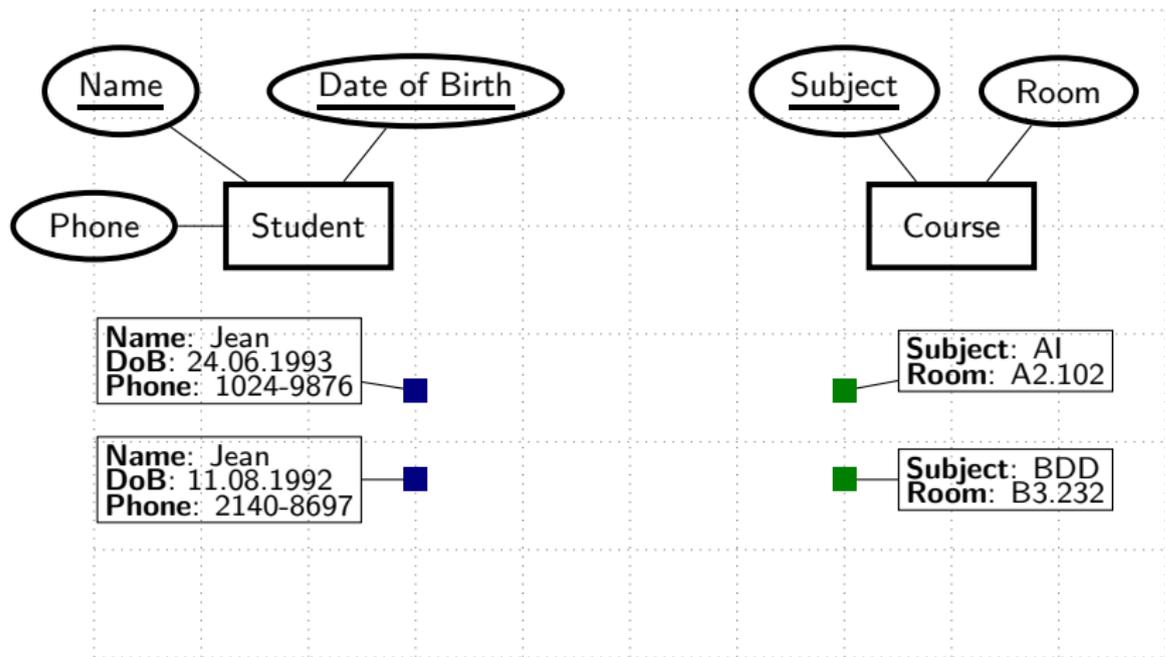# Entity/Relationship Model
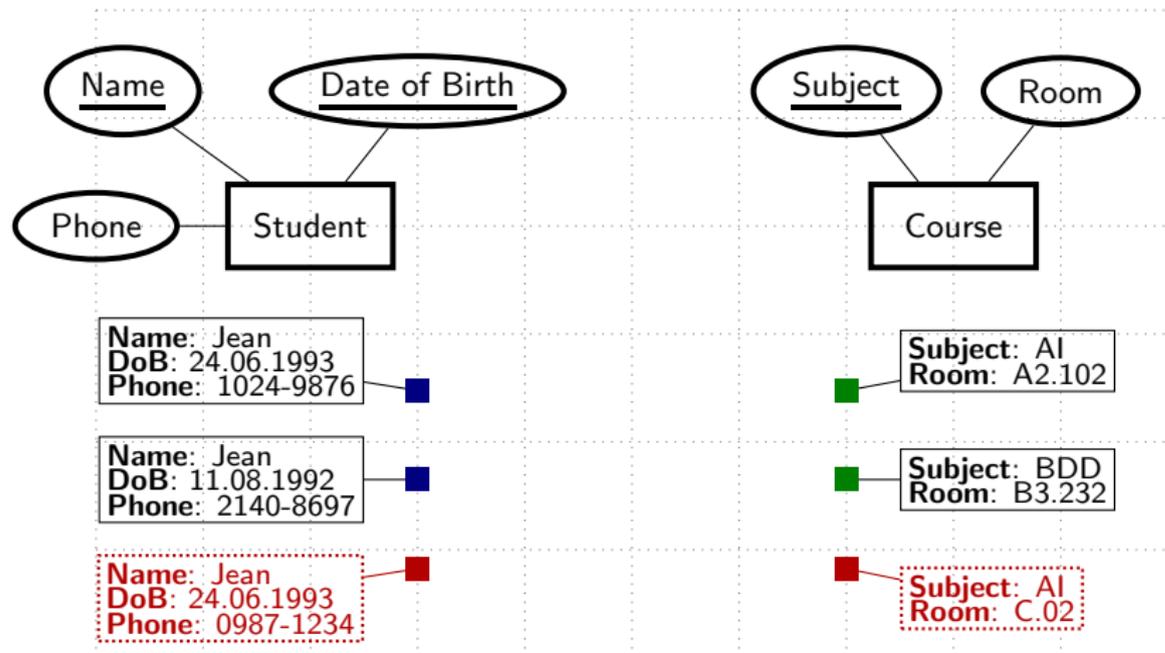## Constraints

