$$\frac{\Gamma\left(\frac{1}{2}\,a{\sim} + \frac{1}{2}\,b{\sim}\right)\left(\frac{a{\sim}}{b{\sim}}\right)^{\frac{1}{2}\,a{\sim}} x^{\frac{1}{2}\,a{\sim}-1}}{\Gamma\left(\frac{1}{2}\,a{\sim}\right)\Gamma\left(\frac{1}{2}\,b{\sim}\right)\left(\frac{a{\sim}\,x}{b{\sim}}+1\right)^{\frac{1}{2}\,a{\sim}+\frac{1}{2}\,b{\sim}}}$$

"i is", 1,

"   --"

$$g := t \rightarrow t^2$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[\left[y{\sim}\right.\right.\right.$$

$$\rightarrow \frac{1}{2}\,\frac{\Gamma\left(\frac{1}{2}\,a{\sim} + \frac{1}{2}\,b{\sim}\right) a{\sim}^{\frac{1}{2}\,a{\sim}} b{\sim}^{\frac{1}{2}\,b{\sim}} y{\sim}^{\frac{1}{4}\,a{\sim}-1}\left(a{\sim}\sqrt{y{\sim}}+b{\sim}\right)^{-\frac{1}{2}\,a{\sim}-\frac{1}{2}\,b{\sim}}}{\Gamma\left(\frac{1}{2}\,a{\sim}\right)\Gamma\left(\frac{1}{2}\,b{\sim}\right)}\right], [0,$$

$$\infty\,], [\text{"Continuous"}, \text{"PDF"}]\right]$$

"l and u", 0, ∞

$$\text{"g(x)"}, x^2, \text{"base"}, \frac{\Gamma\left(\frac{1}{2}\,a{\sim} + \frac{1}{2}\,b{\sim}\right)\left(\frac{a{\sim}}{b{\sim}}\right)^{\frac{1}{2}\,a{\sim}} x^{\frac{1}{2}\,a{\sim}-1}}{\Gamma\left(\frac{1}{2}\,a{\sim}\right)\Gamma\left(\frac{1}{2}\,b{\sim}\right)\left(\frac{a{\sim}\,x}{b{\sim}}+1\right)^{\frac{1}{2}\,a{\sim}+\frac{1}{2}\,b{\sim}}}, \text{"FRV(a,b)"}$$

$$\text{"f(x)"}, \frac{1}{2}\,\frac{\Gamma\left(\frac{1}{2}\,a{\sim} + \frac{1}{2}\,b{\sim}\right) a{\sim}^{\frac{1}{2}\,a{\sim}} b{\sim}^{\frac{1}{2}\,b{\sim}} x^{\frac{1}{4}\,a{\sim}-1}\left(a{\sim}\sqrt{x}+b{\sim}\right)^{-\frac{1}{2}\,a{\sim}-\frac{1}{2}\,b{\sim}}}{\Gamma\left(\frac{1}{2}\,a{\sim}\right)\Gamma\left(\frac{1}{2}\,b{\sim}\right)}$$

"i is", 2,

"   --"

$$g := t \rightarrow \sqrt{t}$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow \frac{2\,\Gamma\left(\frac{1}{2}\,a\sim + \frac{1}{2}\,b\sim\right)\left(a\sim y\sim^2 + b\sim\right)^{-\frac{1}{2}\,a\sim - \frac{1}{2}\,b\sim}\,b\sim^{\frac{1}{2}\,b\sim}\,|y\sim|^{a\sim}\,a\sim^{\frac{1}{2}\,a\sim}}{y\sim\,\Gamma\left(\frac{1}{2}\,a\sim\right)\Gamma\left(\frac{1}{2}\,b\sim\right)}\right], \left[0,\right.\right.$$

$$\left.\left.\infty\right], \left[\text{"Continuous", "PDF"}\right]\right]$$

$$\text{"l and u", } 0, \infty$$

$$\text{"g(x)", } \sqrt{x}, \text{"base", } \frac{\Gamma\left(\frac{1}{2}\,a\sim + \frac{1}{2}\,b\sim\right)\left(\frac{a\sim}{b\sim}\right)^{\frac{1}{2}\,a\sim}\,x^{\frac{1}{2}\,a\sim - 1}}{\Gamma\left(\frac{1}{2}\,a\sim\right)\Gamma\left(\frac{1}{2}\,b\sim\right)\left(\frac{a\sim x}{b\sim} + 1\right)^{\frac{1}{2}\,a\sim + \frac{1}{2}\,b\sim}}, \text{"FRV(a,b)"}$$

$$\text{"f(x)", } \frac{2\,\Gamma\left(\frac{1}{2}\,a\sim + \frac{1}{2}\,b\sim\right)\left(a\sim x^2 + b\sim\right)^{-\frac{1}{2}\,a\sim - \frac{1}{2}\,b\sim}\,b\sim^{\frac{1}{2}\,b\sim}\,|x|^{a\sim}\,a\sim^{\frac{1}{2}\,a\sim}}{x\,\Gamma\left(\frac{1}{2}\,a\sim\right)\Gamma\left(\frac{1}{2}\,b\sim\right)}$$

$\text{"i is", } 3,$

" -- --------- "

$$g := t \rightarrow \frac{1}{t}$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[y\sim\right.\right.$$

$$\left.\rightarrow \frac{\Gamma\left(\frac{1}{2}\,a\sim + \frac{1}{2}\,b\sim\right)a\sim^{\frac{1}{2}\,a\sim}\,b\sim^{\frac{1}{2}\,b\sim}\left(\frac{1}{y\sim}\right)^{\frac{1}{2}\,a\sim}\left(\frac{b\sim y\sim + a\sim}{y\sim}\right)^{-\frac{1}{2}\,a\sim - \frac{1}{2}\,b\sim}}{y\sim\,\Gamma\left(\frac{1}{2}\,a\sim\right)\Gamma\left(\frac{1}{2}\,b\sim\right)}\right], \left[0, \infty\right],$$

$$[\text{"Continuous", "PDF"}]$$

$$\text{"l and u", } 0, \infty$$

$$\text{"g(x)", } \frac{1}{x}, \text{"base", } \frac{\Gamma\left(\frac{1}{2}a\sim + \frac{1}{2}b\sim\right)\left(\frac{a\sim}{b\sim}\right)^{\frac{1}{2}a\sim} x^{\frac{1}{2}a\sim - 1}}{\Gamma\left(\frac{1}{2}a\sim\right)\Gamma\left(\frac{1}{2}b\sim\right)\left(\frac{a\sim x}{b\sim} + 1\right)^{\frac{1}{2}a\sim + \frac{1}{2}b\sim}}, \text{"FRV(a,b)"}$$

