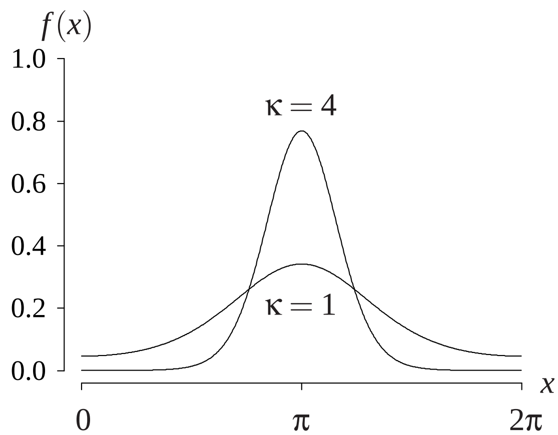
von Mises distribution (from http://www.math.wm.edu/~leemis/chart/UDR/UDR.html)
The shorthand $X \sim$ von Mises(κ, μ) is used to indicate that the random variable X has the von Mises distribution with shape parameter κ and location parameter μ. A von Mises random variable X with parameters κ and μ has probability density function

$$f(x) = \frac{e^{\kappa \cos(x-\mu)}}{2\pi\, I_0(\kappa)} \qquad 0 < x < 2\pi$$

for all κ and for $0 < \mu < 2\pi$. The Modified Bessel function of the first kind of order 0 is used for the von Mises random variable and is defined as

$$I_0(\kappa) = \sum_{i=0}^{\infty} \frac{\kappa^{2i}}{2^{2i}(i!)^2}$$

for all κ. The probability density function for $\mu = \pi$ and two different values of κ is illustrated below.



The cumulative distribution function on the support of X is

$$F(x) = P(X \le x) = \frac{\int_0^x e^{\kappa \cos(t-\mu)} dt}{2\pi\, I_0(\kappa)} \qquad 0 < x < 2\pi.$$

The survivor function, hazard function, inverse distribution function, moment generating function, and characteristic functions are all mathematically intractable.
The median of X is

$$\mu.$$

The population mean of X is

$$E[X] = \mu.$$

The population variance, skewness, and kurtosis of X are mathematically intractable.