CS 1555

Lecture 23

**Conceptual Database Design & ER Model (continued)**

Degree of a relationship

- Number of participating entity types

- 2 entities 🡪 binary relationship

- N entities 🡪 N-ary relationship

- Recursive relationships that involve more than once the same entity type with different roles

- SUPERVISES: <supervisor-faculty, supervisee-faculty>

Constraints on relationship types

- Cardinality ration: number of relationship instances than an entity can participate in

- 1:1 – departments having chairpersons

- N:1 – children having mothers

- Participation

- Total 🡪 existence of entity depends on the existence of a related entity. Eg – Classes have total participation to OFFER\_BY department

- Partial 🡪 some entities are not related to other entities

Strong and weak entities

- Strong/ordinary: have independent existence in mini-world, part of the care of application

- Weak: dependent on another entity

- Identify owner as the specific entity on which the weak entity depends

- No key attribute

- Identifying relationship is always total participation

- May be represented as multi-value, composite attribute of owner

Observations on English statements describing database system

- nouns 🡪 entity types/sets

- verbs 🡪 relationship types