$$\text{"f(x)", } \frac{\Gamma\left(\frac{1}{2}a\sim + \frac{1}{2}b\sim\right) a\sim^{\frac{1}{2}a\sim} b\sim^{\frac{1}{2}b\sim}\left(\frac{1}{x}\right)^{\frac{1}{2}a\sim}\left(\frac{b\sim x + a\sim}{x}\right)^{-\frac{1}{2}a\sim - \frac{1}{2}b\sim}}{x\,\Gamma\left(\frac{1}{2}a\sim\right)\Gamma\left(\frac{1}{2}b\sim\right)}$$

$$\text{"i is", } 4,$$

$$\text{" --}$$
$$\text{---------"}$$

$$g := t \rightarrow \arctan(t)$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow \frac{1}{\Gamma\left(\frac{1}{2}b\sim\right)\Gamma\left(\frac{1}{2}a\sim\right)}\left(a\sim^{\frac{1}{2}a\sim} b\sim^{\frac{1}{2}b\sim}\tan(y\sim)^{\frac{1}{2}a\sim - 1}(a\sim\tan(y\sim) + b\sim)\right.\right.$$
$$\left.\left.^{-\frac{1}{2}a\sim - \frac{1}{2}b\sim}\left(1 + \tan(y\sim)^2\right)\Gamma\left(\frac{1}{2}a\sim + \frac{1}{2}b\sim\right)\right)\right], \left[0, \frac{1}{2}\pi\right], [\text{"Continuous", "PDF"}]\right]$$

$$\text{"l and u", } 0, \infty$$

$$\text{"g(x)", } \arctan(x), \text{"base", } \frac{\Gamma\left(\frac{1}{2}a\sim + \frac{1}{2}b\sim\right)\left(\frac{a\sim}{b\sim}\right)^{\frac{1}{2}a\sim} x^{\frac{1}{2}a\sim - 1}}{\Gamma\left(\frac{1}{2}a\sim\right)\Gamma\left(\frac{1}{2}b\sim\right)\left(\frac{a\sim x}{b\sim} + 1\right)^{\frac{1}{2}a\sim + \frac{1}{2}b\sim}}, \text{"FRV(a,b)"}$$

$$\text{"f(x)", } \frac{1}{\Gamma\left(\frac{1}{2}b\sim\right)\Gamma\left(\frac{1}{2}a\sim\right)}\left(a\sim^{\frac{1}{2}a\sim} b\sim^{\frac{1}{2}b\sim}\tan(x)^{\frac{1}{2}a\sim - 1}(a\sim\tan(x) + b\sim)^{-\frac{1}{2}a\sim - \frac{1}{2}b\sim}\left(1\right.\right.$$
$$\left.\left.+ \tan(x)^2\right)\Gamma\left(\frac{1}{2}a\sim + \frac{1}{2}b\sim\right)\right)$$

$$\text{"i is", } 5,$$

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$$g := t \to e^t$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[\left[y\sim \right.\right.\right.$$

$$\to \frac{a\sim^{\frac{1}{2}\,a\sim}\ b\sim^{\frac{1}{2}\,b\sim}\ \ln(y\sim)^{\frac{1}{2}\,a\sim-1}\ (a\sim \ln(y\sim)+b\sim)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim}\ \Gamma\!\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)}{y\sim\,\Gamma\!\left(\frac{1}{2}\,b\sim\right)\Gamma\!\left(\frac{1}{2}\,a\sim\right)}\right], [1,$$

$$\infty\,], [\text{"Continuous"}, \text{"PDF"}]\Big]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, e^x, \text{"base"}, \frac{\Gamma\!\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)\left(\frac{a\sim}{b\sim}\right)^{\frac{1}{2}\,a\sim}\ x^{\frac{1}{2}\,a\sim-1}}{\Gamma\!\left(\frac{1}{2}\,a\sim\right)\Gamma\!\left(\frac{1}{2}\,b\sim\right)\left(\frac{a\sim x}{b\sim}+1\right)^{\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim}}, \text{"FRV(a,b)"}$$

$$\text{"f(x)"}, \frac{a\sim^{\frac{1}{2}\,a\sim}\ b\sim^{\frac{1}{2}\,b\sim}\ \ln(x)^{\frac{1}{2}\,a\sim-1}\ (a\sim \ln(x)+b\sim)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim}\ \Gamma\!\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)}{x\,\Gamma\!\left(\frac{1}{2}\,b\sim\right)\Gamma\!\left(\frac{1}{2}\,a\sim\right)}$$

$$\text{"i is"}, 6,$$

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$$g := t \to \ln(t)$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[\left[y\sim \to \frac{\Gamma\!\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right) a\sim^{\frac{1}{2}\,a\sim}\ b\sim^{\frac{1}{2}\,b\sim}\ e^{\frac{1}{2}\,y\sim a\sim}\ (a\sim e^{y\sim}+b\sim)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim}}{\Gamma\!\left(\frac{1}{2}\,a\sim\right)\Gamma\!\left(\frac{1}{2}\,b\sim\right)}\right], [\right.\right.$$

$$-\infty, \infty\,], [\text{"Continuous"}, \text{"PDF"}]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \ln(x), \text{"base"}, \frac{\Gamma\!\left(\dfrac{1}{2}\,a\!\sim + \dfrac{1}{2}\,b\!\sim\right)\left(\dfrac{a\!\sim}{b\!\sim}\right)^{\frac{1}{2}\,a\sim}x^{\frac{1}{2}\,a\sim\,-\,1}}{\Gamma\!\left(\dfrac{1}{2}\,a\!\sim\right)\Gamma\!\left(\dfrac{1}{2}\,b\!\sim\right)\left(\dfrac{a\!\sim x}{b\!\sim}+1\right)^{\frac{1}{2}\,a\sim\,+\,\frac{1}{2}\,b\sim}}, \text{"FRV(a,b)"}$$

$$\text{"f(x)"}, \frac{\Gamma\!\left(\dfrac{1}{2}\,a\!\sim + \dfrac{1}{2}\,b\!\sim\right)a\!\sim^{\frac{1}{2}\,a\sim}b\!\sim^{\frac{1}{2}\,b\sim}\mathrm{e}^{\frac{1}{2}\,x\,a\sim}\left(a\!\sim\mathrm{e}^{x}+b\!\sim\right)^{-\frac{1}{2}\,a\sim\,-\,\frac{1}{2}\,b\sim}}{\Gamma\!\left(\dfrac{1}{2}\,a\!\sim\right)\Gamma\!\left(\dfrac{1}{2}\,b\!\sim\right)}$$

