ER VARIANTS AND UML BY EXAMPLE

**ER**

- **STAFF**
  - name
  - roomno
  - Salary

**UML**

**ENTITY SETS**

**CLASSES**

<table>
<thead>
<tr>
<th>Staff</th>
<th>{name unique?}</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td></td>
</tr>
<tr>
<td>salary: integer</td>
<td></td>
</tr>
<tr>
<td>room: string</td>
<td></td>
</tr>
<tr>
<td>teachingload()</td>
<td></td>
</tr>
</tbody>
</table>

**Student**

- {studno unique?}
  - Studno: string
  - name
  - finalist
  - addTutor()

**UML**

**Staff**

- {name unique?}
  - name
  - salary: integer
  - room: string
  - teachingload()
MANY-MANY RELATIONSHIPS

ER in RG & GUW

UML

PARTICIPATION CONSTRAINTS

ER IN RG

CHEN ER

UML

WEAK ENTITIES AND IDENTIFYING RELATIONSHIPS

ER IN RG

ER IN GUW & CHEN

UML

NONEXISTING!
A KEY MUST ALWAYS EXIST
ATTRIBUTES ON RELATIONSHIPS / ASSOCIATION CLASSES

GENERALIZATION HIERARCHIES

FULL SPECIALIZATION WITH OVERLAP:

PARTIAL SPECIALIZATION WITH NO OVERLAP: