”MakehamRV(1, 2, 2)”

$$[x \mapsto (1+2\,2^{x})\,\mathrm{e}^{-x-2\,\frac{2^{x}-1}{\ln(2)}}]$$

---

$$t \mapsto t^{2}$$

Probability Distribution Function

$$f(x) = 1/2\,\frac{1+2^{1+\sqrt{x}}}{\sqrt{x}}\mathrm{e}^{-\frac{\sqrt{x}\ln(2)+2^{1+\sqrt{x}}-2}{\ln(2)}}$$

Cumulative Distribution Function

$$F(x) = 1/2\,\int_0^x \frac{1+2^{1+\sqrt{t}}}{\sqrt{t}}\mathrm{e}^{-\frac{\sqrt{t}\ln(2)+2^{1+\sqrt{t}}-2}{\ln(2)}}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function
Survivor Function

$$S(x) = 1-1/2\,\int_0^x \frac{1+2^{1+\sqrt{t}}}{\sqrt{t}}\mathrm{e}^{-\frac{\sqrt{t}\ln(2)+2^{1+\sqrt{t}}-2}{\ln(2)}}\,\mathrm{d}t$$

Hazard Function

$$h(x) = -\frac{1+2^{1+\sqrt{x}}}{\sqrt{x}}\mathrm{e}^{-\frac{\sqrt{x}\ln(2)+2^{1+\sqrt{x}}-2}{\ln(2)}}\left(-2+\mathrm{e}^{2\,(\ln(2))^{-1}}\int_0^x \frac{1+2^{1+\sqrt{t}}}{\sqrt{t}}\mathrm{e}^{-\frac{\sqrt{t}\ln(2)+2^{1+\sqrt{t}}}{\ln(2)}}\,\mathrm{d}t\right)^{-1}$$

Mean

$$mu = \int_0^\infty 1/2\,\sqrt{x}\left(1+2^{1+\sqrt{x}}\right)\mathrm{e}^{-\frac{\sqrt{x}\ln(2)+2^{1+\sqrt{x}}-2}{\ln(2)}}\,\mathrm{d}x$$

Variance

$$sigma^{2} = \int_0^\infty 1/2\,x^{3/2}\left(1+2^{1+\sqrt{x}}\right)\mathrm{e}^{-\frac{\sqrt{x}\ln(2)+2^{1+\sqrt{x}}-2}{\ln(2)}}\,\mathrm{d}x - \left(\int_0^\infty 1/2\,\sqrt{x}\left(1+2^{1+\sqrt{x}}\right)\mathrm{e}^{-\frac{\sqrt{x}\ln(2)+2^{1+\sqrt{x}}}{\ln(2)}}\right.$$

Moment Function

$$m(x) = \int_0^\infty 1/2\,\frac{x^{r}\left(1+2^{1+\sqrt{x}}\right)}{\sqrt{x}}\mathrm{e}^{-\frac{\sqrt{x}\ln(2)+2^{1+\sqrt{x}}-2}{\ln(2)}}\,\mathrm{d}x$$

Moment Generating Function

$$\int_0^{\infty} 1/2\,\frac{1+2^{1+\sqrt{x}}}{\sqrt{x}}\mathrm{e}^{-\frac{-tx\ln(2)+\sqrt{x}\ln(2)+2^{1+\sqrt{x}}-2}{\ln(2)}}\,\mathrm{d}x_1$$

---

$$t \mapsto \sqrt{t}$$

Probability Distribution Function

$$f(x) = 2\,x\mathrm{e}^{-\frac{x^2\ln(2)+2^{x^2+1}-2}{\ln(2)}}\left(1+2^{x^2+1}\right)$$

Cumulative Distribution Function

$$F(x) = 1-\mathrm{e}^{-\frac{x^2\ln(2)+2^{x^2+1}-2}{\ln(2)}}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto RootOf\left(\_Z^2\ln(2)+\ln(1-s)\ln(2)+2^{\_Z^2+1}-2\right)]$$

Survivor Function

$$S(x) = \mathrm{e}^{-\frac{x^2\ln(2)+2^{x^2+1}-2}{\ln(2)}}$$

Hazard Function

$$h(x) = 2\,x\left(1+2^{x^2+1}\right)$$

Mean

$$mu = \int_0^{\infty} 2\,x^2\mathrm{e}^{-\frac{x^2\ln(2)+2^{x^2+1}-2}{\ln(2)}}\left(1+2^{x^2+1}\right)\,\mathrm{d}x$$

Variance

$$sigma^2 = \int_0^{\infty} 2\,x^3\mathrm{e}^{-\frac{x^2\ln(2)+2^{x^2+1}-2}{\ln(2)}}\left(1+2^{x^2+1}\right)\,\mathrm{d}x - \left(\int_0^{\infty} 2\,x^2\mathrm{e}^{-\frac{x^2\ln(2)+2^{x^2+1}-2}{\ln(2)}}\left(1+2^{x^2+1}\right)\,\mathrm{d}x\right)^2$$

Moment Function

$$m(x) = \int_0^{\infty} 2\,x^r x\mathrm{e}^{-\frac{x^2\ln(2)+2^{x^2+1}-2}{\ln(2)}}\left(1+2^{x^2+1}\right)\,\mathrm{d}x$$

Moment Generating Function

$$\int_0^\infty 2\,x\mathrm{e}^{-\frac{-tx\ln(2)+x^2\ln(2)+2^{x^2+1}-2}{\ln(2)}}\left(1+2^{x^2+1}\right)\,\mathrm{d}x_1$$

---

$$t \mapsto t^{-1}$$

Probability Distribution Function

$$f(x) = \frac{1}{x^2}\mathrm{e}^{-\frac{1}{x\ln(2)}\left(x2^{\frac{x+1}{x}}+\ln(2)-2\,x\right)}\left(1+2^{\frac{x+1}{x}}\right)$$

Cumulative Distribution Function

$$F(x) = \mathrm{e}^{-\frac{1}{x\ln(2)}\left(x2^{\frac{x+1}{x}}+\ln(2)-2\,x\right)}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto -\frac{\ln(2)}{\mathrm{W}\left(2\,s^{-\ln(2)}\mathrm{e}^2\right)+\ln(2)\ln(s)-2}]$$

Survivor Function

$$S(x) = 1-\mathrm{e}^{-\frac{1}{x\ln(2)}\left(x2^{\frac{x+1}{x}}+\ln(2)-2\,x\right)}$$

Hazard Function

$$h(x) = -\frac{\mathrm{e}^{2\,(\ln(2))^{-1}}}{x^2}\left(1+2^{\frac{x+1}{x}}\right)\left(-\mathrm{e}^{\frac{1}{x\ln(2)}\left(x2^{\frac{x+1}{x}}+\ln(2)\right)}+\mathrm{e}^{2\,(\ln(2))^{-1}}\right)^{-1}$$

Mean

$$mu = \infty$$

Variance

$$sigma^2 = undefined$$

Moment Function

$$m(x) = \int_0^\infty \frac{x^r}{x^2}\mathrm{e}^{-\frac{1}{x\ln(2)}\left(x2^{\frac{x+1}{x}}+\ln(2)-2\,x\right)}\left(1+2^{\frac{x+1}{x}}\right)\mathrm{d}x$$

Moment Generating Function

$$\int_0^{\infty} \frac{1}{x^2} \mathrm{e}^{-\frac{1}{x\ln(2)}\left(-tx^2\ln(2)+x2^{\frac{x+1}{x}}+\ln(2)-2\,x\right)} \left(1+2^{\frac{x+1}{x}}\right) \mathrm{d}x_1$$

---

$$t \mapsto \arctan(t)$$

Probability Distribution Function

$$f(x) = \left(1+(\tan(x))^2\right) \mathrm{e}^{-\frac{\tan(x)\ln(2)+2^{1+\tan(x)}-2}{\ln(2)}} \left(1+2^{1+\tan(x)}\right)$$

Cumulative Distribution Function

$$F(x) = \begin{cases} 1-\mathrm{e}^{-\frac{\tan(x)\ln(2)+2^{1+\tan(x)}-2}{\ln(2)}} & x \le \pi/2 \\ \infty & \pi/2 < x \end{cases}$$

Inverse Cumulative Distribution Function

$$F^{-1} = []$$

Survivor Function

$$S(x) = \begin{cases} \mathrm{e}^{-\frac{\tan(x)\ln(2)+2^{1+\tan(x)}-2}{\ln(2)}} & x \le \pi/2 \\ -\infty & \pi/2 < x \end{cases}$$

Hazard Function

$$h(x) = \begin{cases} \left(1+(\tan(x))^2\right)\left(1+2^{1+\tan(x)}\right) & x \le \pi/2 \\ 0 & \pi/2 < x \end{cases}$$

Mean

$$mu = \int_0^{\pi/2} \frac{x}{(\cos(x))^2} \mathrm{e}^{-\frac{1}{\ln(2)\cos(x)}\left(\sin(x)\ln(2)+2^{\frac{\cos(x)+\sin(x)}{\cos(x)}}\cos(x)-2\,\cos(x)\right)} \left(1+2^{\frac{\cos(x)+\sin(x)}{\cos(x)}}\right) \mathrm{d}x$$

