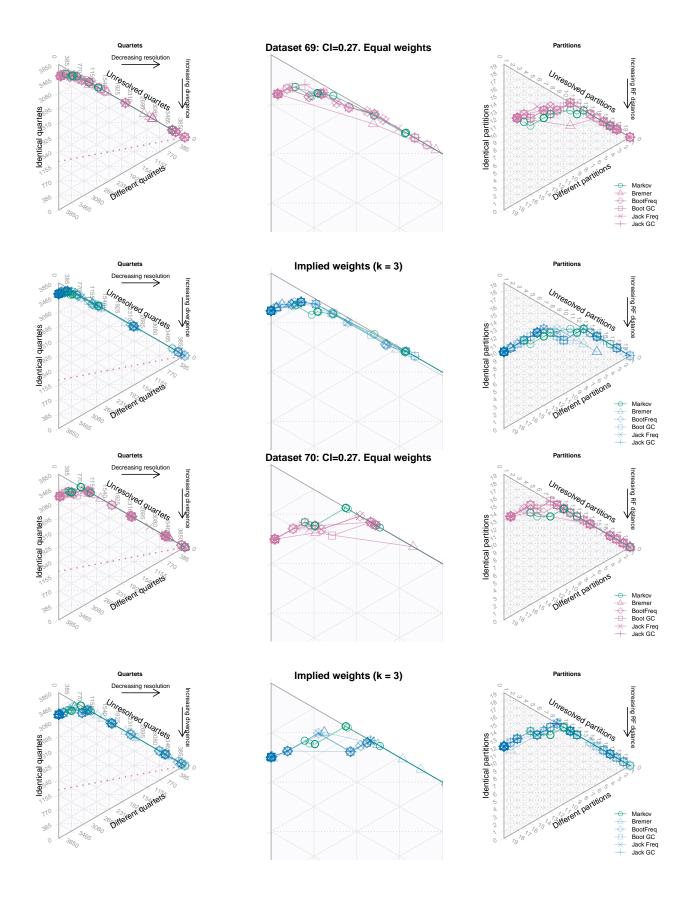
# 0.8 Trees 61-70



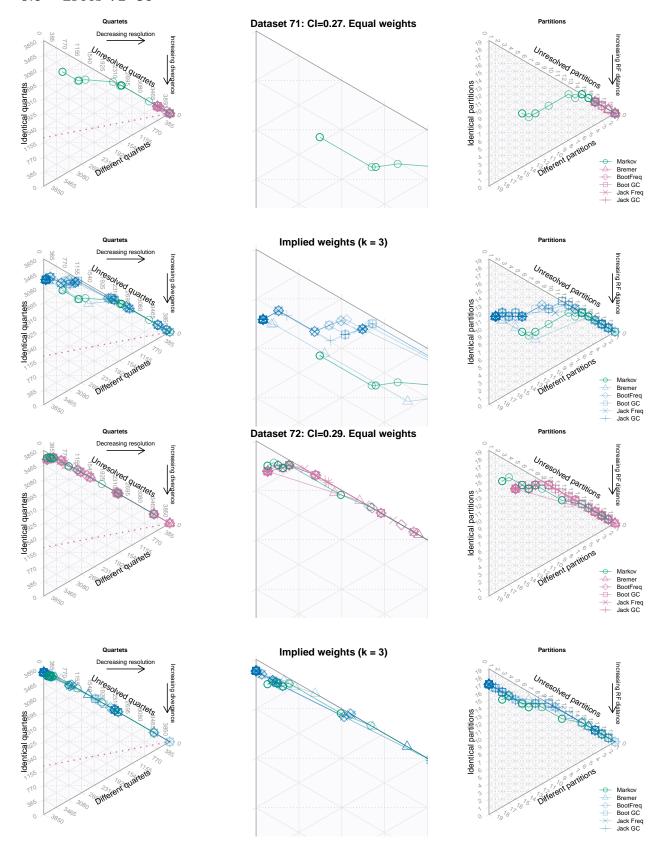


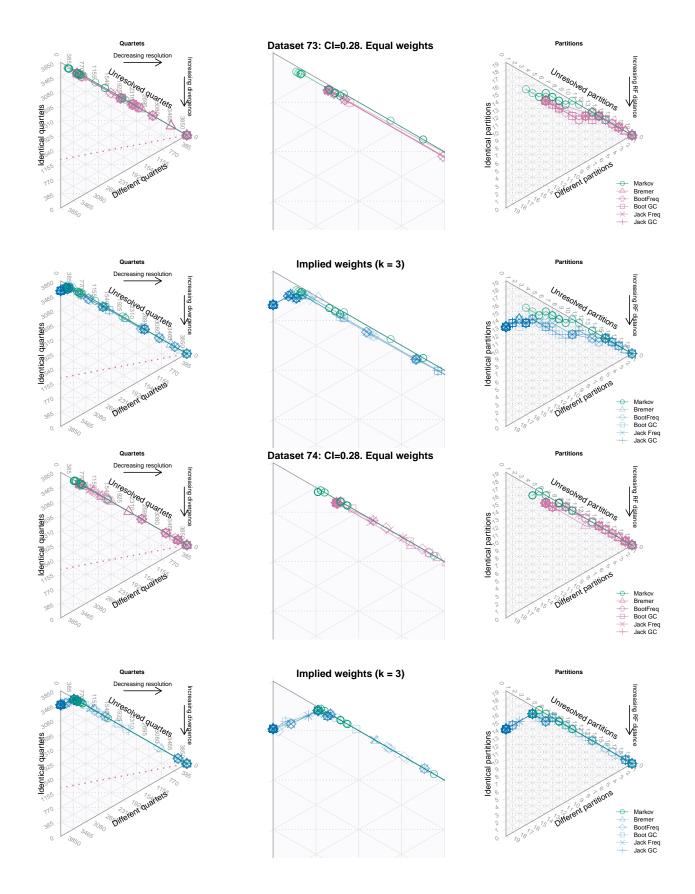