$$\text{"i is"}, 7,$$
$$\text{"}\;\text{---}$$
$$\text{----------"}$$

$$g := t \rightarrow \mathrm{e}^{-t}$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[\;y\!\sim\right.\right.$$

$$\rightarrow \frac{a\!\sim^{\frac{1}{2}\,a\sim}b\!\sim^{\frac{1}{2}\,b\sim}(-\ln(y\!\sim))^{\frac{1}{2}\,a\sim\,-\,1}(-a\!\sim\ln(y\!\sim)+b\!\sim)^{-\frac{1}{2}\,a\sim\,-\,\frac{1}{2}\,b\sim}\Gamma\!\left(\dfrac{1}{2}\,a\!\sim + \dfrac{1}{2}\,b\!\sim\right)}{y\!\sim\Gamma\!\left(\dfrac{1}{2}\,b\!\sim\right)\Gamma\!\left(\dfrac{1}{2}\,a\!\sim\right)}\left.\right]$$

$$, [0, 1], [\text{"Continuous"}, \text{"PDF"}]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \mathrm{e}^{-x}, \text{"base"}, \frac{\Gamma\!\left(\dfrac{1}{2}\,a\!\sim + \dfrac{1}{2}\,b\!\sim\right)\left(\dfrac{a\!\sim}{b\!\sim}\right)^{\frac{1}{2}\,a\sim}x^{\frac{1}{2}\,a\sim\,-\,1}}{\Gamma\!\left(\dfrac{1}{2}\,a\!\sim\right)\Gamma\!\left(\dfrac{1}{2}\,b\!\sim\right)\left(\dfrac{a\!\sim x}{b\!\sim}+1\right)^{\frac{1}{2}\,a\sim\,+\,\frac{1}{2}\,b\sim}}, \text{"FRV(a,b)"}$$

"f(x)",
$$\frac{a\sim^{\frac{1}{2}\,a\sim}\, b\sim^{\frac{1}{2}\,b\sim}\, (-\ln(x))^{\frac{1}{2}\,a\sim\,-\,1}\, (-a\sim\ln(x)+b\sim)^{-\frac{1}{2}\,a\sim\,-\,\frac{1}{2}\,b\sim}\, \Gamma\!\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)}{x\,\Gamma\!\left(\frac{1}{2}\,b\sim\right)\Gamma\!\left(\frac{1}{2}\,a\sim\right)}$$

"i is", 8,

" ---
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$$g := t \to -\ln(t)$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[y\sim \to \frac{\Gamma\!\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right) a\sim^{\frac{1}{2}\,a\sim}\, b\sim^{\frac{1}{2}\,b\sim}\, e^{-\frac{1}{2}\,y\sim a\sim}\, \left(a\sim e^{-y\sim}+b\sim\right)^{-\frac{1}{2}\,a\sim\,-\,\frac{1}{2}\,b\sim}}{\Gamma\!\left(\frac{1}{2}\,a\sim\right)\Gamma\!\left(\frac{1}{2}\,b\sim\right)}\right], \left[\right.$$

$$\left.-\infty,\ \infty\right],\ [\text{"Continuous"},\ \text{"PDF"}]\right]$$

"l and u", 0, ∞

"g(x)", $-\ln(x)$, "base", $\dfrac{\Gamma\!\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right) \left(\frac{a\sim}{b\sim}\right)^{\frac{1}{2}\,a\sim}\, x^{\frac{1}{2}\,a\sim\,-\,1}}{\Gamma\!\left(\frac{1}{2}\,a\sim\right)\Gamma\!\left(\frac{1}{2}\,b\sim\right)\left(\frac{a\sim x}{b\sim}+1\right)^{\frac{1}{2}\,a\sim\,+\,\frac{1}{2}\,b\sim}}$, "FRV(a,b)"

"f(x)", $\dfrac{\Gamma\!\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right) a\sim^{\frac{1}{2}\,a\sim}\, b\sim^{\frac{1}{2}\,b\sim}\, e^{-\frac{1}{2}\,x a\sim}\, \left(a\sim e^{-x}+b\sim\right)^{-\frac{1}{2}\,a\sim\,-\,\frac{1}{2}\,b\sim}}{\Gamma\!\left(\frac{1}{2}\,a\sim\right)\Gamma\!\left(\frac{1}{2}\,b\sim\right)}$

"i is", 9,

" ---
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$$g := t \to \ln(t+1)$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[y\sim\right.\right.$$

$$\rightarrow \frac{1}{\Gamma\left(\frac{1}{2}\ a\sim\right)\Gamma\left(\frac{1}{2}\ b\sim\right)}\left(\Gamma\left(\frac{1}{2}\ a\sim + \frac{1}{2}\ b\sim\right)a\sim^{\frac{1}{2}\ a\sim}b\sim^{\frac{1}{2}\ b\sim}\left(e^{y\sim}-1\right)^{\frac{1}{2}\ a\sim}\right.$$

$$\left.^{-1}\ e^{y\sim}\left(a\sim e^{y\sim}-a\sim + b\sim\right)^{-\frac{1}{2}\ a\sim - \frac{1}{2}\ b\sim}\right)\Bigg],\ [0,\ \infty],\ [\text{"Continuous"},\ \text{"PDF"}]\Bigg]$$

$$\text{"l and u"},\ 0,\ \infty$$

$$\text{"g(x)"},\ \ln(x+1),\ \text{"base"},\ \frac{\Gamma\left(\frac{1}{2}\ a\sim + \frac{1}{2}\ b\sim\right)\left(\frac{a\sim}{b\sim}\right)^{\frac{1}{2}\ a\sim}x^{\frac{1}{2}\ a\sim - 1}}{\Gamma\left(\frac{1}{2}\ a\sim\right)\Gamma\left(\frac{1}{2}\ b\sim\right)\left(\frac{a\sim x}{b\sim}+1\right)^{\frac{1}{2}\ a\sim + \frac{1}{2}\ b\sim}},\ \text{"FRV(a,b)"}$$

$$\text{"f(x)"},\ \frac{\Gamma\left(\frac{1}{2}\ a\sim + \frac{1}{2}\ b\sim\right)a\sim^{\frac{1}{2}\ a\sim}b\sim^{\frac{1}{2}\ b\sim}\left(e^{x}-1\right)^{\frac{1}{2}\ a\sim - 1}e^{x}\left(a\sim e^{x}-a\sim + b\sim\right)^{-\frac{1}{2}\ a\sim - \frac{1}{2}\ b\sim}}{\Gamma\left(\frac{1}{2}\ a\sim\right)\Gamma\left(\frac{1}{2}\ b\sim\right)}$$

