

$$k_u^2 = \frac{(1-u_1)(1+u_2)}{2(u_2-u_1)}, \quad g_u = \frac{\sqrt{2}}{\sqrt{u_2-u_1}}, \quad k_v^2 = \frac{2(v_2-v_1)}{(1-v_1)(1+v_2)}, \quad g_v = \frac{2}{\sqrt{(1-v_1)(1+v_2)}}$$