

Ch 6

Relationships

Sets  $A_1, A_2, A_3, \dots, A_k$

k-ary relation

subset of  $A_1 \times A_2 \times \dots \times A_k$

Relations:

collection of ordered pairs

subset of  $A_1 \times A_2$

set  $A_1$ : called Domain

set  $A_2$ : called Codomain

(ex)  $A_1 = \{a, b, c\}$      $A_2 = \{1, 2, 3\}$

$R = \{(a, 1), (a, 3), (b, 2)\}$

Q how many relationships exist?



Count

subset  $A_1 \times A_2$

Power set of  $A_1 \times A_2$   
 $P(A_1 \times A_2)$

$$|P(S)| = 2^{|S|}$$

Relationship       $|P(A_1 \times A_2)| = 2^{3 \cdot 3} = 2^9 = \underline{\underline{512}}$

$\{a, b, c\}$        $\{1, 3, 3\}$