$$\text{"i is"},\ 10,$$

$$\text{"--}$$
$$\text{---------"}$$

$$g := t \rightarrow \frac{1}{\ln(t+2)}$$

$$l := 0$$

$$u := \infty$$

$$Temp := \Bigg[\Bigg[\ y\sim \rightarrow \frac{1}{\Gamma\left(\frac{1}{2}\ a\sim\right)\Gamma\left(\frac{1}{2}\ b\sim\right)y\sim^{2}}\left(\Gamma\left(\frac{1}{2}\ a\sim + \frac{1}{2}\ b\sim\right)a\sim^{\frac{1}{2}\ a\sim}b\sim^{\frac{1}{2}\ b\sim}\left(e^{\frac{1}{y\sim}}\right.\right.$$

$$\left.\left.-2\right)^{\frac{1}{2}\ a\sim - 1}e^{\frac{1}{y\sim}}\left(a\sim e^{\frac{1}{y\sim}}-2\ a\sim + b\sim\right)^{-\frac{1}{2}\ a\sim - \frac{1}{2}\ b\sim}\right)\Bigg],\ \left[0,\ \frac{1}{\ln(2)}\right],\ [\text{"Continuous"},$$

$$\text{"PDF"}]\Bigg]$$

$$\text{"l and u"},\ 0,\ \infty$$

"g(x)", $\dfrac{1}{\ln(x+2)}$, "base", $\dfrac{\Gamma\left(\dfrac{1}{2}\,a{\sim}+\dfrac{1}{2}\,b{\sim}\right)\left(\dfrac{a{\sim}}{b{\sim}}\right)^{\frac{1}{2}\,a{\sim}}x^{\frac{1}{2}\,a{\sim}-1}}{\Gamma\left(\dfrac{1}{2}\,a{\sim}\right)\Gamma\left(\dfrac{1}{2}\,b{\sim}\right)\left(\dfrac{a{\sim}\,x}{b{\sim}}+1\right)^{\frac{1}{2}\,a{\sim}+\frac{1}{2}\,b{\sim}}}$, "FRV(a,b)"

"f(x)",

$$\dfrac{1}{\Gamma\left(\dfrac{1}{2}\,a{\sim}\right)\Gamma\left(\dfrac{1}{2}\,b{\sim}\right)x^2}\left(\Gamma\left(\dfrac{1}{2}\,a{\sim}+\dfrac{1}{2}\,b{\sim}\right)a{\sim}^{\frac{1}{2}\,a{\sim}}b{\sim}^{\frac{1}{2}\,b{\sim}}\left(\mathrm{e}^{\frac{1}{x}}-2\right)^{\frac{1}{2}\,a{\sim}}\right.$$

$$\left.\cdot\,\mathrm{e}^{\frac{1}{x}}\left(a{\sim}\,\mathrm{e}^{\frac{1}{x}}-2\,a{\sim}+b{\sim}\right)^{-\frac{1}{2}\,a{\sim}-\frac{1}{2}\,b{\sim}}\right)$$

"i is", 11,

$$" \text{--}"$$

$$g := t \rightarrow \tanh(t)$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[y{\sim}\rightarrow\right.\right.$$

$$-\dfrac{1}{(y{\sim}^2-1)\,\Gamma\left(\dfrac{1}{2}\,b{\sim}\right)\Gamma\left(\dfrac{1}{2}\,a{\sim}\right)}\left(a{\sim}^{\frac{1}{2}\,a{\sim}}b{\sim}^{\frac{1}{2}\,b{\sim}}\operatorname{arctanh}(y{\sim})^{\frac{1}{2}\,a{\sim}-1}\,(a{\sim}\right.$$

$$\left.\left.\left.\cdot\operatorname{arctanh}(y{\sim})+b{\sim}\right)^{-\frac{1}{2}\,a{\sim}-\frac{1}{2}\,b{\sim}}\Gamma\left(\dfrac{1}{2}\,a{\sim}+\dfrac{1}{2}\,b{\sim}\right)\right)\right], [0,1], ["Continuous", "PDF"]\right]$$

"l and u", 0, ∞

"g(x)", $\tanh(x)$, "base", $\dfrac{\Gamma\left(\dfrac{1}{2}\,a{\sim}+\dfrac{1}{2}\,b{\sim}\right)\left(\dfrac{a{\sim}}{b{\sim}}\right)^{\frac{1}{2}\,a{\sim}}x^{\frac{1}{2}\,a{\sim}-1}}{\Gamma\left(\dfrac{1}{2}\,a{\sim}\right)\Gamma\left(\dfrac{1}{2}\,b{\sim}\right)\left(\dfrac{a{\sim}\,x}{b{\sim}}+1\right)^{\frac{1}{2}\,a{\sim}+\frac{1}{2}\,b{\sim}}}$, "FRV(a,b)"

"f(x)",

$$-\frac{a{\sim}^{\frac{1}{2}a{\sim}}\,b{\sim}^{\frac{1}{2}b{\sim}}\,\operatorname{arctanh}(x)^{\frac{1}{2}a{\sim}-1}\,(a{\sim}\operatorname{arctanh}(x)+b{\sim})^{-\frac{1}{2}a{\sim}-\frac{1}{2}b{\sim}}\,\Gamma\!\left(\frac{1}{2}a{\sim}+\frac{1}{2}b{\sim}\right)}{(x^2-1)\,\Gamma\!\left(\frac{1}{2}b{\sim}\right)\Gamma\!\left(\frac{1}{2}a{\sim}\right)}$$

"i is", 12,

" -- ---------"

$$g := t \to \sinh(t)$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[\,y{\sim}\right.\right.$$

$$\to \frac{1}{\sqrt{y{\sim}^2+1}\,\Gamma\!\left(\frac{1}{2}b{\sim}\right)\Gamma\!\left(\frac{1}{2}a{\sim}\right)}\left(a{\sim}^{\frac{1}{2}a{\sim}}\,b{\sim}^{\frac{1}{2}b{\sim}}\,\operatorname{arcsinh}(y{\sim})^{\frac{1}{2}a{\sim}-1}\,(a{\sim}\right.$$

$$\left.\left.\left.\operatorname{arcsinh}(y{\sim})+b{\sim}\right)^{-\frac{1}{2}a{\sim}-\frac{1}{2}b{\sim}}\,\Gamma\!\left(\frac{1}{2}a{\sim}+\frac{1}{2}b{\sim}\right)\right)\right],\,[0,\,\infty],\,[\text{"Continuous", "PDF"}]\right]$$

