

## 1 CotGumb

## 2 Cos Weibull

```
pdf_cotG <- function(par, x){  
  
  alpha      = par[1]  
  beta       = par[2]  
  
  -(2/3)*pi*exp(-(exp(-(-x+alpha)/beta)*beta+alpha-x)/beta)*sin((1/3)*pi*(-  
1+exp(-exp(-(-x+alpha)/beta))))/(beta*cos((1/3)*pi*(-1+exp(-exp(-(-  
x+alpha)/beta))))^2)  
}
```

$$\text{pdf}_{\text{cotG}}(x, \alpha, \beta) = \frac{2\pi}{3} \sin\left(\frac{\pi}{3}\right) \frac{\exp\left(-\frac{x-\alpha-\beta e^{\frac{x-\alpha}{\beta}}}{\beta}\right) \left(\exp\left(-e^{-\frac{(-x+\alpha)}{\beta}}\right) - 1\right)}{\left(\beta * \cos\left(\frac{\pi}{3} * (\exp(-e^{-\frac{(-x+\alpha)}{\beta}}) - 1)\right)\right)^2}$$

## 3 Weibull

## 4 EXPONENTIAL EXPONENTIATED

## 5 Sin-Gumbel Weibull Poisson

## 6 Cos-Gumbel Weibull Poisson

## 7 HG1G2 exp and Weibull