

UNIFIED MODELING LANGUAGE

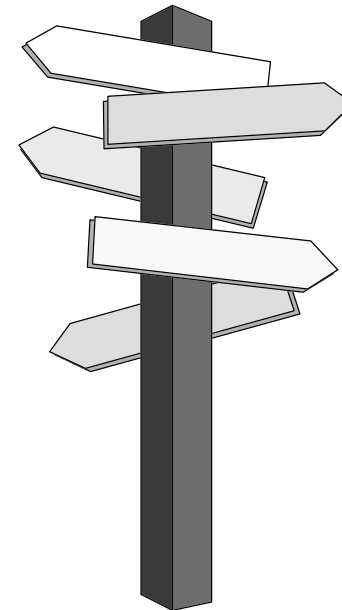


Interaction Modeling

Radovan Červenka, October 1998 (version 0.04)

Context

- ✓ Introduction
- ✓ Generic Mechanisms
- ✓ Use Case Modeling
- ✓ Static Structure Modeling
- ✓ Dynamic Behavior Modeling
- ➔ **■ Interaction Modeling**
 - Physical Structure Modeling
 - General Extension Mechanisms



Interaction Model

→ **mutual interaction/co-operation of objects**

Consists of:

- Sequence Diagrams
- Collaboration Diagrams
- Element Descriptions

Used (mainly) in:

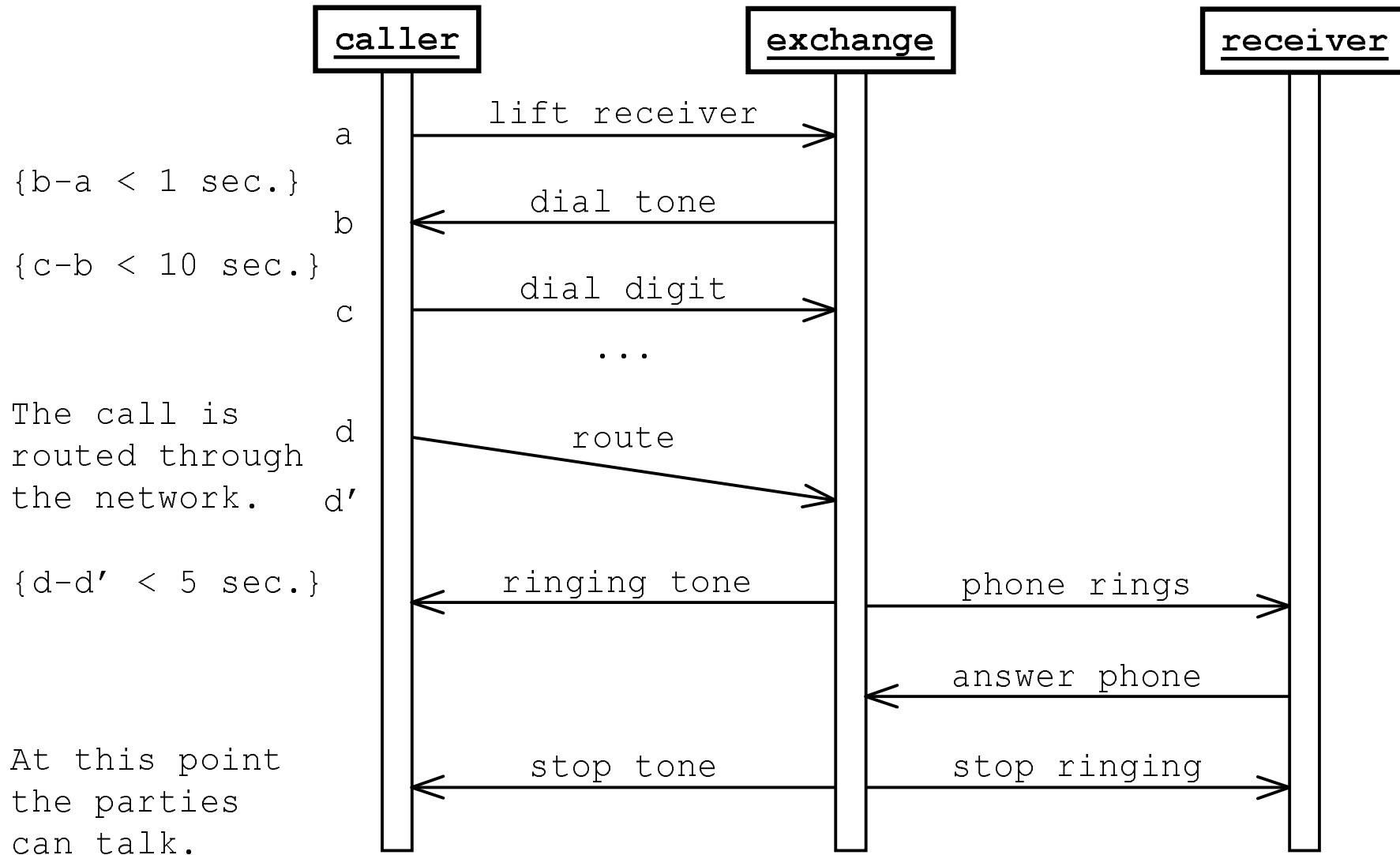
- Analysis and Design ⇒ use case implementation and interaction of objects

