Design of Information Systems

Variety of UML Associations

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UML Associations

- Binary association; standard association with two association arms
- Association class; association with attributes
- Reflexive association; association with one class participating twice
- Ternary / n-ary association; with at least three association arms
- Aggregation; weak part-whole relationship; weak binding of part to whole
- Composition: strong part-whole relationship; strong binding of part to whole
- Functional association; 0..1 or 1..1 multiplicity
- Qualified association; with qualifier attribute(s); array-like construct
- Derived association; with defining OCL term; determines path in class diagram
- Above classification not disjoint, partly overlapping
Binary association & Association class
Reflexive association
Ternary association

Diagram showing a ternary association between entities. The diagram includes:
- ada: Student with roles examinee and recorder
- bob: Student with role examinee
- severus: Employee with roles examiner and recorder
- albus: Employee with role examiner
- minerva: Employee with role recorder
Aggregation
Composition & Functional association
Qualified association
Derived association
USE model

model StudentWorld

class Person
end

class Event
end

class Student < Person
end

class Course < Event
end

class Project < Event
end

association Attendance between
    Student[*] role attendee
    Course[*] role attended
end
associationclass Tutorial between
    Student[*] role tutor
    Course[*] role tutored
attributes
    salary:Integer
end

association KnowsByName between
    Student[*] role knower
    Student[*] role known
end

class Employee < Person
end

association Examination between
    Student[*] role examinee
    Employee[*] role examiner
    Employee[*] role recorder
end
aggregation Prerequisite between
   Course[*] role later
   Course[*] role former
end

class Homework
end

association Homeworking between
   Student[1] role author
   Homework[*] role paper
end

composition CourseHomework between
   Course[0..1] role course
   Homework[*] role paper
end