Chapter 9 - Relations

15 October 2019 09:42

9.1 Relations & their Properties

Binary Relation set of ordered pairs, consisting of a subset of $A \times B$

aRb denotes $(a,b) \in R$, "a is related to b by R."

- Relations are a generalisation of function. They can be used to express a much wider class of relationship between sets.

Relation on a Set is a relation from A to A.

- a set with n elements has 2^{n^2} relations

Reflexive iff $(a,a) \in R$ for every element $a \in A$

Transitive iff $((a,b) \in R \wedge (b,c) \in R) \rightarrow (a,c) \in R \quad \forall a,b,c \in A$

Symetric iff $(b,a) \in R$ whenever $(a,b) \in R \quad \forall a,b \in A$

- a relation in which symetry $\rightarrow a=b$ is called **Antisymetric** (not really opposites...)