Sequence Diagram

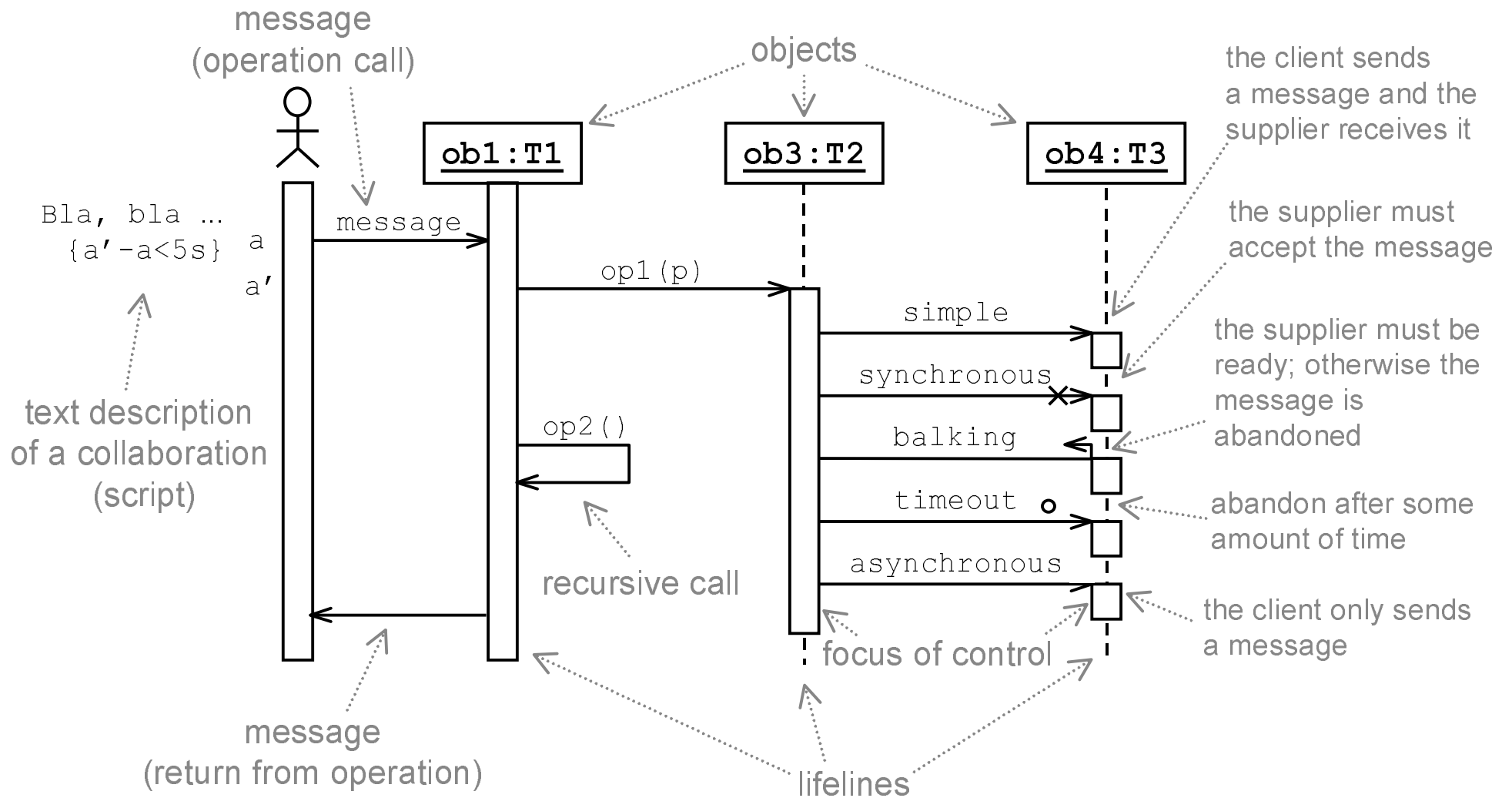
→ **object interactions (messages sending) arranged in time sequence**

- from the semantics point of view it overlaps a *Collaboration Diagram*
- * this kind of diagram is in other methods (Booch, OMT, etc.) called *Interaction Diagram*

Sequence Diagram Example



Sequence Diagram Notation (Rational Rose 98)



