$$\mathbf{X} \longrightarrow (z_1, z_2) \longrightarrow (\bar{z}_1, \bar{z}_2) \longrightarrow p(\mathbf{X}) = \begin{cases} g(\bar{z}_1), & \text{if } \bar{z}_1 > 0, \\ g(\bar{z}_2), & \text{otherwise.} \end{cases}$$

where $\bar{z}_i = \Phi^{-1} \circ \Phi_i(z_i)$ for $i = 1, 2$.