

STATISTICS FOR EES — EXERCISE SHEET 1

---

**1.** The file `swarth1.txt` contains beak lengths of Darwin finches (species *Geospiza fortis*) from three galapagos islands<sup>1</sup>. Compute mean, standard deviation, median, 25% quantile, and 75% quantile...

- (a) ... for the entire sample and...
- (b) ... separately for each island.

**2.** Let  $L$  be the wingspread of a bird and let  $W$  be the weight of a bird. Let  $R$  and  $S$  be the ratios  $R = L/W$  and  $S = W/L$ . One of the birds in the population is named Tweety. Which of the following statements contradict each other and which can be fulfilled at the same time?

- (a) Tweety's  $R$  is smaller than the population mean  $\bar{R}$
- (b) Tweety's  $S$  is smaller than the population mean  $\bar{S}$
- (c) Tweety's  $R$  is larger than the population median of  $R$
- (d) Tweety's  $S$  is larger than the population median of  $S$

Hint: Try out extreme examples with populations of three to five birds.

**3.** With the data from exercise 1 draw histograms and boxplots...

- (a) ... for the entire sample and...
- (b) ... separately for each island.
- (c) Draw density polygons to compare the beak length distributions on the different islands.
- (d) Describe your observations in one or two sentences.

---

<sup>1</sup>H.S. Swarth (1931) The avifauna of the Galapagos Islands