

Multiple Testing Project

2.2 P-value

1. Distribution of the p-value under the null

1.1 Show that for any α , $c_\alpha = F_H^{-1}(1 - \alpha)$

We know that $\alpha = 1 - F_H(c_\alpha)$ from the definition of c_α .

$$\alpha = 1 - F_H(c_\alpha)$$

$$\alpha - 1 = -F_H(c_\alpha)$$

$$-(\alpha - 1) = F_H(c_\alpha)$$

$$1 - \alpha = F_H(c_\alpha)$$

$$F_H^{-1}(1 - \alpha) = c_\alpha$$

$$c_\alpha = F_H^{-1}(1 - \alpha)$$

Q.E.D.