

# Natural Total Order

- The natural total order is a total order that respects the other fundamental operations of the type
- A total order has the following properties:

$(\forall a, b)$  exactly one of the following holds:

$$a < b, b < a, \text{ or } a = b.$$

(Trichotomy)

$$(\forall a, b, c) a < b \wedge b < c \Rightarrow a < c.$$

(Transitivity)