Database Systems (ISYS1001/ISYS5008)

Example of ER diagram

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Discipline of Computing
School of Electrical Engineering, Computing and Mathematical Sciences (EECMS)

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ER Model : Example

► A University database is required to store current information about students (student number, name, phone number), units (unit number, title, credit points), rooms (room number, type, capacity), and buildings (building number, name).

► Each student is identified by a unique student number, each unit by its unique unit number, each room in a building by a unique room number (but a given room number can be present in many buildings), and each building by a unique building number.

► A student may take a number of units and each unit will have many students. Each unit meets only once a week and in only one room.

► The day of the week and the time for the meeting are to be recorded.

Create the ER diagram for the above example.

Entity sets

| Entity Set	Key	Other Attributes
Student	studentno	Name, phone
Unit	unitno	title, creditpts
Building	bno	name
Room (weak entity set)	roomno (partial key)	Type, capacity

Relationship sets

Relationship set	Between Entity Sets	Attributes
Takes	Student, Unit	
Meet-in	Unit, Room	Day, time
Part-of (supporting relationship)	Room, Building	

Constraints

| Relationship set	Cardinality	Participation / other constraints
Takes	Many-many	Student –total, Unit –partial (A student should take at least one unit; A unit may not taken by any students)
Meet-in	One- many (A unit meets-in at most one room; A room has meets-in of many units)	Unit – total , room- partial (A unit meets in at only one room; room may or may not have unit meet-ups)
Part-of (supporting relationship)	One- many (A room is a part of one building; one building has many rooms)	Building- partial, Room-total (A building may have zero or more rooms; a room should be part-of a single building) Supporting entity set of rooms.
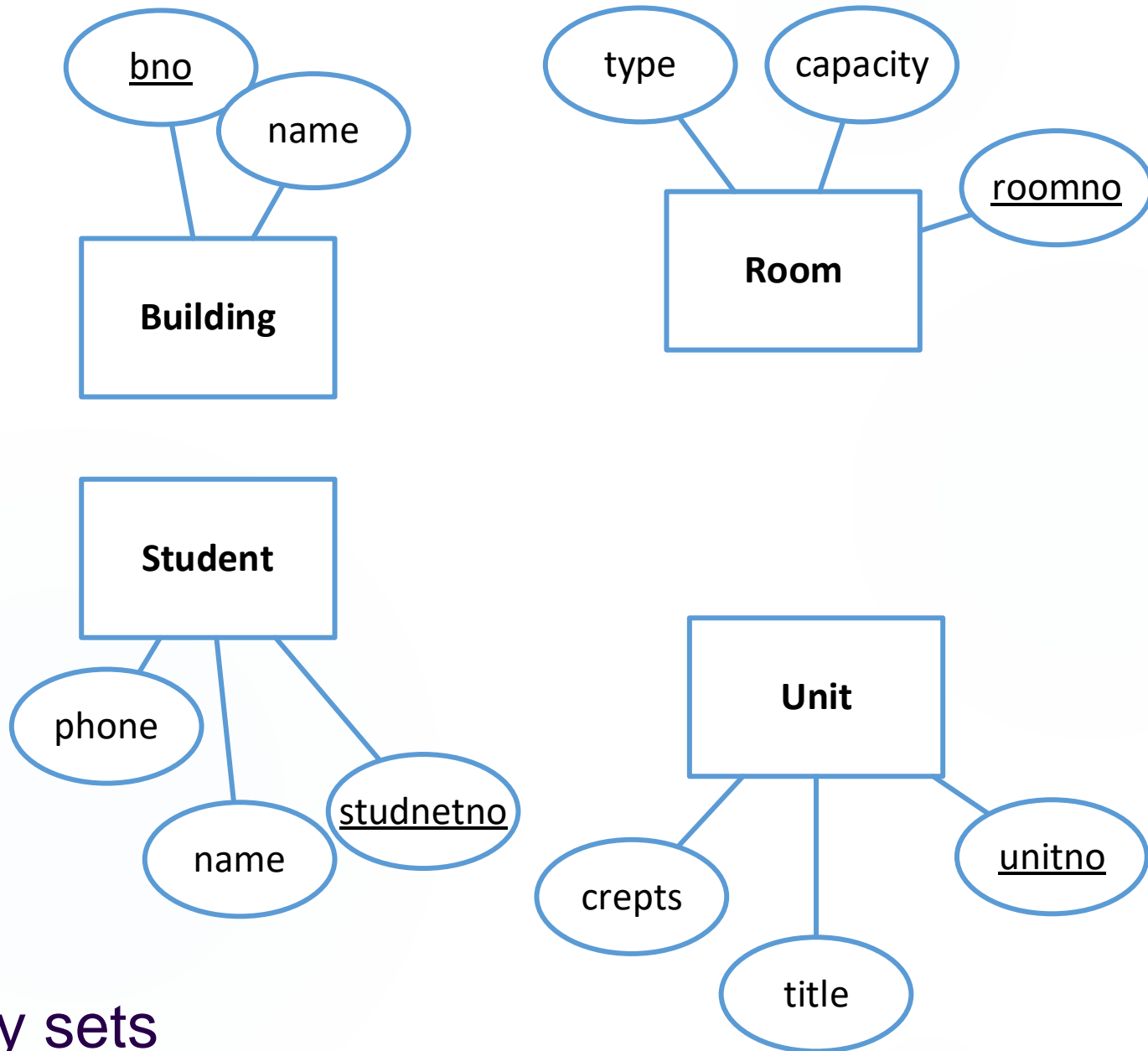
Entity sets
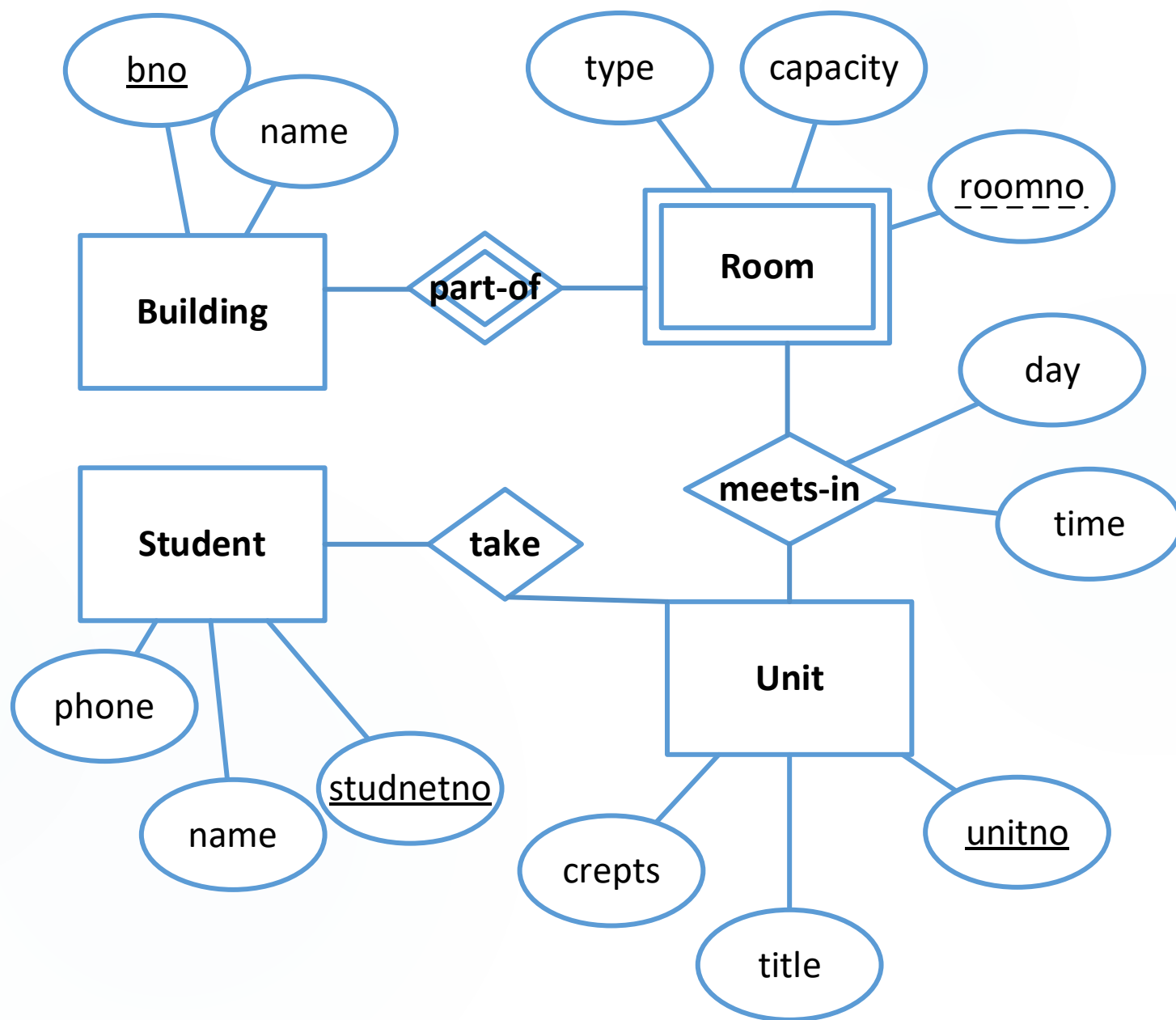
After adding relationships (Chen's notation)
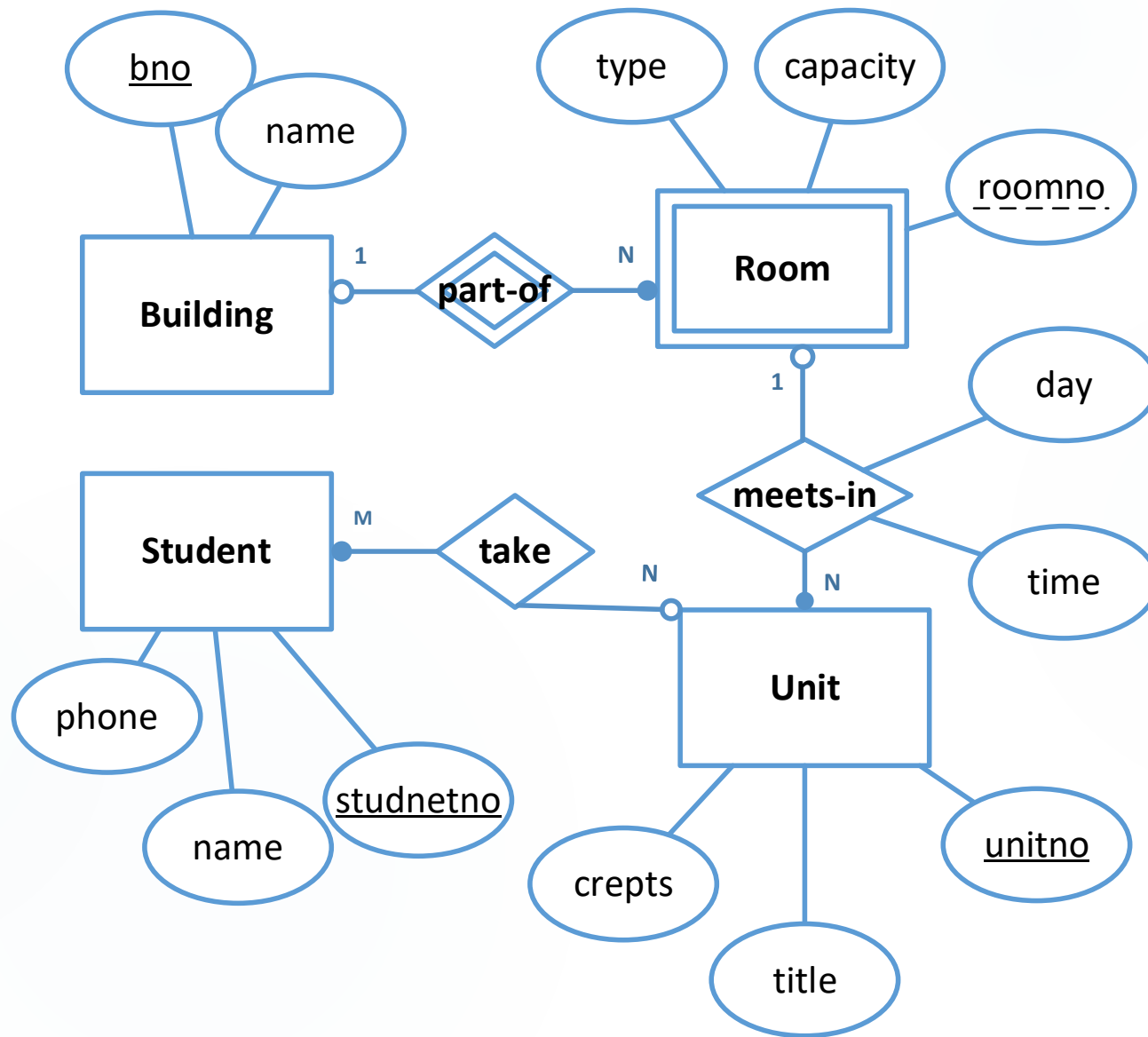
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