"l and u", 0, ∞

"g(x)", $\sinh(x)$, "base", $\dfrac{\Gamma\!\left(\frac{1}{2}a{\sim}+\frac{1}{2}b{\sim}\right)\left(\frac{a{\sim}}{b{\sim}}\right)^{\frac{1}{2}a{\sim}}x^{\frac{1}{2}a{\sim}-1}}{\Gamma\!\left(\frac{1}{2}a{\sim}\right)\Gamma\!\left(\frac{1}{2}b{\sim}\right)\left(\frac{a{\sim}x}{b{\sim}}+1\right)^{\frac{1}{2}a{\sim}+\frac{1}{2}b{\sim}}}$, "FRV(a,b)"

"f(x)",

$$\frac{a{\sim}^{\frac{1}{2}a{\sim}}\,b{\sim}^{\frac{1}{2}b{\sim}}\,\operatorname{arcsinh}(x)^{\frac{1}{2}a{\sim}-1}\,(a{\sim}\operatorname{arcsinh}(x)+b{\sim})^{-\frac{1}{2}a{\sim}-\frac{1}{2}b{\sim}}\,\Gamma\!\left(\frac{1}{2}a{\sim}+\frac{1}{2}b{\sim}\right)}{\sqrt{x^2+1}\,\Gamma\!\left(\frac{1}{2}b{\sim}\right)\Gamma\!\left(\frac{1}{2}a{\sim}\right)}$$

"i is", 13,

" -- ---------"

$$g := t \to \operatorname{arcsinh}(t)$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[y\sim \right.\right.$$

$$\rightarrow \frac{1}{\Gamma\left(\frac{1}{2}\,a\sim\right)\Gamma\left(\frac{1}{2}\,b\sim\right)}\left(\Gamma\left(\frac{1}{2}\,a\sim\right.\right.$$

$$\left.\left.+\frac{1}{2}\,b\sim\right) a\sim^{\frac{1}{2}\,a\sim}\, b\sim^{\frac{1}{2}\,b\sim}\, \sinh(y\sim)^{\frac{1}{2}\,a\sim-1}\,\cosh(y\sim)\,(a\sim\sinh(y\sim)+b\sim)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim}\right)\right],$$

$$\left.[0,\infty],[\text{"Continuous"},\text{"PDF"}]\right]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \operatorname{arcsinh}(x), \text{"base"}, \frac{\Gamma\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)\left(\frac{a\sim}{b\sim}\right)^{\frac{1}{2}\,a\sim}x^{\frac{1}{2}\,a\sim-1}}{\Gamma\left(\frac{1}{2}\,a\sim\right)\Gamma\left(\frac{1}{2}\,b\sim\right)\left(\frac{a\sim x}{b\sim}+1\right)^{\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim}}, \text{"FRV(a,b)"}$$

$$\text{"f(x)"},$$

$$\frac{1}{\Gamma\left(\frac{1}{2}\,a\sim\right)\Gamma\left(\frac{1}{2}\,b\sim\right)}\left(\Gamma\left(\frac{1}{2}\,a\sim\right.\right.$$

$$\left.\left.+\frac{1}{2}\,b\sim\right) a\sim^{\frac{1}{2}\,a\sim}\, b\sim^{\frac{1}{2}\,b\sim}\, \sinh(x)^{\frac{1}{2}\,a\sim-1}\,\cosh(x)\,(a\sim\sinh(x)+b\sim)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim}\right)$$

$$\text{"i is"}, 14,$$

$$\text{"\,---"}$$

$$g := t \rightarrow \operatorname{csch}(t+1)$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[y\sim \rightarrow \frac{1}{\sqrt{y\sim^2+1}\,\Gamma\left(\frac{1}{2}\,b\sim\right)\Gamma\left(\frac{1}{2}\,a\sim\right)|y\sim|}\left(a\sim^{\frac{1}{2}\,a\sim}\,b\sim^{\frac{1}{2}\,b\sim}\,(-1\right.\right.\right.$$

$$\left.\left.\left.+\operatorname{arccsch}(y\sim)\right)^{\frac{1}{2}\,a\sim-1}(a\sim\operatorname{arccsch}(y\sim)-a\sim+b\sim)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim}\,\Gamma\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)\right)\right],$$

$$\left[0, \frac{2}{e - e^{-1}}\right], [\text{"Continuous"}, \text{"PDF"}]\Bigg]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \operatorname{csch}(x+1), \text{"base"}, \frac{\Gamma\left(\frac{1}{2}\,a\!\sim + \frac{1}{2}\,b\!\sim\right)\left(\frac{a\sim}{b\sim}\right)^{\frac{1}{2}\,a\sim} x^{\frac{1}{2}\,a\sim\,-\,1}}{\Gamma\left(\frac{1}{2}\,a\!\sim\right)\Gamma\left(\frac{1}{2}\,b\!\sim\right)\left(\frac{a\sim x}{b\sim}+1\right)^{\frac{1}{2}\,a\sim\,+\,\frac{1}{2}\,b\sim}}, \text{"FRV(a,b)"}$$

$$\text{"f(x)"}, \frac{1}{\sqrt{x^2+1}\,\Gamma\left(\frac{1}{2}\,b\!\sim\right)\Gamma\left(\frac{1}{2}\,a\!\sim\right)|x|}\Bigg(a\sim^{\frac{1}{2}\,a\sim}\,b\sim^{\frac{1}{2}\,b\sim}\,(-1+\operatorname{arccsch}(x))^{\frac{1}{2}\,a\sim}$$

$$^{-1}\,(a\!\sim \operatorname{arccsch}(x)-a\!\sim+b\!\sim)^{-\frac{1}{2}\,a\sim\,-\,\frac{1}{2}\,b\sim}\,\Gamma\left(\frac{1}{2}\,a\!\sim+\frac{1}{2}\,b\!\sim\right)\Bigg)$$

$$\text{"i is"}, 15,$$

$$\text{"\ -{-}}$$

$$\text{\ -{-}{-}{-}{-}{-}{-}{-}{-}{-}"}$$

$$g := t \to \operatorname{arccsch}(t+1)$$
$$l := 0$$
$$u := \infty$$

$$Temp := \Bigg[\Bigg[y\!\sim \to -\frac{1}{\Gamma\left(\frac{1}{2}\,a\!\sim\right)\Gamma\left(\frac{1}{2}\,b\!\sim\right)(\sinh(y\!\sim)-1)\sinh(y\!\sim)}\Bigg(\Gamma\Bigg(\frac{1}{2}\,a\!\sim$$

$$+\frac{1}{2}\,b\!\sim\Bigg)a\!\sim^{\frac{1}{2}\,a\sim}b\!\sim^{\frac{1}{2}\,b\sim}\left(-\frac{\sinh(y\!\sim)-1}{\sinh(y\!\sim)}\right)^{\frac{1}{2}\,a\sim}\cosh(y\!\sim)\Bigg($$

