1 Estimators for maximum value

We have a random sample from a sequence $1, 2, 3, ..., N$. The problem is to estimate N.

1.1 German tank problem

$$N = m(1 + k^{-1}) - 1$$
$$= m + \frac{m}{k} - 1$$
$$= m + \frac{m - k}{k}$$

where m is the maximum observed value and k is the number of observations in our sample.

1.2 Two times the mean

$$N = 2 \cdot \left(\frac{a_1 + a_2 + ... + a_{k-1} + a_k}{k} \right)$$
$$= 2 \cdot \bar{a}$$

where k is the number of observations in our sample.

2 Estimators for mean value

3 Estimators for median value

4 Estimators for mode

5 Estimators for variance