

# Quick Mathematical Background for Conceptual Modeling

(Chapter 6)

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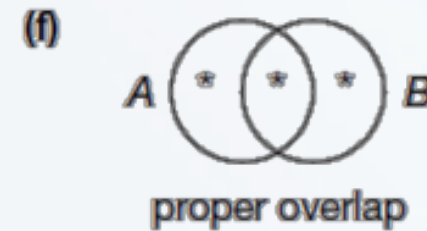
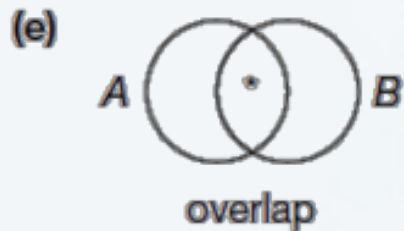
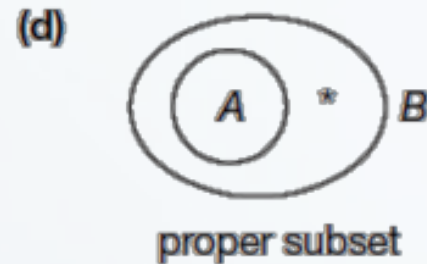
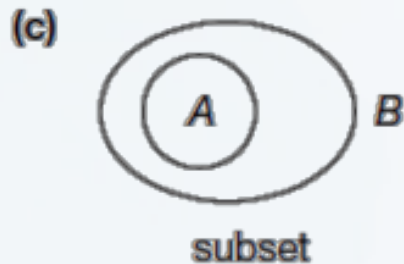
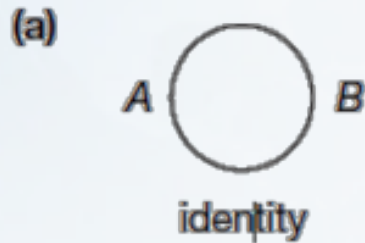
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Some diagrams in this lecture are based on [1]

**Keywords:** Mandatory, Role Mandatory, Disjunctive Mandatory, Cardinality, Business Rules, اجباري, ضرورة

# Mathematical Background

Hypothetical Euler diagrams for set comparisons.

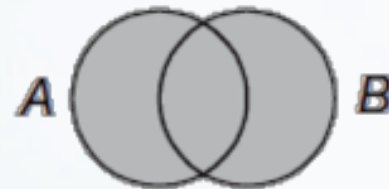


# Mathematical Background

Venn diagrams for three set-forming operations.

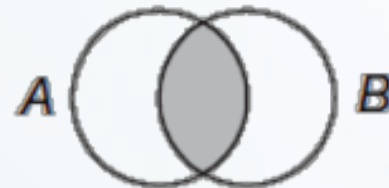
**union**

$$A \cup B$$



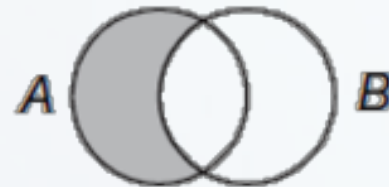
**intersection**

$$A \cap B$$

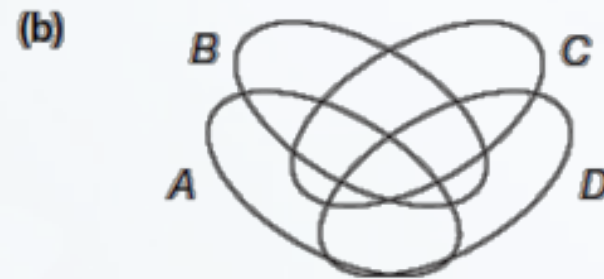
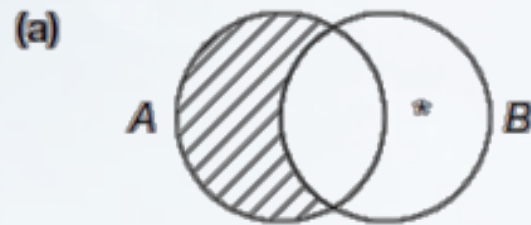


**difference**

$$A - B$$



# Mathematical Background



Venn diagrams for (a)  $A$  is a proper subset of  $B$  and (b) four sets.

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