Variance

$$sigma^2 = \int_0^{\pi/2} \frac{x^2}{(\cos(x))^2} \mathrm{e}^{-\frac{1}{\ln(2)\cos(x)}\left(\sin(x)\ln(2)+2^{\frac{\cos(x)+\sin(x)}{\cos(x)}}\cos(x)-2\,\cos(x)\right)} \left(1+2^{\frac{\cos(x)+\sin(x)}{\cos(x)}}\right) \mathrm{d}x - \Bigg(\int$$

Moment Function

$$m(x) = \int_0^{\pi/2} x^r \left(1 + (\tan(x))^2\right) \mathrm{e}^{-\frac{\tan(x)\ln(2)+2^{1+\tan(x)}-2}{\ln(2)}} \left(1 + 2^{1+\tan(x)}\right) \, \mathrm{d}x$$

Moment Generating Function

$$\int_0^{\pi/2} \frac{1}{(\cos(x))^2} \mathrm{e}^{-\frac{1}{\ln(2)\cos(x)}\left(-tx\ln(2)\cos(x)+\sin(x)\ln(2)+2^{\frac{\cos(x)+\sin(x)}{\cos(x)}}\cos(x)-2\cos(x)\right)} \left(1 + 2^{\frac{\cos(x)+\sin(x)}{\cos(x)}}\right) \mathrm{d}x_1$$

---

$$t \mapsto \mathrm{e}^t$$

Probability Distribution Function

$$f(x) = \frac{1 + 2\,x^{\ln(2)}}{x^2} \mathrm{e}^{-2\,\frac{x^{\ln(2)}-1}{\ln(2)}}$$

Cumulative Distribution Function

$$F(x) = -\frac{1}{x}\left(-x + \mathrm{e}^{-2\,\frac{x^{\ln(2)}-1}{\ln(2)}}\right)$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto RootOf\left(s\_Z + \mathrm{e}^{-2\,\frac{\_Z^{\ln(2)}-1}{\ln(2)}} - \_Z\right)]$$

Survivor Function

$$S(x) = \frac{1}{x}\mathrm{e}^{-2\,\frac{x^{\ln(2)}-1}{\ln(2)}}$$

Hazard Function

$$h(x) = \frac{1 + 2\,x^{\ln(2)}}{x}$$

Mean

$$mu = \frac{\mathrm{e}^{2\,(\ln(2))^{-1}} Ei\left(1, 2\,(\ln(2))^{-1}\right) + \ln(2)}{\ln(2)}$$

Variance

$$sigma^2 = -\frac{1}{(\ln(2))^2}\left(\mathrm{e}^{4\,(\ln(2))^{-1}}\left(Ei\left(1, 2\,(\ln(2))^{-1}\right)\right)^2 + 2\,\mathrm{e}^{2\,(\ln(2))^{-1}}\ln(2)\,Ei\left(1, 2\,(\ln(2))^{-1}\right) - \right.$$

Moment Function

$$m(x) = \int_{1}^{\infty} \frac{x^{r}\left(1 + 2\,x^{\ln(2)}\right)}{x^{2}} \mathrm{e}^{-2\,\frac{x^{\ln(2)}-1}{\ln(2)}}\,\mathrm{d}x$$

Moment Generating Function

$$\int_{1}^{\infty} \frac{1 + 2\,x^{\ln(2)}}{x^{2}} \mathrm{e}^{\frac{tx\ln(2)-2\,x^{\ln(2)}+2}{\ln(2)}}\,\mathrm{d}x_1$$

---

$$t \mapsto \ln(t)$$

Probability Distribution Function

$$f(x) = \mathrm{e}^{-\frac{\mathrm{e}^{x}\ln(2)-x\ln(2)+2^{1+\mathrm{e}^{x}}-2}{\ln(2)}}\left(1 + 2^{1+\mathrm{e}^{x}}\right)$$

Cumulative Distribution Function

$$F(x) = 1 - \mathrm{e}^{-\frac{\mathrm{e}^{x}\ln(2)+2^{1+\mathrm{e}^{x}}-2}{\ln(2)}}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto -\ln(\ln(2)) + \ln\left(-\mathrm{W}\left(2\,(1-s)^{-\ln(2)}\,\mathrm{e}^{2}\right) - \ln(1-s)\ln(2) + 2\right)]$$

Survivor Function

$$S(x) = \mathrm{e}^{-\frac{\mathrm{e}^{x}\ln(2)+2^{1+\mathrm{e}^{x}}-2}{\ln(2)}}$$

Hazard Function

$$h(x) = \mathrm{e}^{x}\left(1 + 2^{1+\mathrm{e}^{x}}\right)$$

Mean

$$mu = \int_{-\infty}^{\infty} x\mathrm{e}^{-\frac{\mathrm{e}^{x}\ln(2)-x\ln(2)+2^{1+\mathrm{e}^{x}}-2}{\ln(2)}}\left(1 + 2^{1+\mathrm{e}^{x}}\right)\,\mathrm{d}x$$

Variance

$$sigma^{2} = \int_{-\infty}^{\infty} x^{2}\mathrm{e}^{-\frac{\mathrm{e}^{x}\ln(2)-x\ln(2)+2^{1+\mathrm{e}^{x}}-2}{\ln(2)}}\left(1 + 2^{1+\mathrm{e}^{x}}\right)\,\mathrm{d}x - \left(\int_{-\infty}^{\infty} x\mathrm{e}^{-\frac{\mathrm{e}^{x}\ln(2)-x\ln(2)+2^{1+\mathrm{e}^{x}}-2}{\ln(2)}}\left(1 + 2^{1+\mathrm{e}^{x}}\right)\,\mathrm{d}$$

Moment Function

$$m(x) = \int_{-\infty}^{\infty} x^{r}\mathrm{e}^{-\frac{\mathrm{e}^{x}\ln(2)-x\ln(2)+2^{1+\mathrm{e}^{x}}-2}{\ln(2)}}\left(1 + 2^{1+\mathrm{e}^{x}}\right)\,\mathrm{d}x$$

Moment Generating Function

$$\frac{\int_{-\infty}^{\infty} \mathrm{e}^{-\frac{-tx\ln(2)+\mathrm{e}^{x}\ln(2)-x\ln(2)+2^{1+\mathrm{e}^{x}}-2}{\ln(2)}} + 2^{1+\mathrm{e}^{x}}\mathrm{e}^{-\frac{-tx\ln(2)+\mathrm{e}^{x}\ln(2)-x\ln(2)+2^{1+\mathrm{e}^{x}}-2}{\ln(2)}}\,\mathrm{d}x_1}{}$$

$$t \mapsto \mathrm{e}^{-t}$$

Probability Distribution Function

$$f(x) = \mathrm{e}^{-2\,\frac{x^{-\ln(2)}-1}{\ln(2)}}\left(1+2\,x^{-\ln(2)}\right)$$

Cumulative Distribution Function

$$F(x) = x\mathrm{e}^{-2\,\frac{x^{-\ln(2)}-1}{\ln(2)}}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \mathit{RootOf}\left(\_Z\,\mathrm{e}^{-2\,\frac{\_Z^{-\ln(2)}-1}{\ln(2)}} - s\right)]$$

Survivor Function

$$S(x) = 1 - x\mathrm{e}^{-2\,\frac{x^{-\ln(2)}-1}{\ln(2)}}$$

Hazard Function

$$h(x) = -\mathrm{e}^{2\,(\ln(2))^{-1}}\left(1+2\,x^{-\ln(2)}\right)\left(x\mathrm{e}^{2\,(\ln(2))^{-1}} - \mathrm{e}^{2\,\frac{x^{-\ln(2)}}{\ln(2)}}\right)^{-1}$$

Mean

$$mu = \int_0^1 x\mathrm{e}^{-2\,\frac{x^{-\ln(2)}-1}{\ln(2)}}\left(1+2\,x^{-\ln(2)}\right)\,\mathrm{d}x$$

Variance

$$sigma^2 = \int_0^1 x^2\mathrm{e}^{-2\,\frac{x^{-\ln(2)}-1}{\ln(2)}}\left(1+2\,x^{-\ln(2)}\right)\,\mathrm{d}x - \left(\int_0^1 x\mathrm{e}^{-2\,\frac{x^{-\ln(2)}-1}{\ln(2)}}\left(1+2\,x^{-\ln(2)}\right)\,\mathrm{d}x\right)^2$$

Moment Function

$$m(x) = \int_0^1 x^r\mathrm{e}^{-2\,\frac{x^{-\ln(2)}-1}{\ln(2)}}\left(1+2\,x^{-\ln(2)}\right)\,\mathrm{d}x$$

Moment Generating Function

$$\int_0^1 \mathrm{e}^{\frac{tx\ln(2)-2\,x^{-\ln(2)}+2}{\ln(2)}} + 2\,\mathrm{e}^{\frac{tx\ln(2)-2\,x^{-\ln(2)}+2}{\ln(2)}} x^{-\ln(2)}\,\mathrm{d}x_1$$

---

$$t \mapsto -\ln(t)$$

Probability Distribution Function

$$f(x) = \mathrm{e}^{-\frac{\mathrm{e}^{-x}\ln(2)+x\ln(2)+2^{1+\mathrm{e}^{-x}}-2}{\ln(2)}} \left(1+2^{1+\mathrm{e}^{-x}}\right)$$

