Statistics

$$\mathrm{Dir}(\theta|\alpha) = \frac{1}{B(\alpha)} \prod_{k=1}^{K} \theta_k^{\alpha_k - 1}$$

$$\mathbb{E}\theta_i = \frac{\alpha_i}{\alpha_0}$$

$$\mathrm{Cov}(\theta_i, \theta_j) = \frac{\alpha_i \alpha_0 [i=j] - \alpha_i \alpha_j}{\alpha_0^2(\alpha_0+1)}$$

$$\alpha_0 = \sum_{k=1}^{K} \alpha_k$$