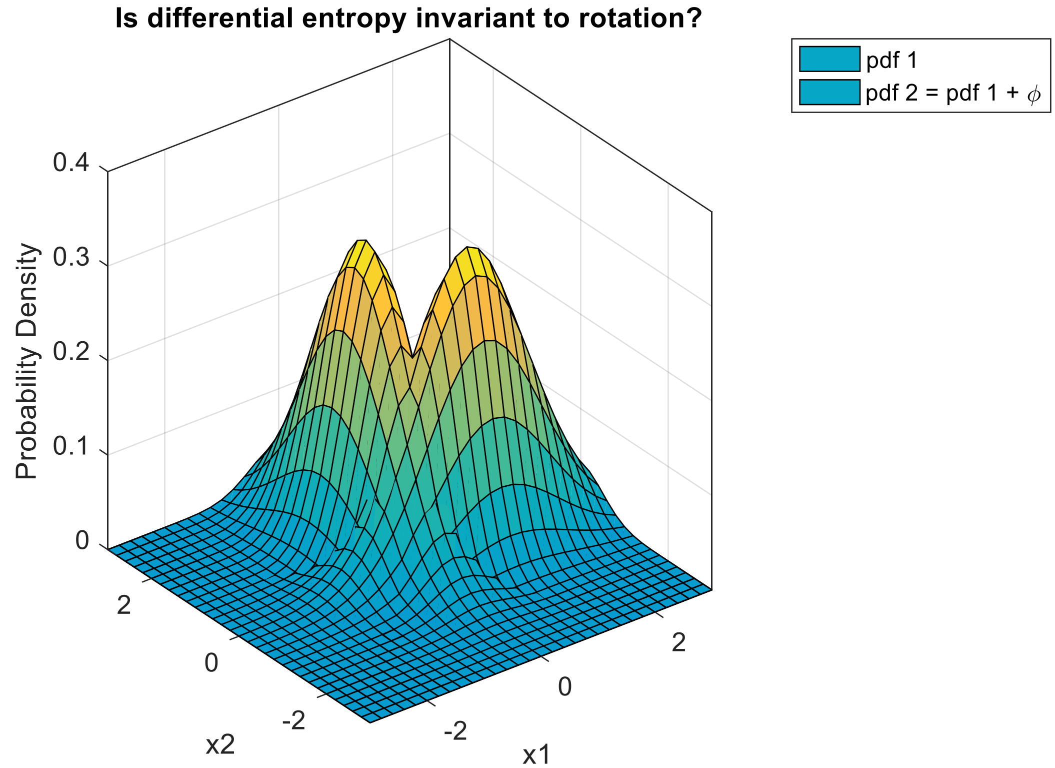

From:

$$h(aX) = h(X) + \log|a|$$

Which is Theorem 8.6.4. in the Wiley book, we can state a rotation matrix for a:

$$a = \begin{bmatrix} \cos(\theta) & -\sin(\theta) \\ \sin(\theta) & \cos(\theta) \end{bmatrix}$$

So that the first equation looks like:

$$h(aX) = h(X) + \log|a| = h(X) + \log\left|\begin{bmatrix} cos(\theta) & -sin(\theta) \\ sin(\theta) & cos(\theta) \end{bmatrix}\right|$$

In this case, the determinant of the rotation matrix is:

$$\det(a) = \cos^2\theta + \sin^2\theta = 1$$

This is evident from simple trigonometric identities. Therefore, the equation 1 simplifies to:

$$h(aX) = h(X) + \log 1 = h(X) + 0 = h(X)$$