Cumulative Distribution Function

$$F(x) = \mathrm{e}^{-\frac{\mathrm{e}^{-x}\ln(2)+2^{1+\mathrm{e}^{-x}}-2}{\ln(2)}}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \ln(\ln(2)) - \ln\left(-\mathrm{W}\left(2\,s^{-\ln(2)}\mathrm{e}^2\right) - \ln(s)\ln(2) + 2\right)]$$

Survivor Function

$$S(x) = 1 - \mathrm{e}^{-\frac{\mathrm{e}^{-x}\ln(2)+2^{1+\mathrm{e}^{-x}}-2}{\ln(2)}}$$

Hazard Function

$$h(x) = -(1+2^{1+\mathrm{e}^{-x}})\mathrm{e}^{-\frac{x\ln(2)-2}{\ln(2)}} \left(-\mathrm{e}^{\frac{\mathrm{e}^{-x}\ln(2)+2^{1+\mathrm{e}^{-x}}}{\ln(2)}} + \mathrm{e}^{2\,(\ln(2))^{-1}}\right)^{-1}$$

Mean

$$mu = \int_{-\infty}^{\infty} x\mathrm{e}^{-\frac{\mathrm{e}^{-x}\ln(2)+x\ln(2)+2^{1+\mathrm{e}^{-x}}-2}{\ln(2)}} \left(1+2^{1+\mathrm{e}^{-x}}\right)\,\mathrm{d}x$$

Variance

$$sigma^2 = \int_{-\infty}^{\infty} x^2\mathrm{e}^{-\frac{\mathrm{e}^{-x}\ln(2)+x\ln(2)+2^{1+\mathrm{e}^{-x}}-2}{\ln(2)}} \left(1+2^{1+\mathrm{e}^{-x}}\right)\,\mathrm{d}x - \left(\int_{-\infty}^{\infty} x\mathrm{e}^{-\frac{\mathrm{e}^{-x}\ln(2)+x\ln(2)+2^{1+\mathrm{e}^{-x}}-2}{\ln(2)}} \left(1+2^{1\right.$$

Moment Function

$$m(x) = \int_{-\infty}^{\infty} x^r\mathrm{e}^{-\frac{\mathrm{e}^{-x}\ln(2)+x\ln(2)+2^{1+\mathrm{e}^{-x}}-2}{\ln(2)}} \left(1+2^{1+\mathrm{e}^{-x}}\right)\,\mathrm{d}x$$

Moment Generating Function

$$\int_{-\infty}^{\infty} \mathrm{e}^{-\frac{-tx\ln(2)+\mathrm{e}^{-x}\ln(2)+x\ln(2)+2^{1+\mathrm{e}^{-x}}-2}{\ln(2)}} + 2^{1+\mathrm{e}^{-x}} \mathrm{e}^{-\frac{-tx\ln(2)+\mathrm{e}^{-x}\ln(2)+x\ln(2)+2^{1+\mathrm{e}^{-x}}-2}{\ln(2)}} \,\mathrm{d}x_1$$

---

$$t \mapsto \ln(t+1)$$

Probability Distribution Function

$$f(x) = \mathrm{e}^{-\frac{\mathrm{e}^{x}\ln(2)-x\ln(2)-\ln(2)+2^{\mathrm{e}^{x}}-2}{\ln(2)}} \left(1+2^{\mathrm{e}^{x}}\right)$$

Cumulative Distribution Function

$$F(x) = -\mathrm{e}^{-\frac{\mathrm{e}^{x}\ln(2)-\ln(2)+2^{\mathrm{e}^{x}}-2}{\ln(2)}} + 1$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto -\ln(\ln(2))+\ln\left(-\mathrm{W}\left(2\,(1-s)^{-\ln(2)}\,\mathrm{e}^{2}\right) - \ln(1-s)\ln(2) + \ln(2) + 2\right)]$$

Survivor Function

$$S(x) = \mathrm{e}^{-\frac{\mathrm{e}^{x}\ln(2)-\ln(2)+2^{\mathrm{e}^{x}}-2}{\ln(2)}}$$

Hazard Function

$$h(x) = \mathrm{e}^{x}\left(1+2^{\mathrm{e}^{x}}\right)$$

Mean

$$mu = \int_{0}^{\infty} x\mathrm{e}^{-\frac{\mathrm{e}^{x}\ln(2)-x\ln(2)-\ln(2)+2^{\mathrm{e}^{x}}-2}{\ln(2)}} \left(1+2^{\mathrm{e}^{x}}\right) \,\mathrm{d}x$$

Variance

$$sigma^2 = \int_{0}^{\infty} x^2\mathrm{e}^{-\frac{\mathrm{e}^{x}\ln(2)-x\ln(2)-\ln(2)+2^{\mathrm{e}^{x}}-2}{\ln(2)}} \left(1+2^{\mathrm{e}^{x}}\right) \,\mathrm{d}x - \left(\int_{0}^{\infty} x\mathrm{e}^{-\frac{\mathrm{e}^{x}\ln(2)-x\ln(2)-\ln(2)+2^{\mathrm{e}^{x}}-2}{\ln(2)}} \left(1+2^{\mathrm{e}^{x}}\right) \,\mathrm{d}$$

Moment Function

$$m(x) = \int_{0}^{\infty} x^r\mathrm{e}^{-\frac{\mathrm{e}^{x}\ln(2)-x\ln(2)-\ln(2)+2^{\mathrm{e}^{x}}-2}{\ln(2)}} \left(1+2^{\mathrm{e}^{x}}\right) \,\mathrm{d}x$$

Moment Generating Function

$$\int_{0}^{\infty} \mathrm{e}^{-\frac{-tx\ln(2)+\mathrm{e}^{x}\ln(2)-x\ln(2)-\ln(2)+2^{\mathrm{e}^{x}}-2}{\ln(2)}} + \mathrm{e}^{-\frac{-tx\ln(2)+\mathrm{e}^{x}\ln(2)-x\ln(2)-\ln(2)+2^{\mathrm{e}^{x}}-2}{\ln(2)}} 2^{\mathrm{e}^{x}} \,\mathrm{d}x_1$$

---

$$t \mapsto \left(\ln\left(t+2\right)\right)^{-1}$$

Probability Distribution Function

$$f(x) = \frac{1+2^{-1+e^{x^{-1}}}}{x^2} e^{-\frac{e^{x^{-1}}\ln(2)x-2\,x\ln(2)+2^{-1+e^{x^{-1}}}x-\ln(2)-2\,x}{x\ln(2)}}$$

Cumulative Distribution Function

$$F(x) = e^{-\frac{e^{x^{-1}}\ln(2)-2\,\ln(2)+2^{-1+e^{x^{-1}}}-2}{\ln(2)}}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto -\left(\ln\left(\ln\left(2\right)\right)-\ln\left(-\mathrm{W}\left(2\,s^{-\ln(2)}e^{2}\right)-\ln\left(s\right)\ln\left(2\right)+2\,\ln\left(2\right)+2\right)\right)^{-1}]$$

Survivor Function

$$S(x) = 1 - e^{-\frac{e^{x^{-1}}\ln(2)-2\,\ln(2)+2^{-1+e^{x^{-1}}}-2}{\ln(2)}}$$

Hazard Function

$$h(x) = -\frac{1+2^{-1+e^{x^{-1}}}}{x^2} e^{\frac{2\,x\ln(2)-2^{-1+e^{x^{-1}}}x+\ln(2)+2\,x}{x\ln(2)}} \left(-e^{e^{x^{-1}}}+e^{\frac{2\,\ln(2)-2^{-1+e^{x^{-1}}}+2}{\ln(2)}}\right)^{-1}$$

Mean

$$mu = \int_0^{(\ln(2))^{-1}} \frac{1+2^{-1+e^{x^{-1}}}}{x} e^{-\frac{e^{x^{-1}}\ln(2)x-2\,x\ln(2)+2^{-1+e^{x^{-1}}}x-\ln(2)-2\,x}{x\ln(2)}}\,dx$$

Variance

$$sigma^2 = \int_0^{(\ln(2))^{-1}} e^{-\frac{e^{x^{-1}}\ln(2)x-2\,x\ln(2)+2^{-1+e^{x^{-1}}}x-\ln(2)-2\,x}{x\ln(2)}} \left(1+2^{-1+e^{x^{-1}}}\right) dx - 1/4 \left(\int_0^{(\ln(2))^{-1}} \frac{2+2^{e^{x}}}{x}\right.$$

Moment Function

$$m(x) = \int_0^{(\ln(2))^{-1}} \frac{x^r\left(1+2^{-1+e^{x^{-1}}}\right)}{x^2} e^{-\frac{e^{x^{-1}}\ln(2)x-2\,x\ln(2)+2^{-1+e^{x^{-1}}}x-\ln(2)-2\,x}{x\ln(2)}}\,dx$$

Moment Generating Function

$$\int_0^{(\ln(2))^{-1}} \frac{1+2^{-1+e^{x^{-1}}}}{x^2} e^{-\frac{-tx^2 \ln(2)+e^{x^{-1}} \ln(2)x-2\,x\ln(2)+2^{-1+e^{x^{-1}}} x-\ln(2)-2\,x}{x\ln(2)}}\,dx_1$$