Sławek Staworko

Univ. Lille 3

2018

Key of an Entity

Key is a set of attributes that identifies an object with its class.

Key of an Entity

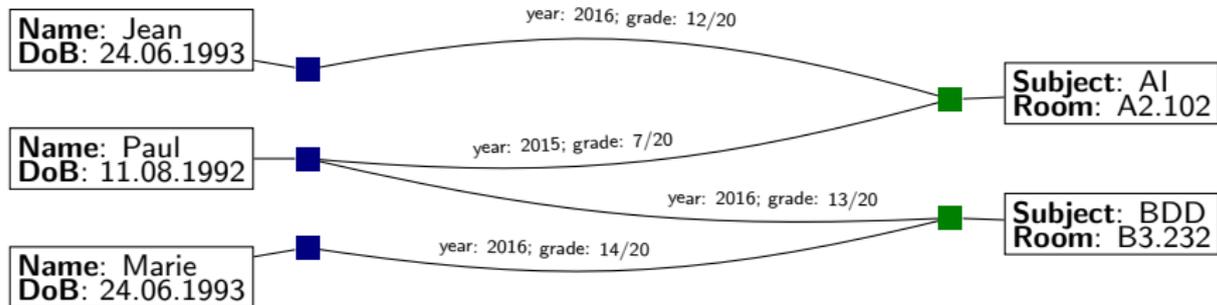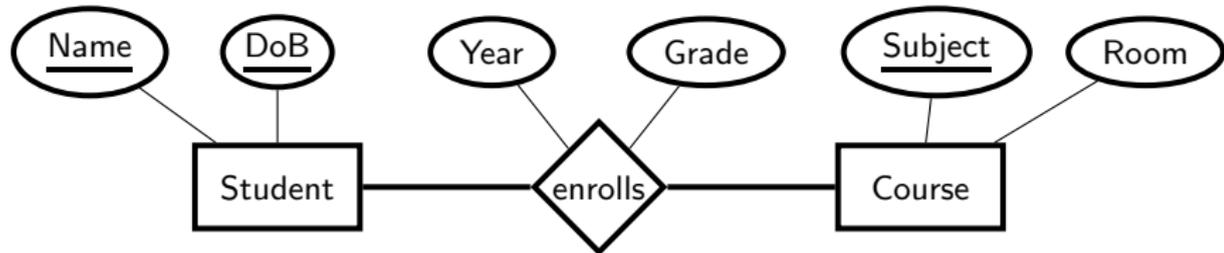Key is a set of attributes that identifies an object with its class.

