ER VARIANTS AND UML BY EXAMPLE

ENTITY SETS/
CLASSES

ER

name   roomno

STAFF

Salary

Staff
name salary: integer room: string
teachingLoad()

{name unique}

UML

Student
studno: string name
finalist addTutor()

{studno unique}

* ──── 0..1

tutor ▶

Staff
name salary: integer room: string
teachingLoad()

{name unique}

UML

---

studno

STUDENT ─✕─ tutor ─── STAFF

name

name   roomno

salary

ER IN RG

---

studno   name

STUDENT ─▷── tutor ─o‹ STAFF

name   roomno   salary

CHEN ER

---

studno   name

STUDENT ─── tutor ──▶ STAFF

name   roomno

salary

ER IN GUW

MANY-ONE-RELATIONSHIPS

1/3

MANY-MANY RELATIONSHIPS

ER IN RG & GUW
A — rel — B
A ←rel→ B (with crow's foot notation)
CHEN ER

UML
A 0..1 — * rel * — 0..1 B
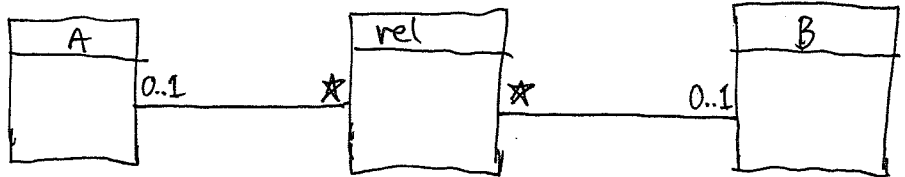
PARTICIPATION CONSTRAINTS

ER IN RG
□ ━➤ ◇ — □

□ — ◇ ➤ □
ER IN GUW
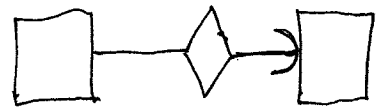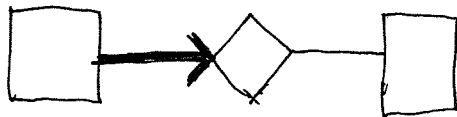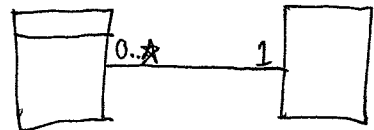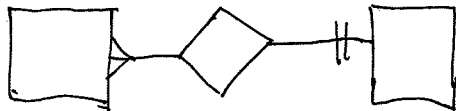
CHEN ER
□ — ◇ =‖ □

□ 0..* — 1 □
UML

WEAK ENTITIES AND IDENTIFYING RELATIONSHIPS
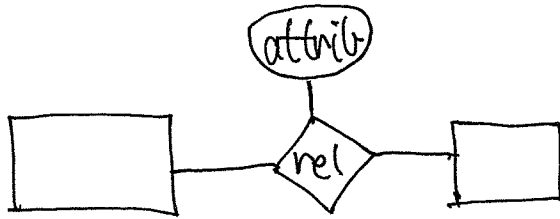
□ ➤ ◇
ER IN RG

□ — ◇
ER IN GUW & CHEN

NONEXISTING, A KEY MUST ALWAYS EXIST
UML

2/3

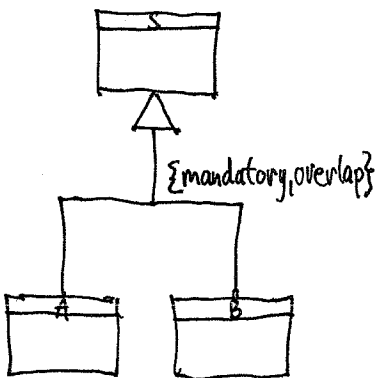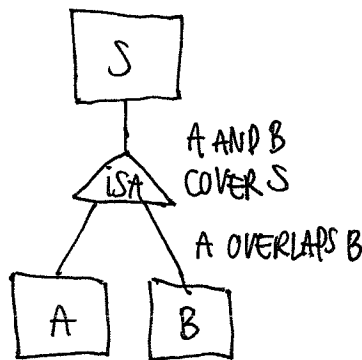# ATTRIBUTES ON RELATIONSHIPS / ASSOCIATION CLASSES

attrib

rel

ER

rel
attrib
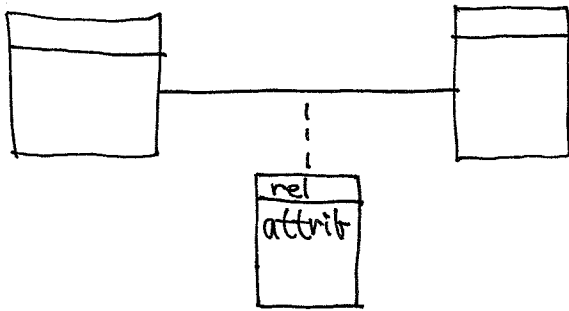
UML

GENERALIZATION HIERARCHIES

FULL SPECIALIZATION WITH OVERLAP:

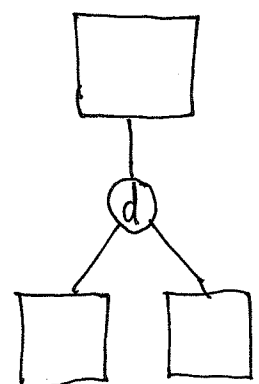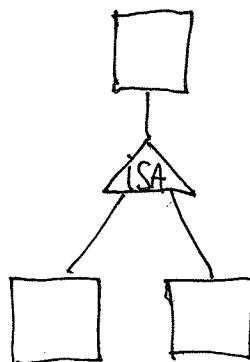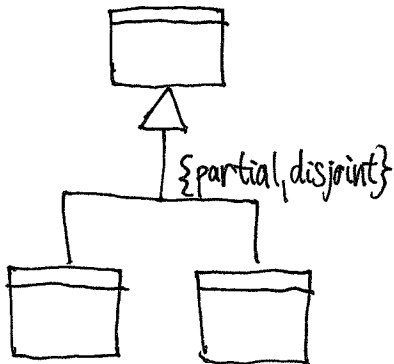{mandatory, overlap}

A   B

UML

{partial, disjoint}

S

isA

A   B

A AND B
COVERS
A OVERLAPS B

ER in RG

isA

S

o

A   B

EXTENDED ER

d
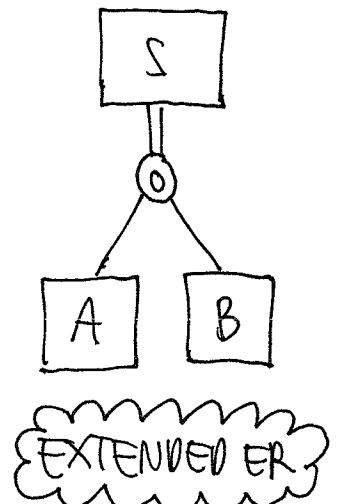
PARTIAL SPECIALIZATION WITH NO OVERLAP ↲