**Lesson 8 Exercises**

1. From Lesson 8, try to repeat D(EAS1, English; EAS2, Chimp) and D(EAS1, EAS2; English, Chimp) using Mbuti as outgroup. Describe whether anything changed and why or why not.
2. Convince yourself that all scenarios (Models 1-4 in lecture), except one case of model 2, result in a positive value for f3.
3. One the following populations is the ghost. Run whatever tests you need to figure out which one is the ghost we are looking for.

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1. We saw that while f3 test shows admixture in nEUR, it does not show admixture in AME. Write 1-2 sentences explaining why you think this occurred.
2. Massive migration from Steppe to Europe can explain the origin of Indo-European languages in Europe. Leo S. Klejn critiques this idea. Read the pdf file of his discussion (available on the server) with Haak et al. and summarize their arguments. Who has the better argument?
3. Some of Native Americans have got european ancestry from two different ways. Do you know them? Can you explore these two admixture events using D statistics?
4. There are two deep ancestries in Eurasia: East Asian and European. Life in the East of Asia is much more colourful than Europe. Do you think this difference has a genetic basis?