$$-\frac{a\!\sim \sinh(y\!\sim)-b\!\sim \sinh(y\!\sim)-a\!\sim}{\sinh(y\!\sim)}\Bigg)^{-\frac{1}{2}\,a\sim\,-\,\frac{1}{2}\,b\sim}\Bigg)\Bigg], \left[0, \ln\left(1+\sqrt{2}\right)\right], [\text{"Continuous"},$$

$$\text{"PDF"}\Bigg]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \operatorname{arccsch}(x+1), \text{"base"}, \frac{\Gamma\left(\frac{1}{2}\,a\!\sim + \frac{1}{2}\,b\!\sim\right)\left(\frac{a\sim}{b\sim}\right)^{\frac{1}{2}\,a\sim} x^{\frac{1}{2}\,a\sim\,-\,1}}{\Gamma\left(\frac{1}{2}\,a\!\sim\right)\Gamma\left(\frac{1}{2}\,b\!\sim\right)\left(\frac{a\sim x}{b\sim}+1\right)^{\frac{1}{2}\,a\sim\,+\,\frac{1}{2}\,b\sim}}, \text{"FRV(a,b)"}$$

$$\text{"f(x)"}, -\frac{1}{\Gamma\!\left(\frac{1}{2}\,a\sim\right)\Gamma\!\left(\frac{1}{2}\,b\sim\right)(\sinh(x)-1)\,\sinh(x)}\left(\Gamma\!\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)a\sim^{\frac{1}{2}\,a\sim}b\sim^{\frac{1}{2}\,b\sim}\right.$$

$$\left.-\frac{\sinh(x)-1}{\sinh(x)}\right)^{\frac{1}{2}\,a\sim}\cosh(x)\left(-\frac{a\sim\sinh(x)-b\sim\sinh(x)-a\sim}{\sinh(x)}\right)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim}\right)$$

$$\text{"i is"}, 16,$$

$$\text{"}\,\text{--}$$
$$\text{----------"}$$

$$g := t \to \frac{1}{\tanh(t+1)}$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \to \frac{1}{(y\sim^2-1)\,\Gamma\!\left(\frac{1}{2}\,b\sim\right)\Gamma\!\left(\frac{1}{2}\,a\sim\right)}\left(a\sim^{\frac{1}{2}\,a\sim}b\sim^{\frac{1}{2}\,b\sim}\left(-1\right.\right.\right.\right.$$

$$\left.+\operatorname{arctanh}\!\left(\frac{1}{y\sim}\right)\right)^{\frac{1}{2}\,a\sim-1}\left(a\sim\operatorname{arctanh}\!\left(\frac{1}{y\sim}\right)-a\sim+b\sim\right)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim}\Gamma\!\left(\frac{1}{2}\,a\sim\right.$$

$$\left.\left.\left.+\frac{1}{2}\,b\sim\right)\right)\right], \left[1, \frac{e+e^{-1}}{e-e^{-1}}\right], [\text{"Continuous"}, \text{"PDF"}]\right]$$

$$\text{"l and u"}, 0, \infty$$

$$\text{"g(x)"}, \frac{1}{\tanh(x+1)}, \text{"base"}, \frac{\Gamma\!\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)\left(\frac{a\sim}{b\sim}\right)^{\frac{1}{2}\,a\sim}x^{\frac{1}{2}\,a\sim-1}}{\Gamma\!\left(\frac{1}{2}\,a\sim\right)\Gamma\!\left(\frac{1}{2}\,b\sim\right)\left(\frac{a\sim x}{b\sim}+1\right)^{\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim}}, \text{"FRV(a,b)"}$$

$$\text{"f(x)"}, \frac{1}{(x^2-1)\,\Gamma\!\left(\frac{1}{2}\,b\sim\right)\Gamma\!\left(\frac{1}{2}\,a\sim\right)}\left(a\sim^{\frac{1}{2}\,a\sim}b\sim^{\frac{1}{2}\,b\sim}\left(-1+\operatorname{arctanh}\!\left(\frac{1}{x}\right)\right)^{\frac{1}{2}\,a\sim}\right.$$

$$^{-1}\left(a\sim\operatorname{arctanh}\!\left(\frac{1}{x}\right)-a\sim+b\sim\right)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim}\Gamma\!\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)\right)$$

$$\text{"i is"}, 17,$$

$$\text{"}\,\text{--}$$
$$\text{----------"}$$

$$g := t \to \frac{1}{\sinh(t+1)}$$

$$l := 0$$

$$u := \infty$$

$$
\begin{aligned}
Temp := &\left[\left[\left[y\!\sim\, \to \frac{1}{\sqrt{y\!\sim^2 + 1}\;\Gamma\!\left(\frac{1}{2}\,b\!\sim\right)\Gamma\!\left(\frac{1}{2}\,a\!\sim\right)|y\!\sim|}\left(a\!\sim^{\frac{1}{2}\,a\sim}\,b\!\sim^{\frac{1}{2}\,b\sim}\left(-1\right.\right.\right.\right.\right.\\
&\left.\left.\left.+ \operatorname{arcsinh}\!\left(\frac{1}{y\!\sim}\right)\right)^{\frac{1}{2}\,a\sim\,-\,1}\left(a\!\sim \operatorname{arcsinh}\!\left(\frac{1}{y\!\sim}\right) - a\!\sim + b\!\sim\right)^{-\frac{1}{2}\,a\sim\,-\,\frac{1}{2}\,b\sim}\Gamma\!\left(\frac{1}{2}\,a\!\sim\right.\right.\right.\\
&\left.\left.\left.+ \frac{1}{2}\,b\!\sim\right)\right)\right],\left[0,\frac{2}{e - e^{-1}}\right],[\text{"Continuous"},\text{"PDF"}]\right]
\end{aligned}
$$

$$\text{"l and u"},\ 0,\ \infty$$

$$\text{"g(x)"},\ \frac{1}{\sinh(x+1)},\ \text{"base"},\ \frac{\Gamma\!\left(\frac{1}{2}\,a\!\sim + \frac{1}{2}\,b\!\sim\right)\left(\frac{a\sim}{b\sim}\right)^{\frac{1}{2}\,a\sim}x^{\frac{1}{2}\,a\sim\,-\,1}}{\Gamma\!\left(\frac{1}{2}\,a\!\sim\right)\Gamma\!\left(\frac{1}{2}\,b\!\sim\right)\left(\frac{a\sim x}{b\sim}+1\right)^{\frac{1}{2}\,a\sim\,+\,\frac{1}{2}\,b\sim}},\ \text{"FRV(a,b)"}$$

