Extra from:
Bradley Efron and Trevor Hastie
*Computer Age Statistical Inference: Algorithms, Evidence, and Data Science*
*Cambridge University Press, 2016*
*https://web.stanford.edu/~hastie/CASI_files/PDF/casi.pdf*

Modern Bayesian practice uses various strategies to construct an appropriate "prior" $g(\mu)$in the absence of prior experience, leaving many statistician unconvinced by the resulting Bayesian inferences. Our second example illustrates the difficulty.

**Table 3.1** *Scores from two tests taken by 22 students* **mechanics** *and* **vector**.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **mechanics** | 7 | 44 | 49 | 59 | 34 | 46 | 0 | 32 | 49 | 52 | 44 |
| **vectors** | 51 | 69 | 41 | 70 | 42 | 40 | 40 | 45 | 57 | 64 | 61 |

| | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **mechanics** | 36 | 42 | 5 | 22 | 18 | 41 | 48 | 31 | 42 | 46 | 63 |
| **vectors** | 59 | 60 | 30 | 58 | 51 | 63 | 38 | 42 | 69 | 49 | 63 |

Table 3.1 shows the score on two tests, **mechanics** and **vectors**, achieved by n = 22 students. The sample correlation coefficient between the two scores is $\hat{\theta} = 0.498$,

$$\hat{\theta} = \sum_{i=1}^{22}(m_i - \bar{m})(v_i - \bar{v}) \Bigg/ \left[\sum_{i=1}^{22}(m_i - \bar{m})^2 \sum_{i=1}^{22}(v_i - \bar{v})^2\right]^{1/2}$$

with $m$ and $v$ short for **mechanics** and **vectors**, $\bar{m}$ and $\bar{v}$ their averages.