Name: Jean
DoB: 24.06.1993
Phone: 1024-9876

Name: Jean
DoB: 11.08.1992
Phone: 2140-8697

Name: Jean
DoB: 24.06.1993
Phone: 0987-1234

Forbidden: two students with
the same name and the same date of birth

Subject: AI
Room: A2.102

Subject: BDD
Room: B3.232

Subject: AI
Room: C.02

Forbidden: two courses with
the same subject

Relationships with no key
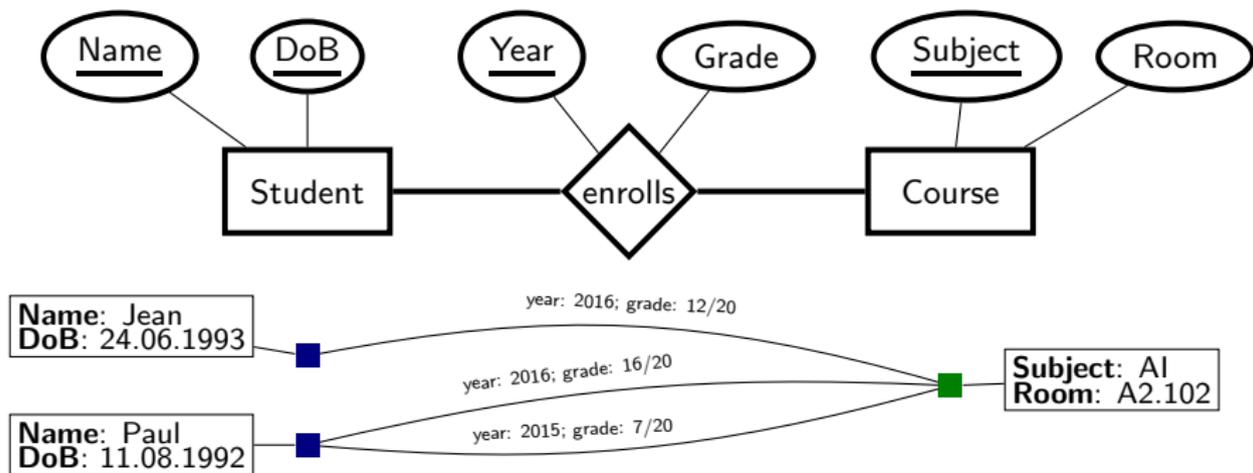
Only one link between the same objects is allowed

Name: Jean DoB: 24.06.1993		year: 2016; grade: 12/20		Subject: AI Room: A2.102
Name: Paul DoB: 11.08.1992		year: 2015; grade: 7/20		
		year: 2016; grade: 13/20		Subject: BDD Room: B3.232
Name: Marie DoB: 24.06.1993		year: 2016; grade: 14/20		

Entities and attributes shown:

- **Student** — Name, DoB
- **enrolls** — Year, Grade
- **Course** — Subject, Room

Relationships with no key

Only one link between the same objects is allowed

| Name: Jean | | year: 2016; grade: 12/20 | | Subject: AI |
| DoB: 24.06.1993 | | year: 2016; grade: 16/20 | | Room: A2.102 |

year: 2015; grade: 7/20

Name: Paul
DoB: 11.08.1992

year: 2016; grade: 13/20

Subject: BDD
Room: B3.232

Name: Marie
DoB: 24.06.1993

year: 2016; grade: 14/20
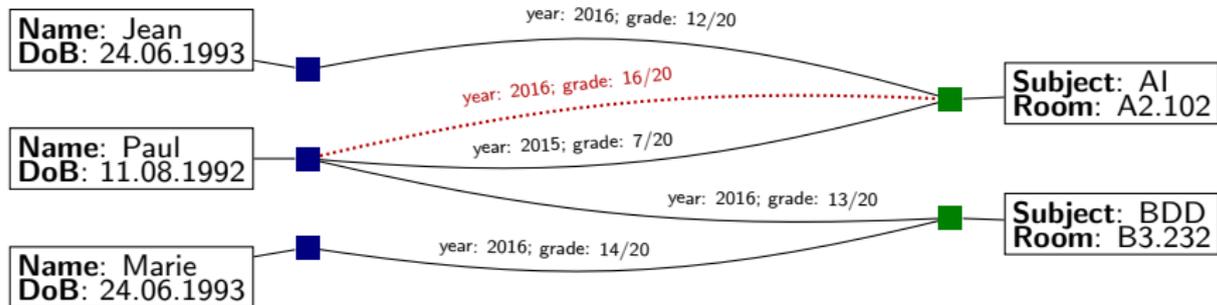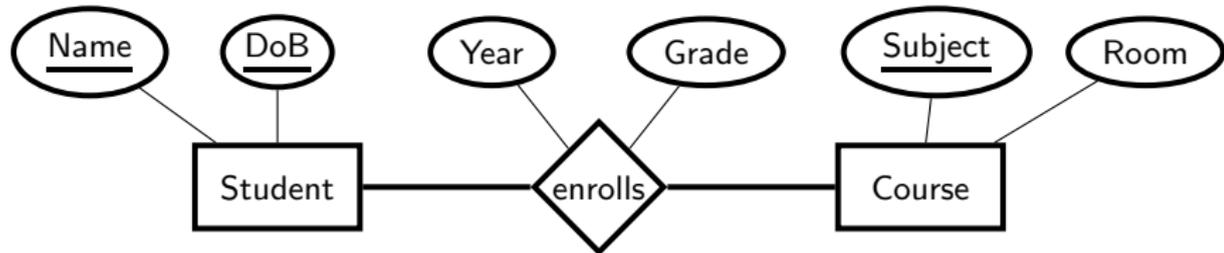
Forbidden: two links between Paul and AI

