Case-based Social Statistics I
CSSS 321
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Solutions to Laboratory 2
Due Friday, January 18, 2002

Problems to be handed in:

1) Complete the open case “Another look at the geyser and adoption visas” from page 24 of CHS. Only consider the “Old Faithful” case and not the "Adoption” case.

Solution(10) : Consider first the geyser data. The histograms of both DURATION and INTERVAL are quite insensitive to the choice of bin width. Bin widths ranging from 0.1 to 1.0 all indicate a bimodal shape for DURATION, and bin widths ranging from 1 to 10 all indicate a bimodal shape for INTERVAL. The choice of the anchor seems to have virtually no effect at all. Thus, there is every reason to think that the previously noted bimodal shapes of these variables are genuine.

The situation is different for the (logged) adoption visas. Using an anchor of 0.6, the resultant histograms for the logged 1991 visas appear unimodal if bin widths of 0.2 or 0.4 are used, while they appear bimodal if bin widths of 0.3 or 0.5 are used. This casts some doubt on the hypothesis of possible quotas on visas issued. The anchor position has considerably weaker effect on the appearance of the histograms for these data as well. For example, if the bin width is taken to be 0.3, the resultant histograms are quite similar for anchor positions from 0.3 to 0.6.

That the anchor position would have less of an effect on the histogram than the bin width is consistent with statistical theory.