---

$$t \mapsto \tanh(t)$$

Probability Distribution Function

$$f(x) = \frac{1+2^{1+\operatorname{arctanh}(x)}}{\sqrt{-x^2+1}\,(x+1)} e^{-\frac{2^{1+\operatorname{arctanh}(x)}-2}{\ln(2)}}$$

Cumulative Distribution Function

$$F(x) = \int_0^x \frac{1+2^{1+\operatorname{arctanh}(t)}}{\sqrt{-t^2+1}\,(t+1)} e^{-\frac{2^{1+\operatorname{arctanh}(t)}-2}{\ln(2)}}\,dt$$

Inverse Cumulative Distribution Function

Survivor Function

$$S(x) = 1-\int_0^x \frac{1+2^{1+\operatorname{arctanh}(t)}}{\sqrt{-t^2+1}\,(t+1)} e^{-\frac{2^{1+\operatorname{arctanh}(t)}-2}{\ln(2)}}\,dt$$

Hazard Function

$$h(x) = -\frac{1+2^{1+\operatorname{arctanh}(x)}}{\sqrt{-x^2+1}\,(x+1)} e^{-\frac{2^{1+\operatorname{arctanh}(x)}-2}{\ln(2)}} \left(-1+e^{2\,(\ln(2))^{-1}} \int_0^x \frac{1+2^{1+\operatorname{arctanh}(t)}}{\sqrt{-t^2+1}\,(t+1)} e^{-\frac{2^{1+\operatorname{arctanh}(t)}}{\ln(2)}}\,dt\right)$$

Mean

$$mu = \int_0^1 \frac{x\left(1+2^{1+\operatorname{arctanh}(x)}\right)}{\sqrt{-x^2+1}\,(x+1)} e^{-\frac{2^{1+\operatorname{arctanh}(x)}-2}{\ln(2)}}\,dx$$

Variance

$$sigma^2 = \int_0^1 \frac{x^2\left(1+2^{1+\operatorname{arctanh}(x)}\right)}{\sqrt{-x^2+1}\,(x+1)} e^{-\frac{2^{1+\operatorname{arctanh}(x)}-2}{\ln(2)}}\,dx - \left(\int_0^1 \frac{x\left(e^{(\ln(2))^{-1}}\right)^2\left(1+2\,2^{\operatorname{arctanh}(x)}\right)}{\sqrt{-x^2+1}\,(x+1)} \left(e^{\frac{2^{\mathrm{arc}}}{\mathrm{l}}}\right.\right.$$

Moment Function

$$m(x) = \int_0^1 \frac{x^r\left(1+2^{1+\operatorname{arctanh}(x)}\right)}{\sqrt{-x^2+1}\,(x+1)} e^{-\frac{2^{1+\operatorname{arctanh}(x)}-2}{\ln(2)}}\,dx$$

Moment Generating Function

$$\int_0^1 \frac{1+2^{1+\operatorname{arctanh}(x)}}{\sqrt{-x^2+1}\,(x+1)} \mathrm{e}^{\frac{tx\ln(2)-2^{1+\operatorname{arctanh}(x)}+2}{\ln(2)}}\,\mathrm{d}x_1$$

---

$$t \mapsto \sinh(t)$$

Probability Distribution Function

$$f(x) = \frac{1+2^{1+\operatorname{arcsinh}(x)}}{\sqrt{x^2+1}\left(x+\sqrt{x^2+1}\right)} \mathrm{e}^{-\frac{2^{1+\operatorname{arcsinh}(x)}-2}{\ln(2)}}$$

Cumulative Distribution Function

$$F(x) = \int_0^x \frac{1+2^{1+\operatorname{arcsinh}(t)}}{\sqrt{t^2+1}\left(t+\sqrt{t^2+1}\right)} \mathrm{e}^{-\frac{2^{1+\operatorname{arcsinh}(t)}-2}{\ln(2)}}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function

Survivor Function

$$S(x) = 1 - \int_0^x \frac{1+2^{1+\operatorname{arcsinh}(t)}}{\sqrt{t^2+1}\left(t+\sqrt{t^2+1}\right)} \mathrm{e}^{-\frac{2^{1+\operatorname{arcsinh}(t)}-2}{\ln(2)}}\,\mathrm{d}t$$

Hazard Function

$$h(x) = -\frac{1+2^{1+\operatorname{arcsinh}(x)}}{\sqrt{x^2+1}\left(x+\sqrt{x^2+1}\right)} \mathrm{e}^{-\frac{2^{1+\operatorname{arcsinh}(x)}-2}{\ln(2)}} \left(-1+\mathrm{e}^{2\,(\ln(2))^{-1}} \int_0^x \frac{1+2^{1+\operatorname{arcsinh}(t)}}{\sqrt{t^2+1}\left(t+\sqrt{t^2+1}\right)} \mathrm{e}^{-\frac{2^{1+\mathrm{a}}}{}}\right.$$

Mean

$$mu = \int_0^\infty \frac{x\left(1+2^{1+\operatorname{arcsinh}(x)}\right)}{\sqrt{x^2+1}\left(x+\sqrt{x^2+1}\right)} \mathrm{e}^{-\frac{2^{1+\operatorname{arcsinh}(x)}-2}{\ln(2)}}\,\mathrm{d}x$$

Variance

$$sigma^2 = \int_0^\infty \frac{x^2\left(1+2^{1+\operatorname{arcsinh}(x)}\right)}{\sqrt{x^2+1}\left(x+\sqrt{x^2+1}\right)} \mathrm{e}^{-\frac{2^{1+\operatorname{arcsinh}(x)}-2}{\ln(2)}}\,\mathrm{d}x - \left(\left(\int_0^\infty \frac{x\left(\mathrm{e}^{(\ln(2))^{-1}}\right)^2\left(1+2\,2^{\operatorname{arcsinh}(x)}\right)}{\sqrt{x^2+1}\left(x+\sqrt{x^2+1}\right)} \left(\right.\right.\right.$$

Moment Function

$$m(x) = \int_0^\infty \frac{x^r\left(1+2^{1+\operatorname{arcsinh}(x)}\right)}{\sqrt{x^2+1}\left(x+\sqrt{x^2+1}\right)} \mathrm{e}^{-\frac{2^{1+\operatorname{arcsinh}(x)}-2}{\ln(2)}}\,\mathrm{d}x$$

Moment Generating Function

$$\int_0^{\infty} \frac{1+2^{1+\operatorname{arcsinh}(x)}}{\sqrt{x^2+1}\left(x+\sqrt{x^2+1}\right)} \mathrm{e}^{\frac{tx\ln(2)-2^{1+\operatorname{arcsinh}(x)}+2}{\ln(2)}}\, \mathrm{d}x_1$$

---

$$t \mapsto \operatorname{arcsinh}(t)$$

Probability Distribution Function

$$f(x) = \left(1+2^{1+\sinh(x)}\right) \mathrm{e}^{-\frac{\sinh(x)\ln(2)+2^{1+\sinh(x)}-2}{\ln(2)}} \cosh(x)$$

Cumulative Distribution Function

$$F(x) = 1 - \mathrm{e}^{-1/2\, \frac{\mathrm{e}^{x}\ln(2)-\mathrm{e}^{-x}\ln(2)+2^{2-1/2\,\mathrm{e}^{-x}+1/2\,\mathrm{e}^{x}}-4}{\ln(2)}}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \mathit{RootOf}\left(-1+\mathrm{e}^{1/2\, \frac{-\mathrm{e}^{-Z}\ln(2)-2^{2-1/2\,\mathrm{e}^{-\_Z}+1/2\,\mathrm{e}^{-Z}}+4+\mathrm{e}^{-\_Z}\ln(2)}{\ln(2)}}+s\right)]$$

Survivor Function

$$S(x) = \mathrm{e}^{1/2\, \frac{-\mathrm{e}^{x}\ln(2)-2^{2-1/2\,\mathrm{e}^{-x}+1/2\,\mathrm{e}^{x}}+4+\mathrm{e}^{-x}\ln(2)}{\ln(2)}}$$

Hazard Function

$$h(x) = \cosh(x)\, \mathrm{e}^{-1/2\, \frac{\mathrm{e}^{-x}\ln(2)-\mathrm{e}^{x}\ln(2)+2\,\sinh(x)\ln(2)-2\,2^{1-1/2\,\mathrm{e}^{-x}+1/2\,\mathrm{e}^{x}}+2\,2^{1+\sinh(x)}}{\ln(2)}} \left(1+2^{1+\sinh(x)}\right)$$

Mean

$$mu = "UnabletofindMean"$$

$$Variance$$

sigma$^2$ = "$UnabletofindVariance$"

Moment Function

$$m(x) = \int_0^{\infty} x^r \left(1+2^{1+\sinh(x)}\right) \mathrm{e}^{-\frac{\sinh(x)\ln(2)+2^{1+\sinh(x)}-2}{\ln(2)}} \cosh(x)\, \mathrm{d}x$$

Moment Generating Function

$$\int_0^{\infty} \mathrm{e}^{-\frac{-tx\ln(2)+\sinh(x)\ln(2)+2^{1+\sinh(x)}-2}{\ln(2)}} \cosh(x)\left(1+2^{1+\sinh(x)}\right)\,\mathrm{d}x_1$$

