

Introduction to Object-Oriented Technologies

**Basic Concepts
on Interaction**

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Schedule(1/3)

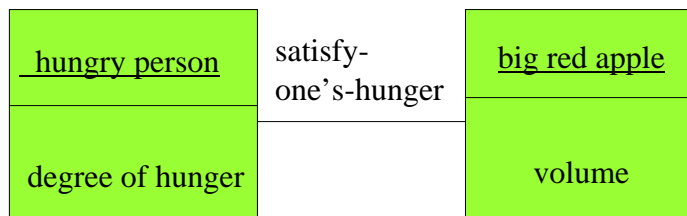
- Feb. 20th
 - 13:00 Scope and Goal (History of SPMs and SDMs, History of OO-technologies)
 - 14:30 Basic Concepts on Representing the World (object, class, association, aggregation...)
- Feb. 21th
 - 13:00 **Basic Concepts on Interaction** (message passing, operation and method, polymorphism)
 - 14:30 Basic Concepts on Reuse (super class, class inheritance, interface inheritance)

Object and Message passing (Notations for representing and describing the world)

message passing, operation, method,
polymorphism

What is an interaction between objects ?

If the hungry-person munches the apple,
the volume of the apple decreases and
the degree of hungry of the person changes.



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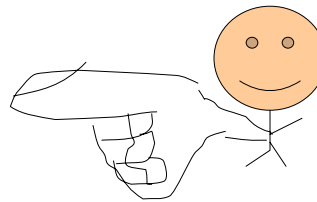
How can objects interact?

- Objects can interact with each other by **Message Passing**.

bankbook1 object

bankbook1
the balance
PIN
deposit
withdraw
check the balance

some-person object



bankbook1 **how much is the balance**
 receiver selector

 message

Ochimizu, Higashida, "Object Modeling", Addison-Wesley Publishers Japan

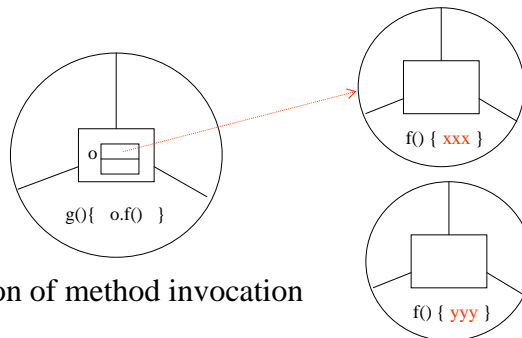
Operations and Methods

- An operation is a definition of service to other object that supports us to ask the state of the object and to change the state of the object where the state of the object means value of the attributes.
- Operations are elements of a class.
- Signature defines the interface of an operation that consists of a name, zero or more types of parameters, and a type of return value
- An method is an implementation of an operation.

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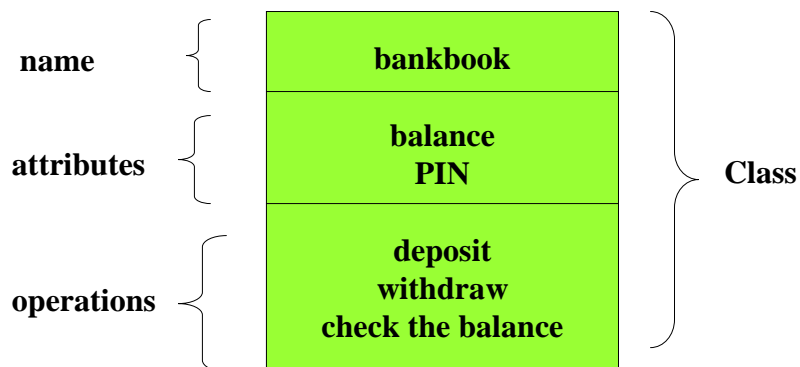
Polymorphism

- There are numbers of objects that can respond to the same message
- Translation of axes by (x ,y). There are many geometric objects: a line, a line graph, a triangle.
- Dynamic Binding



What is a unit of modeling and programming in OOT ?

- **Data(attributes) + Operations = Class**



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Exercise

- **Review the content of my lecture by answering the following simple questions. Please describe the definition of each technical term.**
 1. **What is an operation?**
 2. **What is a signature?**
 3. **What is a method?**
 4. **What is a polymorphism?**
 5. **What is a state of an object?**