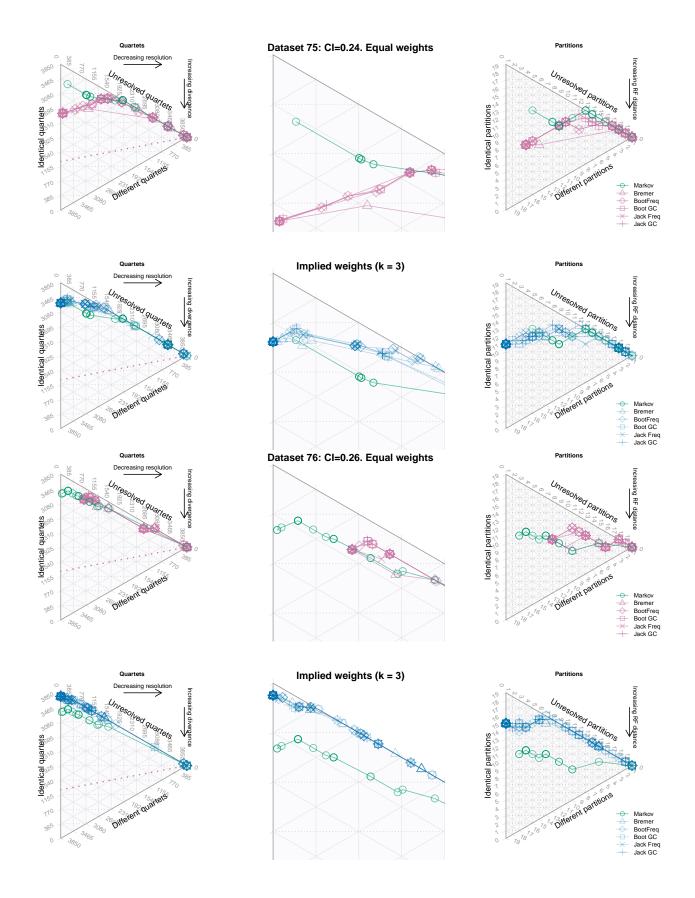


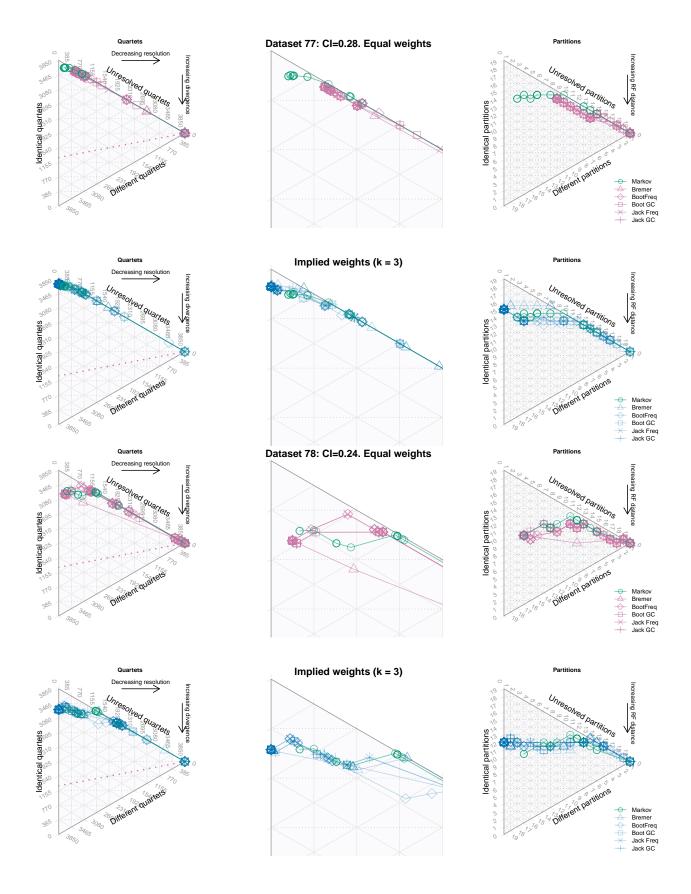


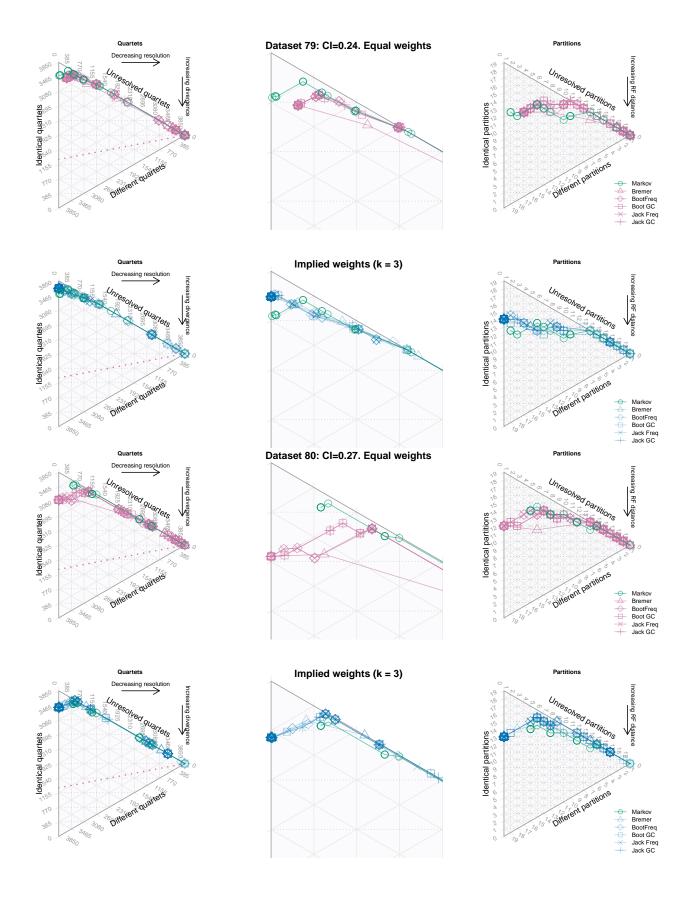