$$
\begin{aligned}
\text{"f(x)"},\ &\frac{1}{\sqrt{x^2+1}\;\Gamma\!\left(\frac{1}{2}\,b\!\sim\right)\Gamma\!\left(\frac{1}{2}\,a\!\sim\right)|x|}\left(a\!\sim^{\frac{1}{2}\,a\sim}\,b\!\sim^{\frac{1}{2}\,b\sim}\left(-1 + \operatorname{arcsinh}\!\left(\frac{1}{x}\right)\right)^{\frac{1}{2}\,a\sim}\right.\\
&\left.{}^{-1}\left(a\!\sim \operatorname{arcsinh}\!\left(\frac{1}{x}\right) - a\!\sim + b\!\sim\right)^{-\frac{1}{2}\,a\sim\,-\,\frac{1}{2}\,b\sim}\Gamma\!\left(\frac{1}{2}\,a\!\sim + \frac{1}{2}\,b\!\sim\right)\right)
\end{aligned}
$$

$$\text{"i is"},\ 18,$$
$$\text{"}\ \text{--}$$
$$\text{----------"}$$

$$g := t \to \frac{1}{\operatorname{arcsinh}(t+1)}$$
$$l := 0$$
$$u := \infty$$

$$
\begin{aligned}
Temp := &\left[\left[\left[y\!\sim\, \to \frac{1}{\Gamma\!\left(\frac{1}{2}\,a\!\sim\right)\Gamma\!\left(\frac{1}{2}\,b\!\sim\right)y\!\sim^2}\left(\Gamma\!\left(\frac{1}{2}\,a\!\sim + \frac{1}{2}\,b\!\sim\right)a\!\sim^{\frac{1}{2}\,a\sim}\,b\!\sim^{\frac{1}{2}\,b\sim}\left(-1\right.\right.\right.\right.\right.\\
&\left.\left.\left.+ \sinh\!\left(\frac{1}{y\!\sim}\right)\right)^{\frac{1}{2}\,a\sim\,-\,1}\cosh\!\left(\frac{1}{y\!\sim}\right)\left(a\!\sim \sinh\!\left(\frac{1}{y\!\sim}\right) - a\!\sim + b\!\sim\right)^{-\frac{1}{2}\,a\sim\,-\,\frac{1}{2}\,b\sim}\right)\right],\left[0,\right.\right.\\
&\left.\left.\frac{1}{\ln\!\left(1+\sqrt{2}\right)}\right],[\text{"Continuous"},\text{"PDF"}]\right]
\end{aligned}
$$

"l and u", 0, ∞

$$\text{"g(x)"}, \quad \frac{1}{\operatorname{arcsinh}(x+1)}, \quad \text{"base"}, \quad \frac{\Gamma\left(\frac{1}{2}a\sim + \frac{1}{2}b\sim\right)\left(\frac{a\sim}{b\sim}\right)^{\frac{1}{2}a\sim} x^{\frac{1}{2}a\sim - 1}}{\Gamma\left(\frac{1}{2}a\sim\right)\Gamma\left(\frac{1}{2}b\sim\right)\left(\frac{a\sim x}{b\sim}+1\right)^{\frac{1}{2}a\sim + \frac{1}{2}b\sim}}, \quad \text{"FRV(a,b)"}$$

$$\text{"f(x)"}, \quad \frac{1}{\Gamma\left(\frac{1}{2}a\sim\right)\Gamma\left(\frac{1}{2}b\sim\right)x^2}\left(\Gamma\left(\frac{1}{2}a\sim + \frac{1}{2}b\sim\right)a\sim^{\frac{1}{2}a\sim} b\sim^{\frac{1}{2}b\sim}\left(-1+\sinh\left(\frac{1}{x}\right)\right)^{\frac{1}{2}a\sim}\right.$$

$$\left. {}^{-1} \cosh\left(\frac{1}{x}\right)\left(a\sim\sinh\left(\frac{1}{x}\right)-a\sim+b\sim\right)^{-\frac{1}{2}a\sim - \frac{1}{2}b\sim}\right)$$

"i is", 19,

" --
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$$g := t \to \frac{1}{\operatorname{csch}(t)} + 1$$
$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[y\sim\right.\right.$$

$$\to \frac{1}{\sqrt{y\sim^2 - 2\,y\sim + 2}\;\Gamma\left(\frac{1}{2}b\sim\right)\Gamma\left(\frac{1}{2}a\sim\right)}\left(a\sim^{\frac{1}{2}a\sim} b\sim^{\frac{1}{2}b\sim} \operatorname{arccsch}\left(\frac{1}{y\sim - 1}\right)^{\frac{1}{2}a\sim - 1}\right.$$

$$\left.\left.\left(a\sim\operatorname{arccsch}\left(\frac{1}{y\sim - 1}\right)+b\sim\right)^{-\frac{1}{2}a\sim - \frac{1}{2}b\sim}\Gamma\left(\frac{1}{2}a\sim + \frac{1}{2}b\sim\right)\right)\right], [1, \infty], [\text{"Continuous"},$$

$$\text{"PDF"}\right]$$

"l and u", 0, ∞

$$\text{"g(x)"}, \quad \frac{1}{\operatorname{csch}(x)} + 1, \quad \text{"base"}, \quad \frac{\Gamma\left(\frac{1}{2}a\sim + \frac{1}{2}b\sim\right)\left(\frac{a\sim}{b\sim}\right)^{\frac{1}{2}a\sim} x^{\frac{1}{2}a\sim - 1}}{\Gamma\left(\frac{1}{2}a\sim\right)\Gamma\left(\frac{1}{2}b\sim\right)\left(\frac{a\sim x}{b\sim}+1\right)^{\frac{1}{2}a\sim + \frac{1}{2}b\sim}}, \quad \text{"FRV(a,b)"}$$

"f(x)",

$$\frac{1}{\sqrt{x^2-2\,x+2}\ \Gamma\left(\frac{1}{2}\,b\sim\right)\Gamma\left(\frac{1}{2}\,a\sim\right)}\left(a\sim^{\frac{1}{2}\,a\sim}b\sim^{\frac{1}{2}\,b\sim}\operatorname{arccsch}\left(\frac{1}{x-1}\right)^{\frac{1}{2}\,a\sim-1}\left(a\sim\right.\right.$$

$$\left.\left.\operatorname{arccsch}\left(\frac{1}{x-1}\right)+b\sim\right)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim}\Gamma\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)\right)$$