Keys of a Relationship

Only one link between the same objects with the same key value

Name   DoB   Year   Grade   Subject   Room

Student — enrolls — Course

Name: Jean
DoB: 24.06.1993

Name: Paul
DoB: 11.08.1992

year: 2016; grade: 12/20

year: 2016; grade: 16/20

year: 2015; grade: 7/20

Subject: AI
Room: A2.102

Keys of a Relationship

Only one link between the same objects with the same key value
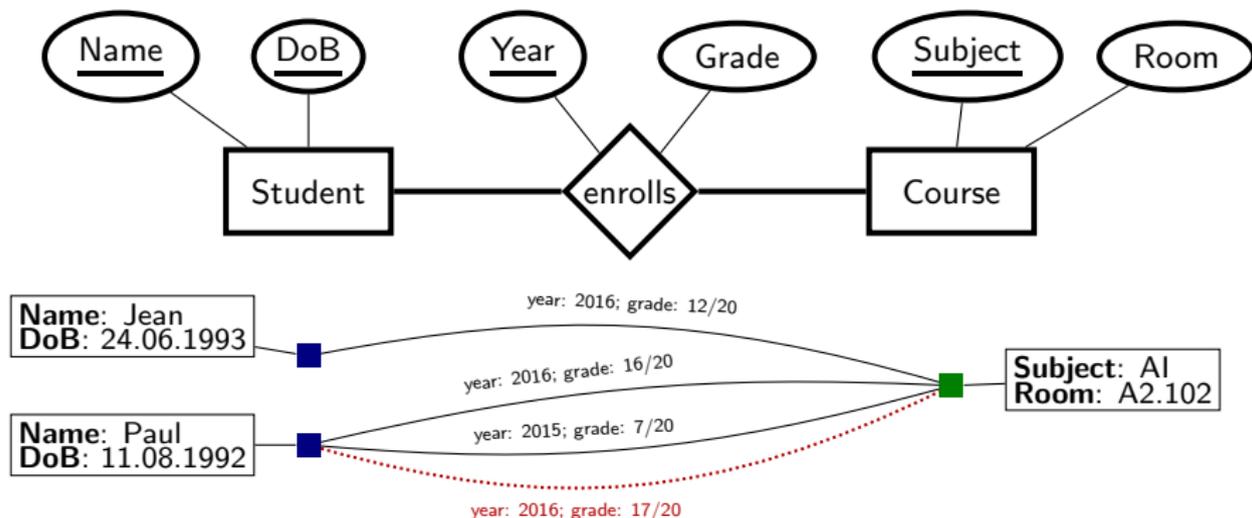
Forbidden: two links between Paul and AI for year 2016
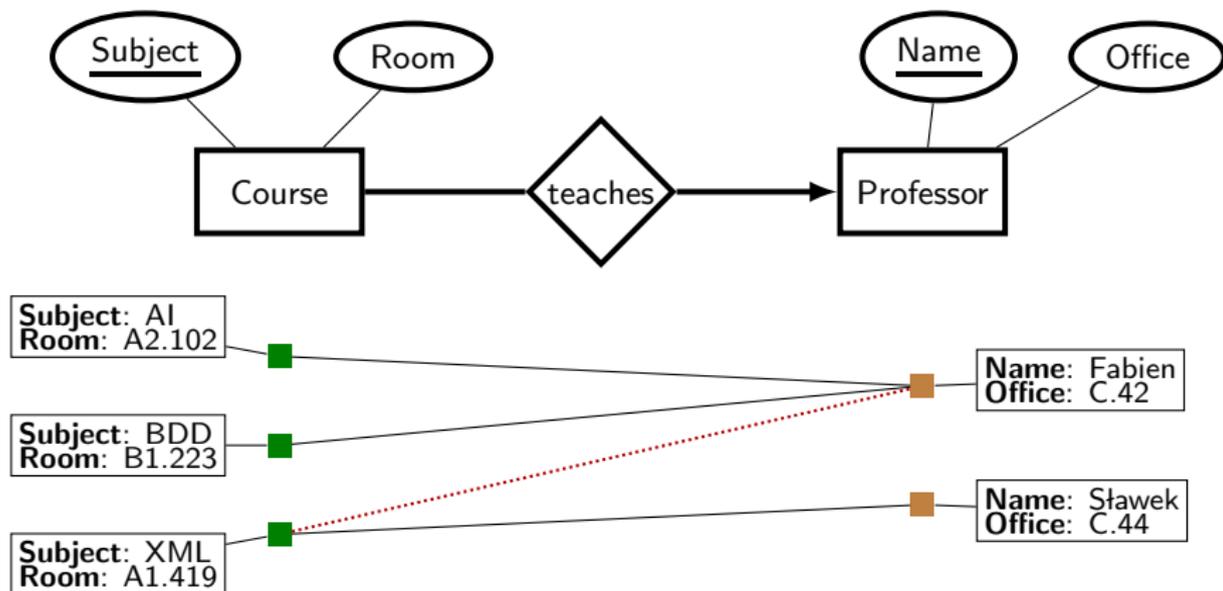
Functional Relationship

