

Due to dwindling dilithium crystal output on Mars, the Martians have decided to leave their underground mines and explore Earth and its inhabitants. To learn about earthlings, they have abducted 1000 people and measured them in various ways. They have compiled the data and have tasked you and your team (also abductees), to analyze it with your mighty Earth math. The data contain the following variables:

* age (measured in years)
* sex (female, male)
* height (measured in inches)
* iq (score on the Weschler adult intelligence scale)
* brain (total brain volume measured in cm3)
* job (job preference when they are transferred to the Mars colony: Miner, Cook, Cleaner)
* mk (military knowledge scored on a test from 0 to 100)
* skin (amount of pressure it takes to break their skin with a nail – psi… silly weak human skin)
* blood (blood type of a person: A, B, AB, or O).
* continent (the continent they were abducted from: NorthA, SouthA, Europe, Asia, Africa, Australia, Antarctica).
* thalamus (volume of their thalamus measured in cm3…mmmm delicious thalamus).

Below is a list of the kinds of things that your mighty alien overlords might ask of you. Of course, you will not know for sure until you are brought before the Council of Many Tentacles (i.e., the data contest).

1. Give descriptive statistics, like means, per groups.
2. Simple tests, such as correlations.
3. Calculate Bayes factors.
4. Build linear models, make predictions from those models, & compare models.
5. Create plots, such as a violin plot and a scatter plot with at least 4 variables in it.
6. Visualize and examine missing data.