---

$$t \mapsto \operatorname{csch}(t+1)$$

Probability Distribution Function

$$f(x) = \frac{signum\,(x)\left(1+2^{\operatorname{arccsch}(x)}\right)}{\sqrt{x^2+1}\left(\sqrt{x^2+1}signum\,(x)+1\right)}\mathrm{e}^{\frac{\ln(2)-2^{\operatorname{arccsch}(x)}+2}{\ln(2)}}$$

Cumulative Distribution Function

$$F(x) = \int_0^x \frac{signum\,(t)\left(1+2^{\operatorname{arccsch}(t)}\right)}{\sqrt{t^2+1}\left(\sqrt{t^2+1}signum\,(t)+1\right)}\mathrm{e}^{\frac{\ln(2)-2^{\operatorname{arccsch}(t)}+2}{\ln(2)}}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function

$$F^{-1} = "UnabletofindIDF"$$

Survivor Function

$$S(x) = 1 - \int_0^x \frac{signum\,(t)\left(1+2^{\operatorname{arccsch}(t)}\right)}{\sqrt{t^2+1}\left(\sqrt{t^2+1}signum\,(t)+1\right)}\mathrm{e}^{\frac{\ln(2)-2^{\operatorname{arccsch}(t)}+2}{\ln(2)}}\,\mathrm{d}t$$

Hazard Function

$$h(x) = -\frac{signum\,(x)\left(1+2^{\operatorname{arccsch}(x)}\right)}{\sqrt{x^2+1}\left(\sqrt{x^2+1}signum\,(x)+1\right)}\mathrm{e}^{\frac{\ln(2)-2^{\operatorname{arccsch}(x)}+2}{\ln(2)}}\left(-1+\mathrm{e}^{1+2\,(\ln(2))^{-1}}\int_0^x \frac{signum\,(t)}{\sqrt{t^2+1}\left(\sqrt{t^2\right.}}\right.$$

Mean

$$mu = \int_0^{2^{\frac{\mathrm{e}}{\mathrm{e}^2-1}}} \frac{x\left(1+2^{\operatorname{arccsch}(x)}\right)}{\sqrt{x^2+1}\left(\sqrt{x^2+1}+1\right)}\mathrm{e}^{\frac{\ln(2)-2^{\operatorname{arccsch}(x)}+2}{\ln(2)}}\,\mathrm{d}x$$

Variance

$$sigma^2 = \int_0^{2^{\frac{\mathrm{e}}{\mathrm{e}^2-1}}} \frac{x^2\left(1+2^{\operatorname{arccsch}(x)}\right)}{\sqrt{x^2+1}\left(\sqrt{x^2+1}+1\right)}\mathrm{e}^{\frac{\ln(2)-2^{\operatorname{arccsch}(x)}+2}{\ln(2)}}\,\mathrm{d}x - \left(\int_0^{2^{\frac{\mathrm{e}}{\mathrm{e}^2-1}}} \frac{x\left(1+2^{\operatorname{arccsch}(x)}\right)}{\sqrt{x^2+1}\left(\sqrt{x^2+1}+1\right)}\mathrm{e}\right.$$

Moment Function

$$m(x) = \int_0^{2\left(\mathrm{e}-\mathrm{e}^{-1}\right)^{-1}} \frac{x^r \, signum\,(x) \left(1 + 2^{\mathrm{arccsch}(x)}\right)}{\sqrt{x^2+1}\left(\sqrt{x^2+1}\, signum\,(x) + 1\right)} \mathrm{e}^{\frac{\ln(2) - 2^{\mathrm{arccsch}(x)} + 2}{\ln(2)}} \, \mathrm{d}x$$

Moment Generating Function

$$\int_0^{2\,\frac{\mathrm{e}}{\mathrm{e}^2-1}} \frac{1 + 2^{\mathrm{arccsch}(x)}}{\sqrt{x^2+1}\left(\sqrt{x^2+1} + 1\right)} \mathrm{e}^{\frac{tx\ln(2) + \ln(2) - 2^{\mathrm{arccsch}(x)} + 2}{\ln(2)}} \, \mathrm{d}x_1$$

---

$$t \mapsto \mathrm{arccsch}\,(t+1)$$

Probability Distribution Function

$$f(x) = \frac{\left(1 + 2^{(\sinh(x))^{-1}}\right)\cosh(x)}{(\sinh(x))^2} \mathrm{e}^{\frac{-\ln(2) + \sinh(x)\ln(2) - 2^{(\sinh(x))^{-1}}\sinh(x) + 2\sinh(x)}{\sinh(x)\ln(2)}}$$

Cumulative Distribution Function

$$F(x) = \mathrm{e}^{\frac{1}{\ln(2)\left(\mathrm{e}^{2x}-1\right)}\left(-\mathrm{e}^{2x} 4^{\frac{\mathrm{e}^x}{\mathrm{e}^{2x}-1}} + \mathrm{e}^{2x}\ln(2) + 4^{\frac{\mathrm{e}^x}{\mathrm{e}^{2x}-1}} - 2\,\mathrm{e}^x\ln(2) + 2\,\mathrm{e}^{2x} - \ln(2) - 2\right)}$$

Inverse Cumulative Distribution Function

$$F^{-1} = []$$

Survivor Function

$$S(x) = 1 - \mathrm{e}^{\frac{1}{\ln(2)\left(\mathrm{e}^{2x}-1\right)}\left(-\mathrm{e}^{2x} 4^{\frac{\mathrm{e}^x}{\mathrm{e}^{2x}-1}} + \mathrm{e}^{2x}\ln(2) + 4^{\frac{\mathrm{e}^x}{\mathrm{e}^{2x}-1}} - 2\,\mathrm{e}^x\ln(2) + 2\,\mathrm{e}^{2x} - \ln(2) - 2\right)}$$

Hazard Function

$$h(x) = \frac{\cosh(x)\left(1 + 2^{(\sinh(x))^{-1}}\right)}{(\sinh(x))^2} \mathrm{e}^{\frac{1}{\ln(2)\left(\mathrm{e}^{2x}-1\right)\sinh(x)}\left(2\,\mathrm{e}^x\ln(2)\sinh(x) + \sinh(x)\ln(2)\mathrm{e}^{2x} + \mathrm{e}^{2x} 4^{\frac{\mathrm{e}^x}{\mathrm{e}^{2x}-1}}\sinh(x) - 2^{(\sinh(}\right.}$$

Mean

$$mu = \int_0^{\ln\left(1+\sqrt{2}\right)} \frac{x\left(1 + 2^{(\sinh(x))^{-1}}\right)\cosh(x)}{(\sinh(x))^2} \mathrm{e}^{\frac{-\ln(2) + \sinh(x)\ln(2) - 2^{(\sinh(x))^{-1}}\sinh(x) + 2\sinh(x)}{\sinh(x)\ln(2)}} \, \mathrm{d}x$$

Variance

$$sigma^2 = \int_0^{\ln\left(1+\sqrt{2}\right)} \frac{x^2 \left(1+2^{(\sinh(x))^{-1}}\right)\cosh(x)}{(\sinh(x))^2} e^{\frac{-\ln(2)+\sinh(x)\ln(2)-2^{(\sinh(x))^{-1}}\sinh(x)+2\sinh(x)}{\sinh(x)\ln(2)}}\,dx - \left(\int_0^{\ln(}\right.$$

Moment Function

$$m(x) = \int_0^{\ln\left(1+\sqrt{2}\right)} \frac{x^r \left(1+2^{(\sinh(x))^{-1}}\right)\cosh(x)}{(\sinh(x))^2} e^{\frac{-\ln(2)+\sinh(x)\ln(2)-2^{(\sinh(x))^{-1}}\sinh(x)+2\sinh(x)}{\sinh(x)\ln(2)}}\,dx$$

Moment Generating Function

$$\int_0^{\ln\left(1+\sqrt{2}\right)} \frac{\cosh(x)\left(1+2^{(\sinh(x))^{-1}}\right)}{(\sinh(x))^2} e^{\frac{tx\sinh(x)\ln(2)+\sinh(x)\ln(2)-2^{(\sinh(x))^{-1}}\sinh(x)-\ln(2)+2\sinh(x)}{\sinh(x)\ln(2)}}\,dx_1$$

---

$$t \mapsto (\tanh(t+1))^{-1}$$

Probability Distribution Function

$$f(x) = \frac{signum(x)\left(1+2^{\operatorname{arctanh}\left(x^{-1}\right)}\right)}{\sqrt{x^2-1}\,(x+1)} e^{\frac{\ln(2)-2^{\operatorname{arctanh}\left(x^{-1}\right)}+2}{\ln(2)}}$$

Cumulative Distribution Function

$$F(x) = \int_1^x \frac{signum(t)\left(1+2^{\operatorname{arctanh}\left(t^{-1}\right)}\right)}{\sqrt{t^2-1}\,(t+1)} e^{\frac{\ln(2)-2^{\operatorname{arctanh}\left(t^{-1}\right)}+2}{\ln(2)}}\,dt$$

Inverse Cumulative Distribution Function

$$F^{-1} = "UnabletofindIDF"$$

Survivor Function

$$S(x) = 1 - \int_1^x \frac{signum(t)\left(1+2^{\operatorname{arctanh}\left(t^{-1}\right)}\right)}{\sqrt{t^2-1}\,(t+1)} e^{\frac{\ln(2)-2^{\operatorname{arctanh}\left(t^{-1}\right)}+2}{\ln(2)}}\,dt$$