The arrow points at entity that is uniquely identified
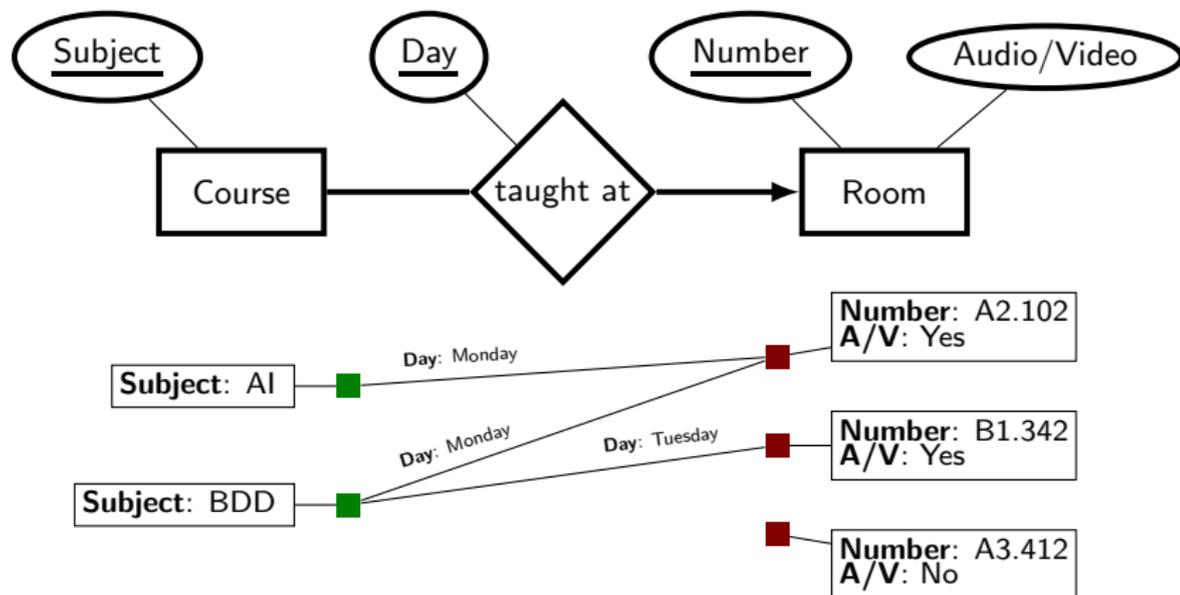through the relationship
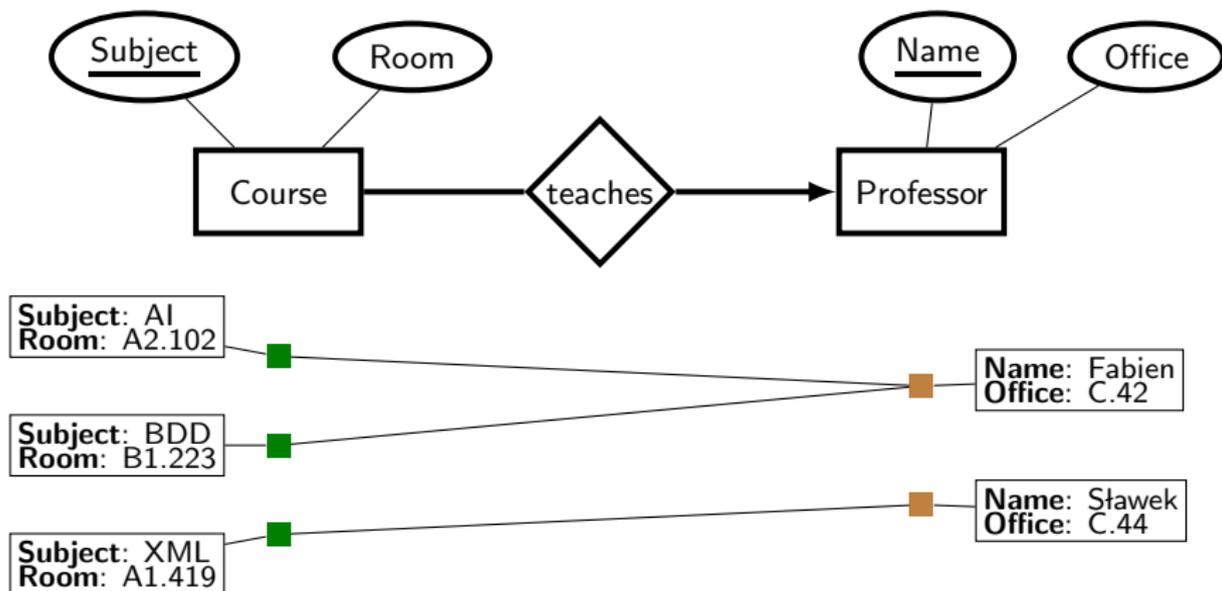
Functional Relationship