## 0.9 Trees 71–80



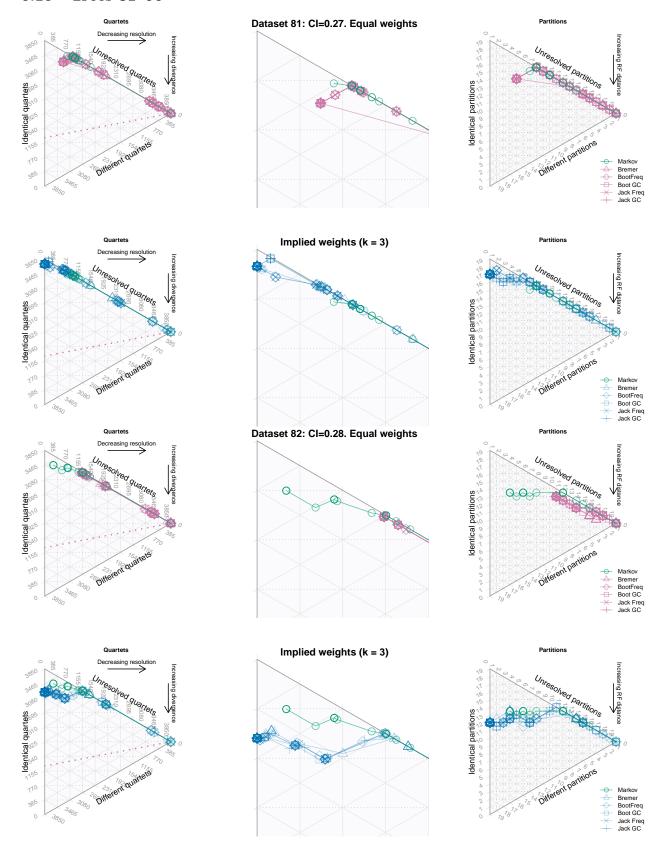


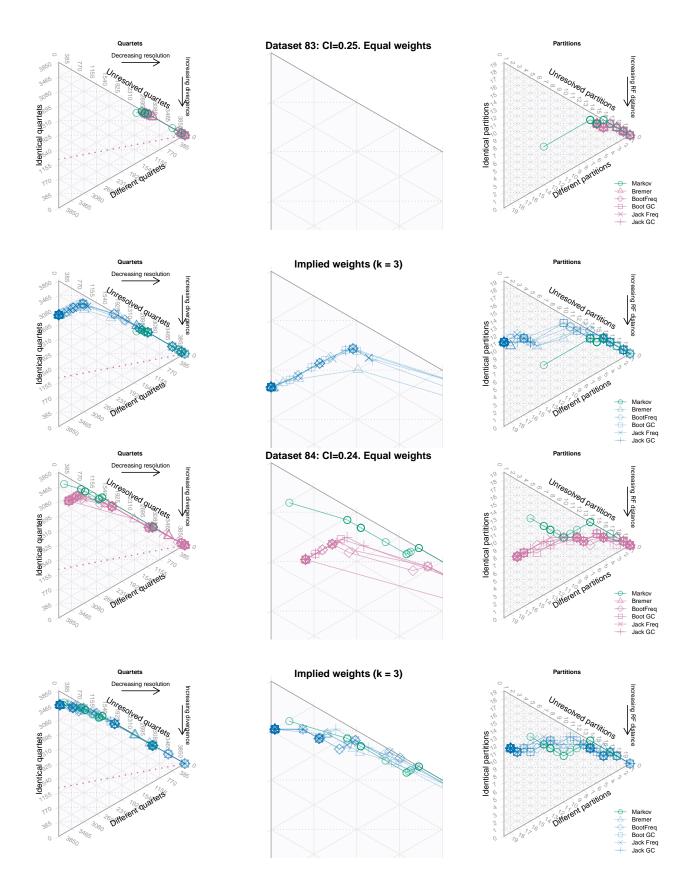


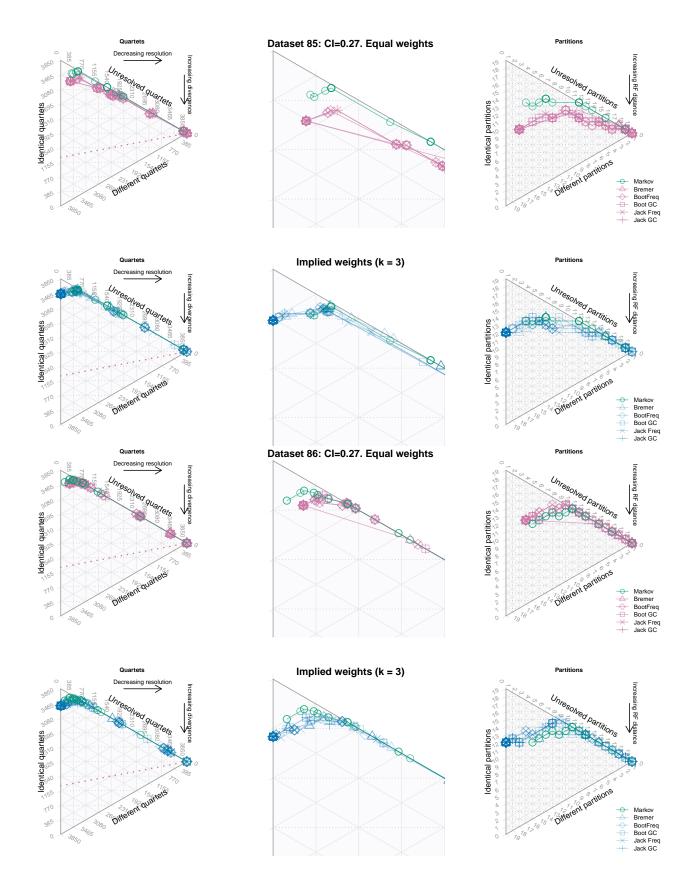


