?

$d_{\nu_1,\nu_2;\theta} = t_1 \sin\theta - t_2 \cos\theta,$

t_1
t_2
ν_1
ν_2

$v = t_1 \sin\theta + t_2 \cos\theta,$

θ
$[0, 2\pi)$

?

$$F_v(v_0) = \int_0^1 \Pr\Big\{T_{\nu_1+\nu_2} \le v_0\, \varphi(u)\Big\} \, \frac{u^{\nu_1/2-1}(1-u)^{\nu_2/2-1}}{B(\nu_1/2, \nu_2/2)} \, du,$$

$$\varphi(u) = \sqrt{\frac{\sin^2\theta}{u} + \frac{\cos^2\theta}{1-u}},$$

$T_{\nu_1+\nu_2}$
ν_1+
ν_2

$$G(t) = \Pr\{T_{\nu_1+\nu_2} \le t\}$$

U

$$f_U(u) = \frac{u^{\nu_1/2-1}(1-u)^{\nu_2/2-1}}{B(\nu_1/2, \nu_2/2)}, 0 \le u \le 1,$$

$$F_v(v_0) = E\Big[G\Big(v_0\, \varphi(U)\Big)\Big].$$

$x \in$
R^d
$x/\|x\|$
$\|x\|$

$$\mathrm{TD}(x) = 1 - F_v\big(\|x\|\big) = 1 - E\Big[G\Big(\|x\|\, \varphi(U)\Big)\Big].$$

$$E\Big[G\Big(\|x\|\, \varphi(U)\Big)\Big] = \int_0^1 G\Big(\|x\|\, \varphi(u)\Big) f_U(u)\, du$$

$\nu_1 =$
$\nu_2 =$
v

$$f_U(u) = \frac{u^{v/2-1}(1-u)^{v/2-1}}{B(v/2, v/2)}.$$

??

R^2

$$\mathrm{TD}(x) = 1 - E\Big[G\Big(\|x\|\, \varphi(U)\Big)\Big],$$

$x/\|x\|$
$v =$
1
$v =$
5
$v =$
100
$_v1.png\, v = 1$
$_v5.png\, v = 5$
$_v100.png\, v = 100$
$\nu_1 =$
$\nu_2 =$
v
$v =$
1
$v =$
5
$v =$
100

$$\mathrm{TD}(x) = 1 - E\Big[G\Big(\|x\|\, \varphi(U)\Big)\Big],$$

$x/\|x\|$
v