The arrow points at entity that is uniquely identified
through the relationship

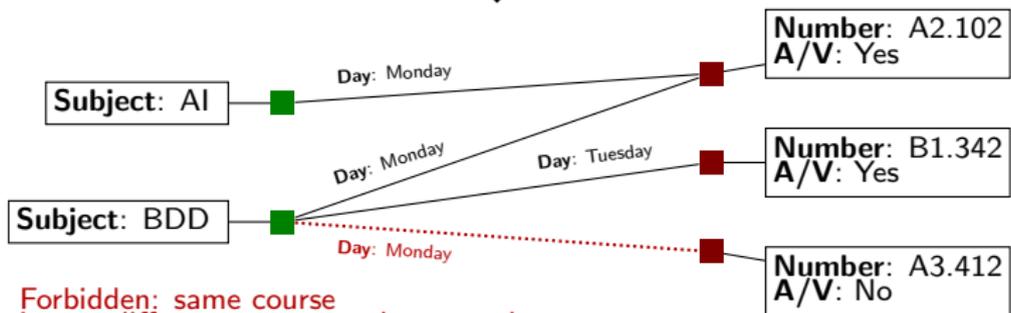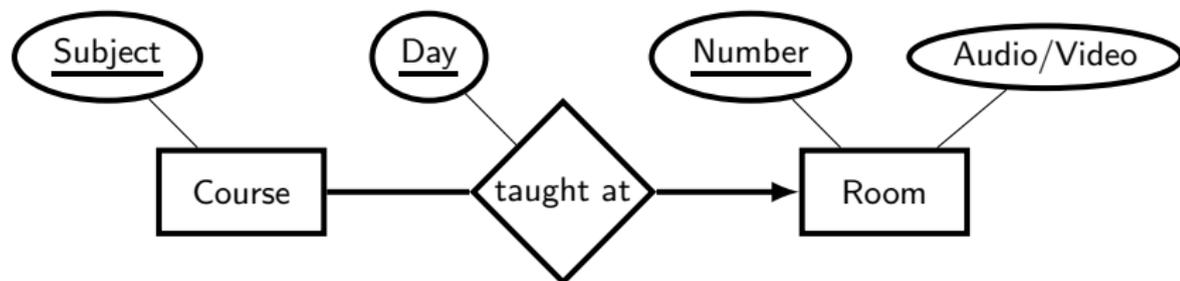Forbidden: two professors teaching the XML course