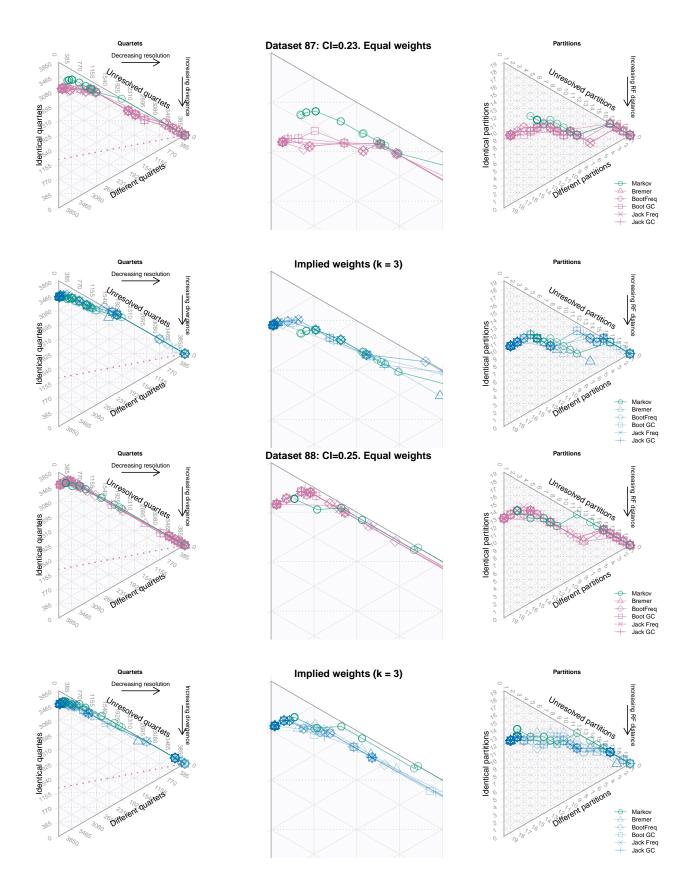


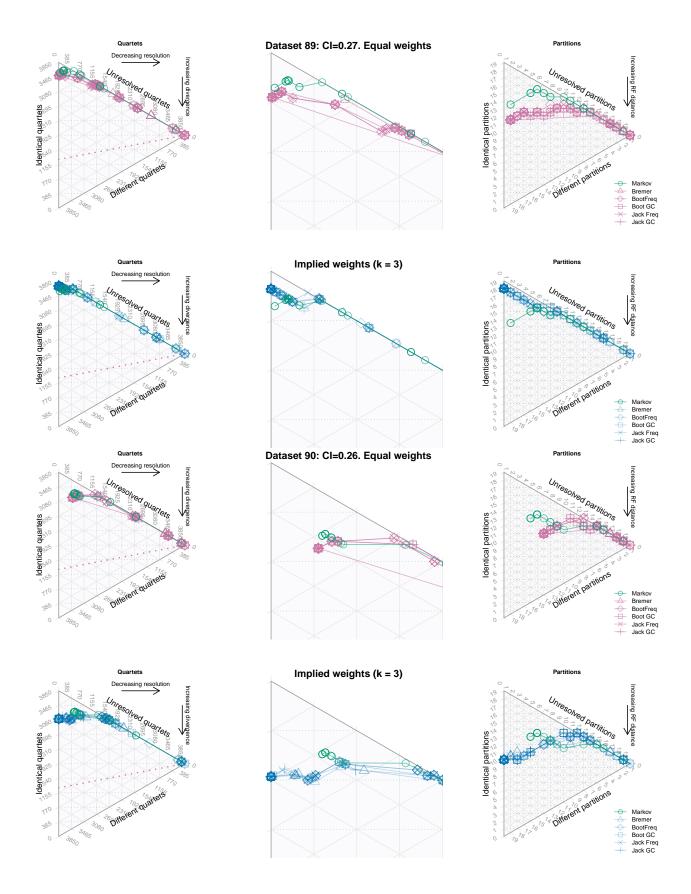
## 0.10 Trees 81–90



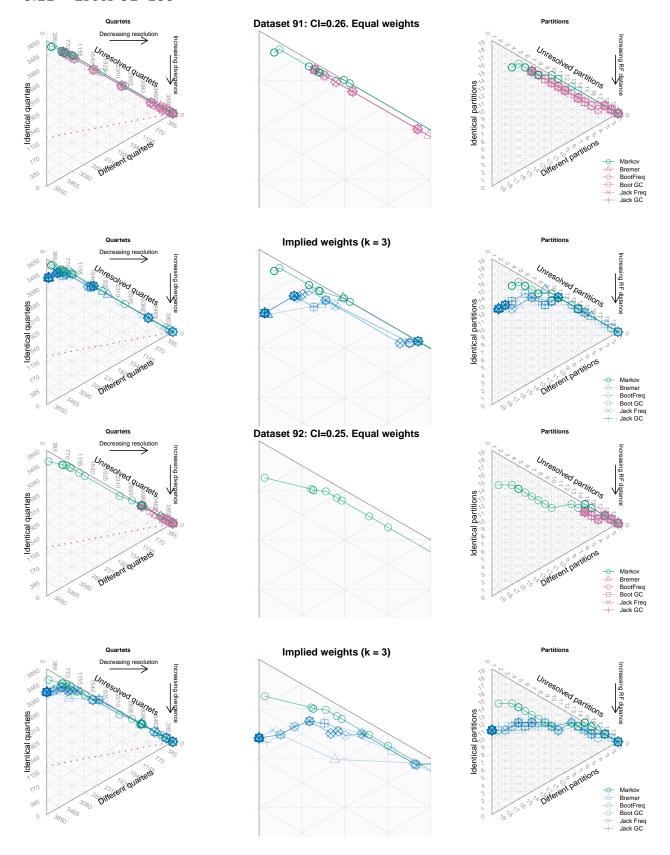