Hazard Function

$$h(x) = -\frac{\mathit{signum}\,(x)\left(1+2^{\operatorname{arctanh}\left(x^{-1}\right)}\right)}{\sqrt{x^2-1}\,(x+1)}\mathrm{e}^{\frac{\ln(2)-2^{\operatorname{arctanh}\left(x^{-1}\right)}+2}{\ln(2)}}\left(-1+\mathrm{e}^{1+2\,(\ln(2))^{-1}}\int_1^x \frac{\mathit{signum}\,(t)\left(1+\right.}{\sqrt{t^2-1}}\right.$$

Mean

$$mu = \int_1^{\frac{\mathrm{e}^2+1}{\mathrm{e}^2-1}} \frac{x\left(1+2^{\operatorname{arctanh}\left(x^{-1}\right)}\right)}{\sqrt{x^2-1}\,(x+1)}\mathrm{e}^{\frac{\ln(2)-2^{\operatorname{arctanh}\left(x^{-1}\right)}+2}{\ln(2)}}\,\mathrm{d}x$$

Variance

$$sigma^2 = \int_1^{\frac{\mathrm{e}^2+1}{\mathrm{e}^2-1}} \frac{x^2\left(1+2^{\operatorname{arctanh}\left(x^{-1}\right)}\right)}{\sqrt{x^2-1}\,(x+1)}\mathrm{e}^{\frac{\ln(2)-2^{\operatorname{arctanh}\left(x^{-1}\right)}+2}{\ln(2)}}\,\mathrm{d}x - \left(\left(\int_1^{\frac{\mathrm{e}^2+1}{\mathrm{e}^2-1}} \frac{x\left(1+2^{\operatorname{arctanh}\left(x^{-1}\right)}\right)}{\sqrt{x^2-1}\,(x+1)}\mathrm{e}^{\frac{\ln(2)-2}{}}\right.\right.$$

Moment Function

$$m(x) = \int_1^{\frac{\mathrm{e}+\mathrm{e}^{-1}}{\mathrm{e}-\mathrm{e}^{-1}}} \frac{x^r\,\mathit{signum}\,(x)\left(1+2^{\operatorname{arctanh}\left(x^{-1}\right)}\right)}{\sqrt{x^2-1}\,(x+1)}\mathrm{e}^{\frac{\ln(2)-2^{\operatorname{arctanh}\left(x^{-1}\right)}+2}{\ln(2)}}\,\mathrm{d}x$$

Moment Generating Function

$$\int_1^{\frac{\mathrm{e}^2+1}{\mathrm{e}^2-1}} \frac{1+2^{\operatorname{arctanh}\left(x^{-1}\right)}}{\sqrt{x^2-1}\,(x+1)}\mathrm{e}^{\frac{tx\ln(2)+\ln(2)-2^{\operatorname{arctanh}\left(x^{-1}\right)}+2}{\ln(2)}}\,\mathrm{d}x_1$$

---

$$t \mapsto (\sinh(t+1))^{-1}$$

Probability Distribution Function

$$f(x) = \frac{\mathit{signum}\,(x)\left(1+2^{\operatorname{arcsinh}\left(x^{-1}\right)}\right)}{\sqrt{x^2+1}\left(\sqrt{x^2+1}\,\mathit{signum}\,(x)+1\right)}\mathrm{e}^{\frac{\ln(2)-2^{\operatorname{arcsinh}\left(x^{-1}\right)}+2}{\ln(2)}}$$

Cumulative Distribution Function

$$F(x) = \int_0^x \frac{\mathit{signum}\,(t)\left(1+2^{\operatorname{arcsinh}\left(t^{-1}\right)}\right)}{\sqrt{t^2+1}\left(\sqrt{t^2+1}\,\mathit{signum}\,(t)+1\right)}\mathrm{e}^{\frac{\ln(2)-2^{\operatorname{arcsinh}\left(t^{-1}\right)}+2}{\ln(2)}}\,\mathrm{d}t$$

Inverse Cumulative Distribution Function

$$F^{-1} = "UnabletofindIDF"$$

Survivor Function

$$S(x) = 1 - \int_0^x \frac{signum\,(t)\left(1 + 2^{\mathrm{arcsinh}\left(t^{-1}\right)}\right)}{\sqrt{t^2+1}\left(\sqrt{t^2+1}signum\,(t)+1\right)} \mathrm{e}^{\frac{\ln(2)-2^{\mathrm{arcsinh}\left(t^{-1}\right)}+2}{\ln(2)}}\,\mathrm{d}t$$

Hazard Function

$$h(x) = -\frac{signum\,(x)\left(1 + 2^{\mathrm{arcsinh}\left(x^{-1}\right)}\right)}{\sqrt{x^2+1}\left(\sqrt{x^2+1}signum\,(x)+1\right)} \mathrm{e}^{\frac{\ln(2)-2^{\mathrm{arcsinh}\left(x^{-1}\right)}+2}{\ln(2)}} \left(-1 + \mathrm{e}^{1+2\,(\ln(2))^{-1}} \int_0^x \frac{signum\,(t}{\sqrt{t^2+1}\,(\sqrt{}}\right.$$

Mean

$$mu = \int_0^{2\,\frac{\mathrm{e}}{\mathrm{e}^2-1}} \frac{x\left(1 + 2^{\mathrm{arcsinh}\left(x^{-1}\right)}\right)}{\sqrt{x^2+1}\left(\sqrt{x^2+1}+1\right)} \mathrm{e}^{\frac{\ln(2)-2^{\mathrm{arcsinh}\left(x^{-1}\right)}+2}{\ln(2)}}\,\mathrm{d}x$$

Variance

$$sigma^2 = \int_0^{2\,\frac{\mathrm{e}}{\mathrm{e}^2-1}} \frac{x^2\left(1 + 2^{\mathrm{arcsinh}\left(x^{-1}\right)}\right)}{\sqrt{x^2+1}\left(\sqrt{x^2+1}+1\right)} \mathrm{e}^{\frac{\ln(2)-2^{\mathrm{arcsinh}\left(x^{-1}\right)}+2}{\ln(2)}}\,\mathrm{d}x - \left(\int_0^{2\,\frac{\mathrm{e}}{\mathrm{e}^2-1}} \frac{x\left(1 + 2^{\mathrm{arcsinh}\left(x^{-1}\right)}\right)}{\sqrt{x^2+1}\left(\sqrt{x^2+1}+1\right)}\right.$$

Moment Function

$$m(x) = \int_0^{2\left(\mathrm{e}-\mathrm{e}^{-1}\right)^{-1}} \frac{x^r\,signum\,(x)\left(1 + 2^{\mathrm{arcsinh}\left(x^{-1}\right)}\right)}{\sqrt{x^2+1}\left(\sqrt{x^2+1}signum\,(x)+1\right)} \mathrm{e}^{\frac{\ln(2)-2^{\mathrm{arcsinh}\left(x^{-1}\right)}+2}{\ln(2)}}\,\mathrm{d}x$$

Moment Generating Function

$$\int_0^{2\,\frac{\mathrm{e}}{\mathrm{e}^2-1}} \frac{1 + 2^{\mathrm{arcsinh}\left(x^{-1}\right)}}{\sqrt{x^2+1}\left(\sqrt{x^2+1}+1\right)} \mathrm{e}^{\frac{tx\ln(2)+\ln(2)-2^{\mathrm{arcsinh}\left(x^{-1}\right)}+2}{\ln(2)}}\,\mathrm{d}x_1$$

---

$$t \mapsto \left(\mathrm{arcsinh}\,(t+1)\right)^{-1}$$

Probability Distribution Function

$$f(x) = \frac{\left(1+2^{\sinh\left(x^{-1}\right)}\right)\cosh\left(x^{-1}\right)}{x^2}\mathrm{e}^{-\frac{\sinh\left(x^{-1}\right)\ln(2)-\ln(2)+2^{\sinh\left(x^{-1}\right)}-2}{\ln(2)}}$$

Cumulative Distribution Function

$$F(x) = \mathrm{e}^{-1/2\,\frac{1}{\ln(2)}\left(\mathrm{e}^{x^{-1}}\ln(2)-\ln(2)\mathrm{e}^{-x^{-1}}-2\,\ln(2)+2^{1+1/2\,\mathrm{e}^{x^{-1}}-1/2\,\mathrm{e}^{-x^{-1}}}-4\right)}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \mathit{RootOf}\left(-\mathrm{e}^{-1/2\,\frac{1}{\ln(2)}\left(\mathrm{e}^{-Z^{-1}}\ln(2)-\ln(2)\mathrm{e}^{--Z^{-1}}-2\,\ln(2)+2^{1+1/2\,\mathrm{e}^{-Z^{-1}}-1/2\,\mathrm{e}^{--Z^{-1}}}-4\right)}+s\right)]$$

Survivor Function

$$S(x) = 1-\mathrm{e}^{-1/2\,\frac{1}{\ln(2)}\left(\mathrm{e}^{x^{-1}}\ln(2)-\ln(2)\mathrm{e}^{-x^{-1}}-2\,\ln(2)+2^{1+1/2\,\mathrm{e}^{x^{-1}}-1/2\,\mathrm{e}^{-x^{-1}}}-4\right)}$$