Functional Relationship with a key

The arrow points at entity that is uniquely identified
through the relationship and the key value
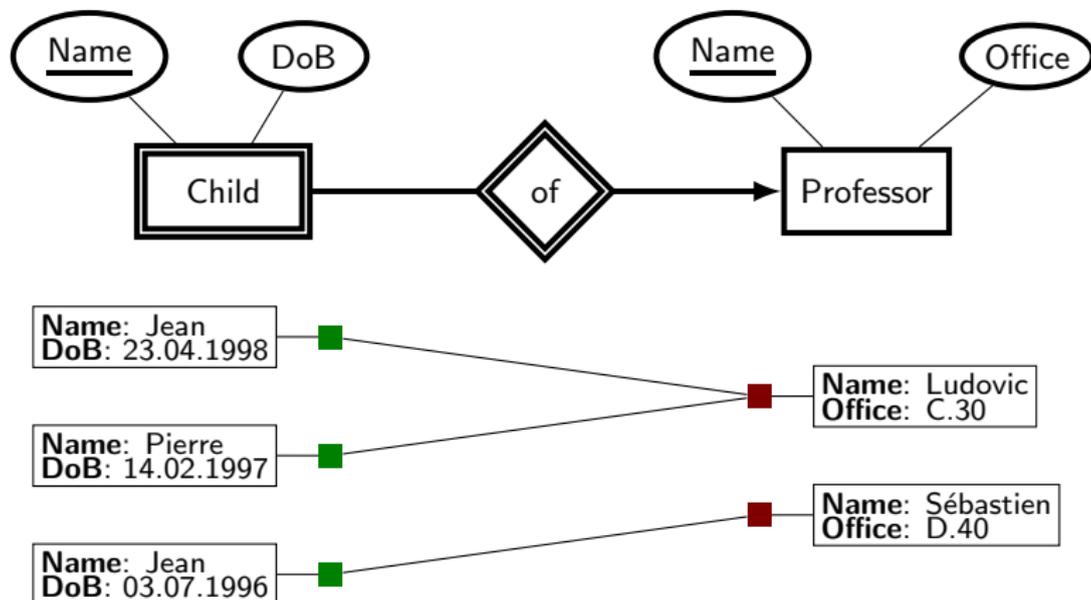
Functional Relationship with a key

The arrow points at entity that is uniquely identified
through the relationship and the key value

Forbidden: same course
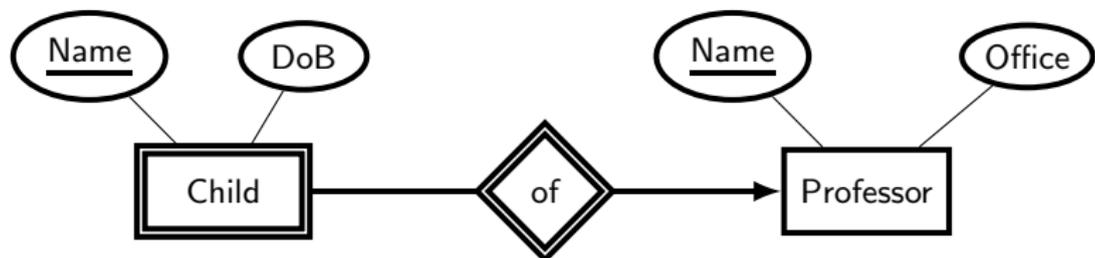in two different rooms on the same day

Weak Entity (and its identifying relationship)

Key of a weak entity identifies among objects of the same parent

Weak Entity (and its identifying relationship)

Key of a weak entity identifies among objects of the same parent

Name: Jean	**DoB**: 23.04.1998
Name: Pierre	**DoB**: 14.02.1997
Name: Jean	**DoB**: 03.07.1996
Name: Jean	**DoB**: 12.07.1995

Child — of → Professor

Name, DoB (Child); Name, Office (Professor)

Name: Ludovic
Office: C.30

Name: Sébastien
Office: D.40

Forbidden: two children with the same name of the same professor