

Reflexive

$$\frac{\top}{xRx}$$

Total

$$\frac{\top}{xRy \vee yRx}$$

Symmetric

$$\frac{xRy}{yRx}$$

Transitive

$$\frac{xRy \quad xRy}{xRz}$$

[bp]

Irreflexive

$$\frac{xRx}{\perp}$$

Asymmetric

$$\frac{xRy \quad yRx}{\perp}$$

Antisymmetric

$$\frac{xRy \quad yRx}{x = y}$$