"i is", 20,

" ---
---------"

$$g := t\rightarrow\tanh\left(\frac{1}{t}\right)$$

$$l := 0$$
$$u := \infty$$

$$Temp := \left[\left[\,y\sim\rightarrow\right.\right.$$

$$-\frac{1}{\operatorname{arctanh}(y\sim)\,(y\sim^2-1)\,\Gamma\left(\frac{1}{2}\,b\sim\right)\Gamma\left(\frac{1}{2}\,a\sim\right)}\left(a\sim^{-\frac{1}{2}\,a\sim}b\sim^{\frac{1}{2}\,b\sim}\left(\frac{1}{\operatorname{arctanh}(y\sim)}\right)^{\frac{1}{2}\,a\sim}\right.$$

$$\left.\left.\left(\frac{b\sim\operatorname{arctanh}(y\sim)+a\sim}{\operatorname{arctanh}(y\sim)}\right)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim}\Gamma\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)\right)\right],\ [0,1],\ ["Continuous",$$

$$\left.\text{"PDF"}\right]$$

"l and u", 0, ∞

"g(x)", $\tanh\left(\frac{1}{x}\right)$, "base", $\dfrac{\Gamma\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)\left(\frac{a\sim}{b\sim}\right)^{\frac{1}{2}\,a\sim}x^{\frac{1}{2}\,a\sim-1}}{\Gamma\left(\frac{1}{2}\,a\sim\right)\Gamma\left(\frac{1}{2}\,b\sim\right)\left(\frac{a\sim x}{b\sim}+1\right)^{\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim}}$, "FRV(a,b)"

"f(x)",

$$-\frac{1}{\operatorname{arctanh}(x)\,(x^2-1)\,\Gamma\left(\frac{1}{2}\,b\sim\right)\Gamma\left(\frac{1}{2}\,a\sim\right)}\left(a\sim^{-\frac{1}{2}\,a\sim}b\sim^{\frac{1}{2}\,b\sim}\left(\frac{1}{\operatorname{arctanh}(x)}\right)^{\frac{1}{2}\,a\sim}\right.$$

$$\left(\frac{b\sim \operatorname{arctanh}(x) + a\sim}{\operatorname{arctanh}(x)}\right)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim} \Gamma\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)\right)$$

"i is", 21,

"_____"

$$g := t \rightarrow \operatorname{csch}\left(\frac{1}{t}\right)$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[y\sim \right.\right.$$

$$\rightarrow \frac{1}{\sqrt{y\sim^2+1}\;\Gamma\left(\frac{1}{2}\,b\sim\right)\Gamma\left(\frac{1}{2}\,a\sim\right)|y\sim|}\left(a\sim^{\frac{1}{2}\,a\sim}\,b\sim^{\frac{1}{2}\,b\sim}\operatorname{arccsch}(y\sim)^{-\frac{1}{2}\,a\sim-1}\right.$$

$$\left.\left.\left(\frac{b\sim \operatorname{arccsch}(y\sim) + a\sim}{\operatorname{arccsch}(y\sim)}\right)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim}\Gamma\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)\right)\right], [0, \infty], ["Continuous",$$

"PDF"]$$\Big]$$

"l and u", 0, ∞

"g(x)", $\operatorname{csch}\left(\dfrac{1}{x}\right)$, "base", $\dfrac{\Gamma\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)\left(\dfrac{a\sim}{b\sim}\right)^{\frac{1}{2}\,a\sim} x^{\frac{1}{2}\,a\sim-1}}{\Gamma\left(\frac{1}{2}\,a\sim\right)\Gamma\left(\frac{1}{2}\,b\sim\right)\left(\dfrac{a\sim x}{b\sim}+1\right)^{\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim}}$, "FRV(a,b)"

"f(x)",

$$\frac{1}{\sqrt{x^2+1}\;\Gamma\left(\frac{1}{2}\,b\sim\right)\Gamma\left(\frac{1}{2}\,a\sim\right)|x|}\left(a\sim^{\frac{1}{2}\,a\sim}\,b\sim^{\frac{1}{2}\,b\sim}\operatorname{arccsch}(x)^{-\frac{1}{2}\,a\sim-1}\right.$$

$$\left.\left(\frac{b\sim \operatorname{arccsch}(x) + a\sim}{\operatorname{arccsch}(x)}\right)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim}\Gamma\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)\right)$$

"i is", 22,

"_____"

$$g := t \rightarrow \operatorname{arccsch}\left(\frac{1}{t}\right)$$

$$l := 0$$

$$u := \infty$$

$$Temp := \left[\left[\left[y\sim\right.\right.\right.$$

$$\rightarrow \frac{1}{\Gamma\left(\frac{1}{2}\,a\sim\right)\Gamma\left(\frac{1}{2}\,b\sim\right)}\left(\Gamma\left(\frac{1}{2}\,a\sim\right.\right.$$

$$\left.+\frac{1}{2}\,b\sim\right)a\sim^{\frac{1}{2}\,a\sim}b\sim^{\frac{1}{2}\,b\sim}\sinh(y\sim)^{\frac{1}{2}\,a\sim-1}\cosh(y\sim)\,(a\sim\sinh(y\sim)+b\sim)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim}\Bigg)\Bigg],$$

$$[0,\,\infty],\,[\text{"Continuous", "PDF"}]\Bigg]$$

$$\text{"l and u"},\,0,\,\infty$$

$$\text{"g(x)"},\,\operatorname{arccsch}\left(\frac{1}{x}\right),\,\text{"base"},\,\frac{\Gamma\left(\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim\right)\left(\frac{a\sim}{b\sim}\right)^{\frac{1}{2}\,a\sim}x^{\frac{1}{2}\,a\sim-1}}{\Gamma\left(\frac{1}{2}\,a\sim\right)\Gamma\left(\frac{1}{2}\,b\sim\right)\left(\frac{a\sim x}{b\sim}+1\right)^{\frac{1}{2}\,a\sim+\frac{1}{2}\,b\sim}},\,\text{"FRV(a,b)"}$$

$$\text{"f(x)"},$$

$$\frac{1}{\Gamma\left(\frac{1}{2}\,a\sim\right)\Gamma\left(\frac{1}{2}\,b\sim\right)}\left(\Gamma\left(\frac{1}{2}\,a\sim\right.\right.$$

$$\left.+\frac{1}{2}\,b\sim\right)a\sim^{\frac{1}{2}\,a\sim}b\sim^{\frac{1}{2}\,b\sim}\sinh(x)^{\frac{1}{2}\,a\sim-1}\cosh(x)\,(a\sim\sinh(x)+b\sim)^{-\frac{1}{2}\,a\sim-\frac{1}{2}\,b\sim}\Bigg)$$

$$\tag{1}$$