Collaboration Diagram

→ **structure of objects and their interactions**

Collaboration

→ a *Context* that supports a set of *Interactions*

Context

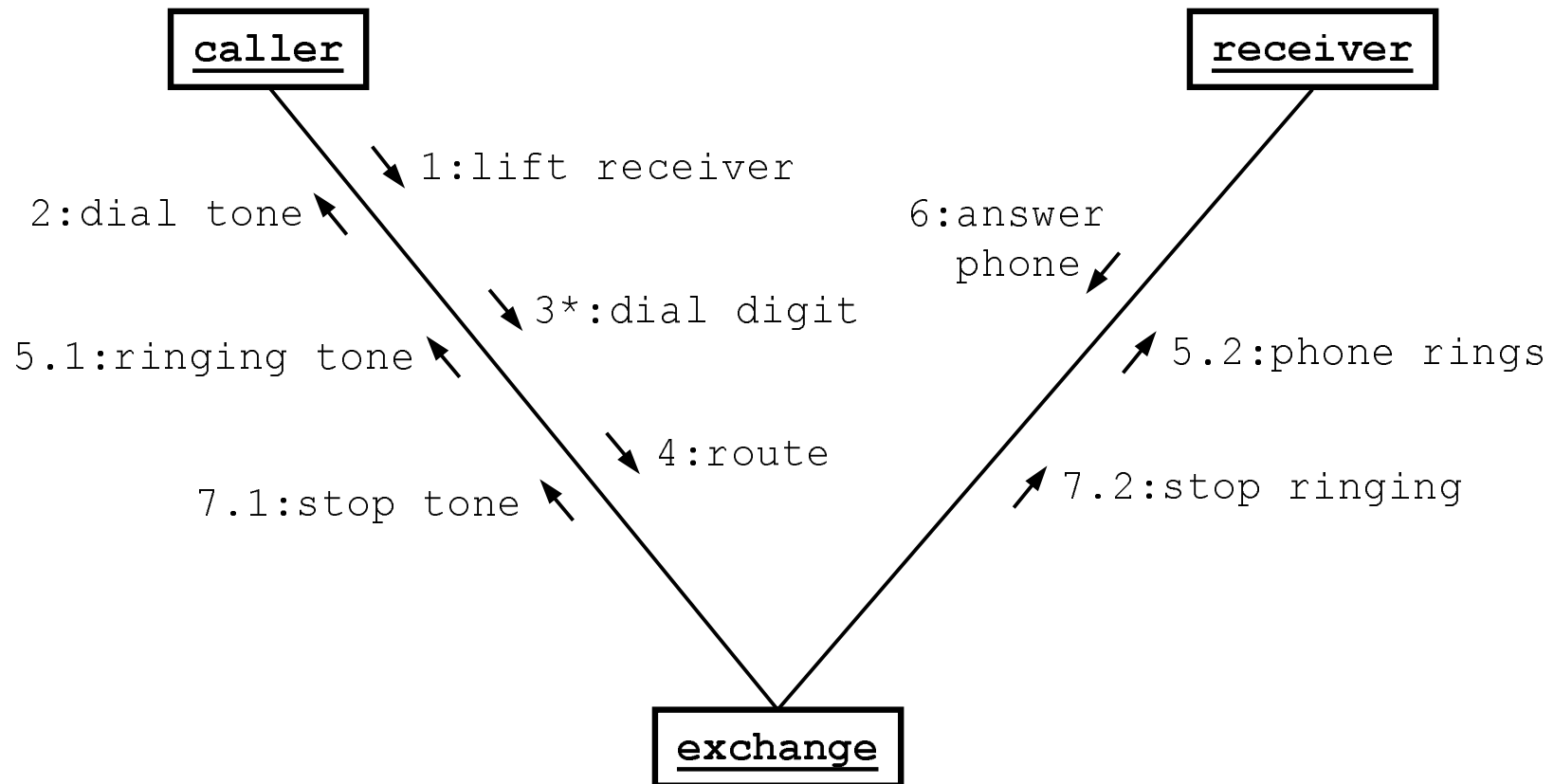
→ description of static structure of the involved objects, including relevant links, attributes and operations

Interaction

→ description of the sequence of the messages, which are sent among the objects of the context

* Collaboration is assigned to the use case or to the operation

Collaboration Diagram Example



Multiobject

- a set of objects on the “many” end of an association
- it allows to specify messages, which are sent to sets of objects



Message

Message

→ a communication between objects that conveys information

- it is implemented as a method calling, signal sending (between processes), explicit event occurrence, etc.
- types as in *Sequence Diagrams*
- message label

sequence_number:message_signature

Process of Interaction Modeling

- Identify objects participating in the collaboration
- Trace an interaction (scenario or algorithm) and add messages and links
- Specify synchronization; if needed

Summary

Sequence Diagram

- Object
- Lifeline
- Message
- Recursive Call
- Text Description

Collaboration Diagram

- Context
- Interaction
- Multiobject
- Message
- Process of Interaction Modeling