Hazard Function

$$h(x) = -\frac{\left(1+2^{\sinh\left(x^{-1}\right)}\right)\cosh\left(x^{-1}\right)}{x^2}\mathrm{e}^{-\frac{1}{\ln(2)}\left(\sinh\left(x^{-1}\right)\ln(2)-\ln(2)-2^{1/2\,\mathrm{e}^{x^{-1}}-1/2\,\mathrm{e}^{-x^{-1}}}+2^{\sinh\left(x^{-1}\right)}-2\right)}\left(\mathrm{e}^{-1/2}\right.$$

Mean

$$mu = \int_0^{\left(\ln\left(1+\sqrt{2}\right)\right)^{-1}}\frac{\left(1+2^{\sinh\left(x^{-1}\right)}\right)\cosh\left(x^{-1}\right)}{x}\mathrm{e}^{-\frac{\sinh\left(x^{-1}\right)\ln(2)-\ln(2)+2^{\sinh\left(x^{-1}\right)}-2}{\ln(2)}}\,\mathrm{d}x$$

Variance

$$sigma^2 = \int_0^{\left(\ln\left(1+\sqrt{2}\right)\right)^{-1}}\left(1+2^{\sinh\left(x^{-1}\right)}\right)\mathrm{e}^{-\frac{\sinh\left(x^{-1}\right)\ln(2)-\ln(2)+2^{\sinh\left(x^{-1}\right)}-2}{\ln(2)}}\cosh\left(x^{-1}\right)\,\mathrm{d}x-\left(\int_0^{\left(\ln\left(1+\sqrt{\right.\right.}}\right.$$

Moment Function

$$m(x) = \int_0^{\left(\ln\left(1+\sqrt{2}\right)\right)^{-1}}\frac{x^r\left(1+2^{\sinh\left(x^{-1}\right)}\right)\cosh\left(x^{-1}\right)}{x^2}\mathrm{e}^{-\frac{\sinh\left(x^{-1}\right)\ln(2)-\ln(2)+2^{\sinh\left(x^{-1}\right)}-2}{\ln(2)}}\,\mathrm{d}x$$

Moment Generating Function

$$\int_0^{\left(\ln\left(1+\sqrt{2}\right)\right)^{-1}} \frac{\left(1+2^{\sinh\left(x^{-1}\right)}\right)\cosh\left(x^{-1}\right)}{x^2} e^{-\frac{-tx\ln(2)+\sinh\left(x^{-1}\right)\ln(2)-\ln(2)+2^{\sinh\left(x^{-1}\right)}-2}{\ln(2)}}\,dx_1$$

$$t \mapsto \left(\operatorname{csch}(t)\right)^{-1}+1$$

Probability Distribution Function

$$f(x) = \frac{1+2^{1+\operatorname{arccsch}\left((x-1)^{-1}\right)}}{\sqrt{x^2-2x+2}\left(x-1+\sqrt{x^2-2x+2}\right)} e^{-\frac{2^{1+\operatorname{arccsch}\left((x-1)^{-1}\right)}-2}{\ln(2)}}$$

Cumulative Distribution Function

$$F(x) = \int_1^x \frac{1+2^{1+\operatorname{arccsch}\left((t-1)^{-1}\right)}}{\sqrt{t^2-2t+2}\left(t-1+\sqrt{t^2-2t+2}\right)} e^{-\frac{2^{1+\operatorname{arccsch}\left((t-1)^{-1}\right)}-2}{\ln(2)}}\,dt$$

Inverse Cumulative Distribution Function

$$F^{-1} = "Unabletofind IDF"$$

Survivor Function

$$S(x) = 1-\int_1^x \frac{1+2^{1+\operatorname{arccsch}\left((t-1)^{-1}\right)}}{\sqrt{t^2-2t+2}\left(t-1+\sqrt{t^2-2t+2}\right)} e^{-\frac{2^{1+\operatorname{arccsch}\left((t-1)^{-1}\right)}-2}{\ln(2)}}\,dt$$

Hazard Function

$$h(x) = -\frac{1+2^{1+\operatorname{arccsch}\left((x-1)^{-1}\right)}}{\sqrt{x^2-2x+2}\left(x-1+\sqrt{x^2-2x+2}\right)} e^{-\frac{2^{1+\operatorname{arccsch}\left((x-1)^{-1}\right)}-2}{\ln(2)}} \left(-1+e^{2\,(\ln(2))^{-1}}\int_1^x \frac{}{\sqrt{t^2-}}\right.$$

Mean

$$mu = \int_1^\infty \frac{x\left(1+2^{1+\operatorname{arccsch}\left((x-1)^{-1}\right)}\right)}{\sqrt{x^2-2x+2}\left(x-1+\sqrt{x^2-2x+2}\right)} e^{-\frac{2^{1+\operatorname{arccsch}\left((x-1)^{-1}\right)}-2}{\ln(2)}}\,dx$$

Variance

$$sigma^2 = \int_1^\infty \frac{x^2\left(1+2^{1+\operatorname{arccsch}\left((x-1)^{-1}\right)}\right)}{\sqrt{x^2-2x+2}\left(x-1+\sqrt{x^2-2x+2}\right)} e^{-\frac{2^{1+\operatorname{arccsch}\left((x-1)^{-1}\right)}-2}{\ln(2)}}\,dx - \left(\int_1^\infty \frac{x\left(e^{(\ln(2))^{-}}\right.}{\sqrt{x^2-2x-}}\right.$$

Moment Function

$$m(x) = \int_1^{\infty} \frac{x^r \left(1 + 2^{1+\operatorname{arccsch}\left((x-1)^{-1}\right)}\right)}{\sqrt{x^2 - 2\,x + 2}\left(x - 1 + \sqrt{x^2 - 2\,x + 2}\right)} \mathrm{e}^{-\frac{2^{1+\operatorname{arccsch}\left((x-1)^{-1}\right)}-2}{\ln(2)}}\, \mathrm{d}x$$

Moment Generating Function

$$\int_1^{\infty} \frac{1 + 2^{1+\operatorname{arccsch}\left((x-1)^{-1}\right)}}{\sqrt{x^2 - 2\,x + 2}\left(x - 1 + \sqrt{x^2 - 2\,x + 2}\right)} \mathrm{e}^{\frac{tx\ln(2)-2^{1+\operatorname{arccsch}\left((x-1)^{-1}\right)}+2}{\ln(2)}}\, \mathrm{d}x_1$$

$$t \mapsto \tanh\left(t^{-1}\right)$$

Probability Distribution Function

$$f(x) = -\frac{1}{\left(\operatorname{arctanh}(x)\right)^2 \left(x^2 - 1\right)} \mathrm{e}^{-\frac{1}{\operatorname{arctanh}(x)\ln(2)}\left(\operatorname{arctanh}(x) 2^{\frac{1+\operatorname{arctanh}(x)}{\operatorname{arctanh}(x)}}+\ln(2)-2\operatorname{arctanh}(x)\right)} \left(1 + 2^{\frac{1+\operatorname{arctanh}(x)}{\operatorname{arctanh}(x)}} \right.$$

Cumulative Distribution Function

$$F(x) = (1-x)^{\frac{1}{(\ln(x+1)-\ln(1-x))\ln(2)}\left((x+1)^{\frac{\ln(2)}{\ln(x+1)-\ln(1-x)}}(1-x)^{-\frac{\ln(2)}{\ln(x+1)-\ln(1-x)}}4^{(\ln(x+1)-\ln(1-x))^{-1}}-2\right)} (x+1)^{-}$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \mathit{RootOf}\left(-(1-\_Z)^{\frac{1}{(\ln(1+\_Z)-\ln(1-\_Z))\ln(2)}\left((1+\_Z)^{\frac{\ln(2)}{\ln(1+\_Z)-\ln(1-\_Z)}}(1-\_Z)^{-\frac{\ln(2)}{\ln(1+\_Z)-\ln(1-\_Z)}}4^{(\ln} \right.} \right.$$

Survivor Function

$$S(x) = 1-(1-x)^{\frac{1}{(\ln(x+1)-\ln(1-x))\ln(2)}\left((x+1)^{\frac{\ln(2)}{\ln(x+1)-\ln(1-x)}}(1-x)^{-\frac{\ln(2)}{\ln(x+1)-\ln(1-x)}}4^{(\ln(x+1)-\ln(1-x))^{-1}}-2\right)} (x+1)$$

Hazard Function

$$h(x) = \frac{1}{\left(\operatorname{arctanh}(x)\right)^2 \left(x^2 - 1\right)} (x+1)^{-\frac{1}{(\ln(x+1)-\ln(1-x))\ln(2)\operatorname{arctanh}(x)}\left(-(x+1)^{\frac{\ln(2)}{\ln(x+1)-\ln(1-x)}}(1-x)^{-\frac{\ln(2)}{\ln(x+1)-\ln(1-}} \right.}$$

Mean

$$mu = -\int_0^1 \frac{x}{\left(\operatorname{arctanh}(x)\right)^2 (x^2-1)} \mathrm{e}^{-\frac{1}{\operatorname{arctanh}(x)\ln(2)}\left(\operatorname{arctanh}(x) 2^{\frac{1+\operatorname{arctanh}(x)}{\operatorname{arctanh}(x)}}+\ln(2)-2\operatorname{arctanh}(x)\right)} \left(1+2^{\frac{1+\operatorname{arcta}}{\operatorname{arctan}}}\right.$$