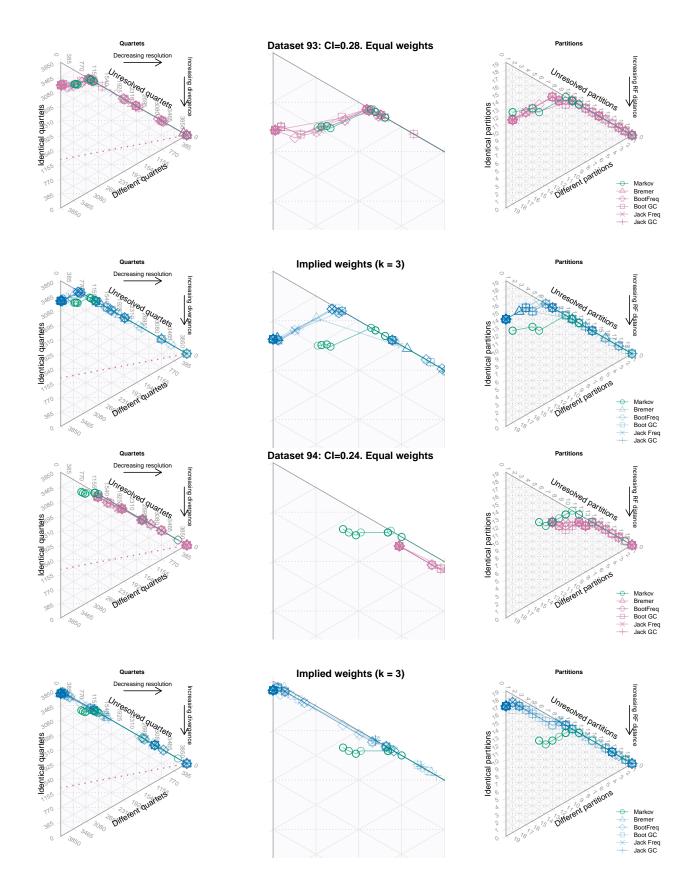


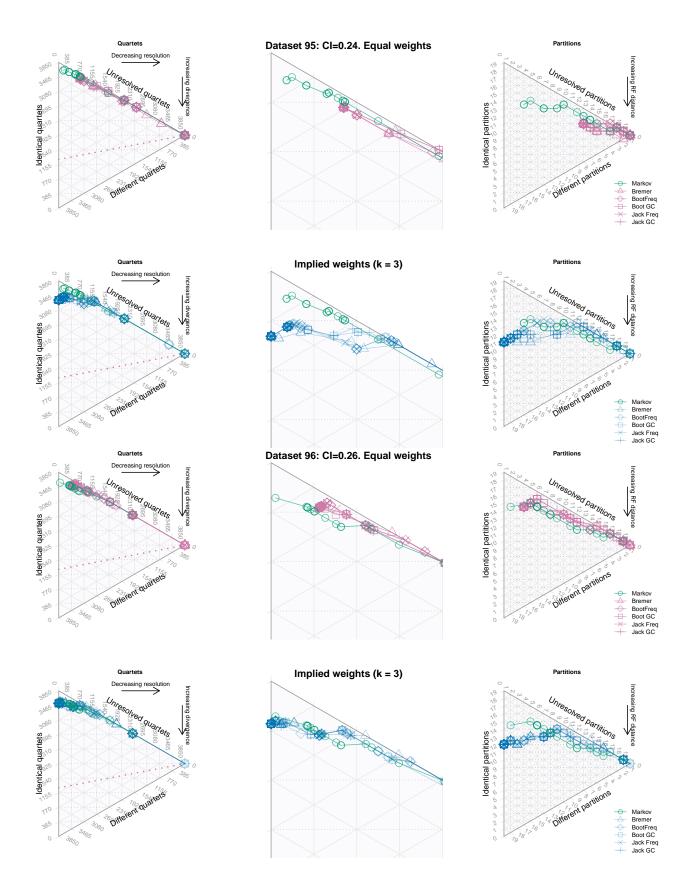


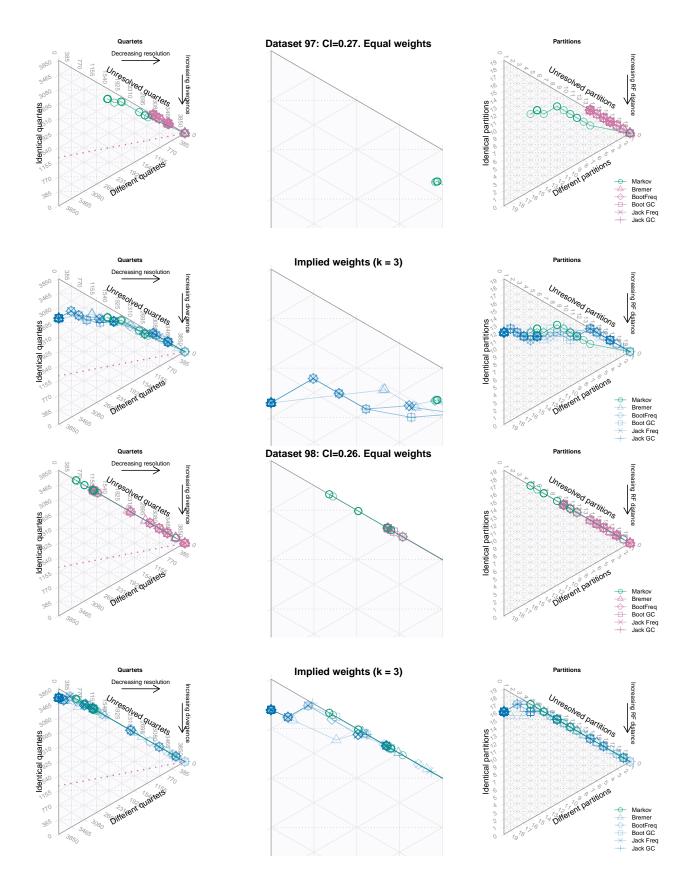


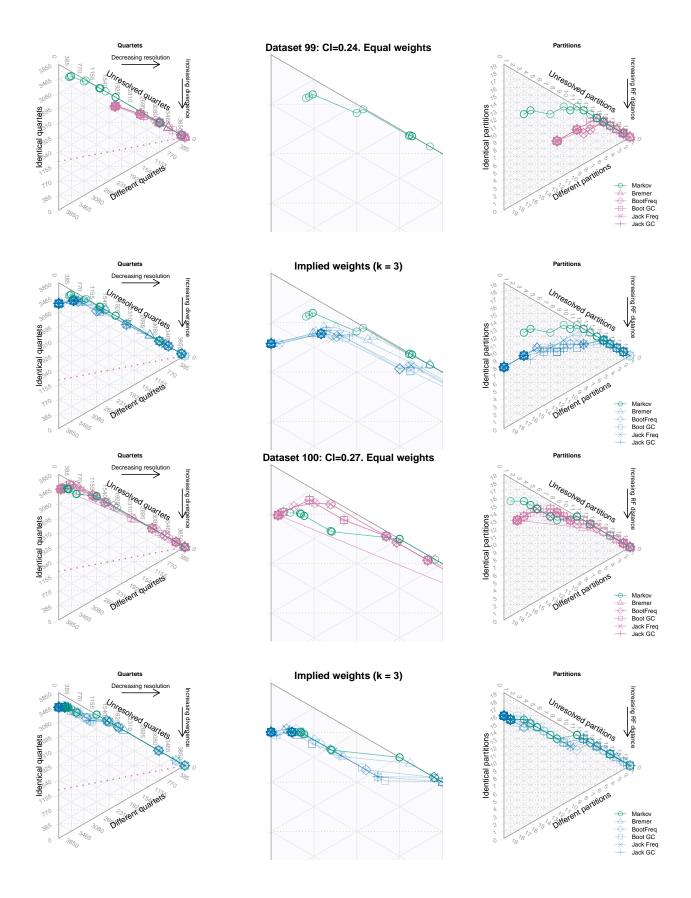
## 0.11 Trees 91–100











## References

- 1. Congreve CR, Lamsdell JC. 2016 Implied weighting and its utility in palaeontological datasets: a study using modelled phylogenetic matrices. Palaeontology **59**, 447–465. (doi:10.1111/pala.12236)
- 2. Smith MR. In press. Bayesian and parsimony approaches reconstruct informative trees from simulated morphological datasets.  $Biology\ Letters;\ preprint\ at\ BioRxiv\ (doi:10.1101/227942)$