**Lesson 12 Exercises**

1. With your understanding of the Haak et al. (2015) paper, draw a tree that depicts the major relationships they find in the paper. This tree should include at least one ancient set from Early, Middle, and Late Neolithic Europe, as well as a European hunter-gatherer and the Yamnaya set.
2. Normally, we would build an AdmixtureGraph, adding a set as a time and exploring as many possible trees as we can. Here, using the tree you drew above, write out the text for the graph. Run qpGraph using this graph and show:
   1. What is the worst Z-score you found? For which f-statistic combination?
   2. Does your tree fit the data? If so, awesome! If not, what parts of the tree do you think is causing problems? Is there an unrepresented population having an effect? More complex demographic history that isn’t represented by the tree (for one or more individuals)? Think about what you would do to try to improve the tree.