Variance

$$sigma^2 = -\int_0^1 \frac{x^2}{\left(\operatorname{arctanh}(x)\right)^2 (x^2-1)} \mathrm{e}^{-\frac{1}{\operatorname{arctanh}(x)\ln(2)}\left(\operatorname{arctanh}(x) 2^{\frac{1+\operatorname{arctanh}(x)}{\operatorname{arctanh}(x)}}+\ln(2)-2\operatorname{arctanh}(x)\right)} \left(1+2^{\frac{1-}{}}\right.$$

Moment Function

$$m(x) = \int_0^1 -\frac{x^r}{\left(\operatorname{arctanh}(x)\right)^2 (x^2-1)} \mathrm{e}^{-\frac{1}{\operatorname{arctanh}(x)\ln(2)}\left(\operatorname{arctanh}(x) 2^{\frac{1+\operatorname{arctanh}(x)}{\operatorname{arctanh}(x)}}+\ln(2)-2\operatorname{arctanh}(x)\right)} \left(1+2^{\frac{1+\operatorname{arc}}{\operatorname{arct}}}\right.$$

Moment Generating Function

$$-\int_0^1 \frac{1}{\left(\operatorname{arctanh}(x)\right)^2 (x^2-1)} \mathrm{e}^{\frac{1}{\operatorname{arctanh}(x)\ln(2)}\left(tx\operatorname{arctanh}(x)\ln(2)-\operatorname{arctanh}(x) 2^{\frac{1+\operatorname{arctanh}(x)}{\operatorname{arctanh}(x)}}-\ln(2)+2\operatorname{arctanh}(x)\right)} \left(1+\right.$$

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$$t \mapsto \operatorname{csch}\left(t^{-1}\right)$$

Probability Distribution Function

$$f(x) = \frac{1}{\sqrt{x^2+1}\left(\operatorname{arccsch}(x)\right)^2 |x|}\left(1+2^{\frac{\operatorname{arccsch}(x)+1}{\operatorname{arccsch}(x)}}\right)\mathrm{e}^{-\frac{1}{\operatorname{arccsch}(x)\ln(2)}\left(\operatorname{arccsch}(x) 2^{\frac{\operatorname{arccsch}(x)+1}{\operatorname{arccsch}(x)}}+\ln(2)-2\operatorname{arccsch}(\right.}$$

Cumulative Distribution Function

$$F(x) = \int_0^x \frac{1}{\sqrt{t^2+1}\left(\operatorname{arccsch}(t)\right)^2 |t|}\left(1+2^{\frac{\operatorname{arccsch}(t)+1}{\operatorname{arccsch}(t)}}\right)\mathrm{e}^{-\frac{1}{\operatorname{arccsch}(t)\ln(2)}\left(\operatorname{arccsch}(t) 2^{\frac{\operatorname{arccsch}(t)+1}{\operatorname{arccsch}(t)}}+\ln(2)-2\operatorname{arccsch}\right.}$$

Inverse Cumulative Distribution Function

$$F^{-1} = ''UnabletofindIDF''$$

Survivor Function

$$S(x) = 1-\int_0^x \frac{1}{\sqrt{t^2+1}\,(\operatorname{arccsch}(t))^2\,|t|}\left(1+2^{\frac{\operatorname{arccsch}(t)+1}{\operatorname{arccsch}(t)}}\right)\mathrm{e}^{-\frac{1}{\operatorname{arccsch}(t)\ln(2)}\left(\operatorname{arccsch}(t)2^{\frac{\operatorname{arccsch}(t)+1}{\operatorname{arccsch}(t)}}+\ln(2)-2\operatorname{arc}\right.}$$

Hazard Function

$$h(x) = -\frac{1}{\sqrt{x^2+1}\,(\operatorname{arccsch}(x))^2\,|x|}\left(1+2^{\frac{\operatorname{arccsch}(x)+1}{\operatorname{arccsch}(x)}}\right)\mathrm{e}^{-\frac{1}{\operatorname{arccsch}(x)\ln(2)}\left(\operatorname{arccsch}(x)2^{\frac{\operatorname{arccsch}(x)+1}{\operatorname{arccsch}(x)}}+\ln(2)-2\operatorname{arccsc}\right.}$$

Mean

$$mu = \int_0^\infty \frac{1}{\sqrt{x^2+1}\,(\operatorname{arccsch}(x))^2}\left(1+2^{\frac{\operatorname{arccsch}(x)+1}{\operatorname{arccsch}(x)}}\right)\mathrm{e}^{-\frac{1}{\operatorname{arccsch}(x)\ln(2)}\left(\operatorname{arccsch}(x)2^{\frac{\operatorname{arccsch}(x)+1}{\operatorname{arccsch}(x)}}+\ln(2)-2\operatorname{arccsch}(\right.}$$

Variance

$$sigma^2 = \int_0^\infty \frac{x}{\sqrt{x^2+1}\,(\operatorname{arccsch}(x))^2}\left(1+2^{\frac{\operatorname{arccsch}(x)+1}{\operatorname{arccsch}(x)}}\right)\mathrm{e}^{-\frac{1}{\operatorname{arccsch}(x)\ln(2)}\left(\operatorname{arccsch}(x)2^{\frac{\operatorname{arccsch}(x)+1}{\operatorname{arccsch}(x)}}+\ln(2)-2\operatorname{arc}\right.}$$

Moment Function

$$m(x) = \int_0^\infty \frac{x^r}{\sqrt{x^2+1}\,(\operatorname{arccsch}(x))^2\,|x|}\left(1+2^{\frac{\operatorname{arccsch}(x)+1}{\operatorname{arccsch}(x)}}\right)\mathrm{e}^{-\frac{1}{\operatorname{arccsch}(x)\ln(2)}\left(\operatorname{arccsch}(x)2^{\frac{\operatorname{arccsch}(x)+1}{\operatorname{arccsch}(x)}}+\ln(2)-2\operatorname{ar}\right.}$$

Moment Generating Function

$$\int_0^\infty \frac{1}{\sqrt{x^2+1}\,(\operatorname{arccsch}(x))^2\,x}\left(1+2^{\frac{\operatorname{arccsch}(x)+1}{\operatorname{arccsch}(x)}}\right)\mathrm{e}^{\frac{1}{\operatorname{arccsch}(x)\ln(2)}\left(tx\operatorname{arccsch}(x)\ln(2)-\operatorname{arccsch}(x)2^{\frac{\operatorname{arccsch}(x)+1}{\operatorname{arccsch}(x)}}-\ln(2)+\right.}$$

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$$t \mapsto \operatorname{arccsch}\left(t^{-1}\right)$$

Probability Distribution Function

$$f(x) = \left(1+2^{1+\sinh(x)}\right)\mathrm{e}^{-\frac{\sinh(x)\ln(2)+2^{1+\sinh(x)}-2}{\ln(2)}}\cosh(x)$$

Cumulative Distribution Function

$$F(x) = -\mathrm{e}^{-1/2\,\frac{\mathrm{e}^{x}\ln(2)-\mathrm{e}^{-x}\ln(2)+2^{2-1/2\,\mathrm{e}^{-x}+1/2\,\mathrm{e}^{x}}-4}{\ln(2)}} + 1$$

Inverse Cumulative Distribution Function

$$F^{-1} = [s \mapsto \mathit{RootOf}\left(\mathrm{e}^{1/2\,\frac{-\mathrm{e}^{-Z}\ln(2)-2^{2-1/2\,\mathrm{e}^{--Z}+1/2\,\mathrm{e}^{-Z}}+4+\mathrm{e}^{--Z}\ln(2)}{\ln(2)}} - 1 + s\right)]$$

Survivor Function

$$S(x) = \mathrm{e}^{1/2\,\frac{-\mathrm{e}^{x}\ln(2)-2^{2-1/2\,\mathrm{e}^{-x}+1/2\,\mathrm{e}^{x}}+4+\mathrm{e}^{-x}\ln(2)}{\ln(2)}}$$

Hazard Function

$$h(x) = \cosh(x)\,\mathrm{e}^{1/2\,\frac{\mathrm{e}^{x}\ln(2)-\mathrm{e}^{-x}\ln(2)-2\,\sinh(x)\ln(2)+2\,2^{1-1/2\,\mathrm{e}^{-x}+1/2\,\mathrm{e}^{x}}-2\,2^{1+\sinh(x)}}{\ln(2)}}\left(1+2^{1+\sinh(x)}\right)$$

Mean

$$mu = "UnabletofindMean"$$

$$Variance$$

$$sigma^2 = "UnabletofindVariance"$$

Moment Function

$$m(x) = \int_0^\infty x^r \left(1+2^{1+\sinh(x)}\right)\mathrm{e}^{-\frac{\sinh(x)\ln(2)+2^{1+\sinh(x)}-2}{\ln(2)}}\cosh(x)\,\mathrm{d}x$$

Moment Generating Function

$$\int_0^\infty \mathrm{e}^{-\frac{-tx\ln(2)+\sinh(x)\ln(2)+2^{1+\sinh(x)}-2}{\ln(2)}}\cosh(x)\left(1+2^{1+\sinh(x)}\right)\,\mathrm{d}x_1$$