

## UNIFIED MODELING LANGUAGE



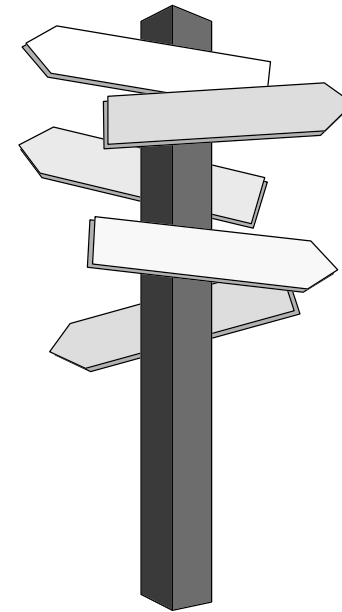
# Interaction Modeling

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*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:**

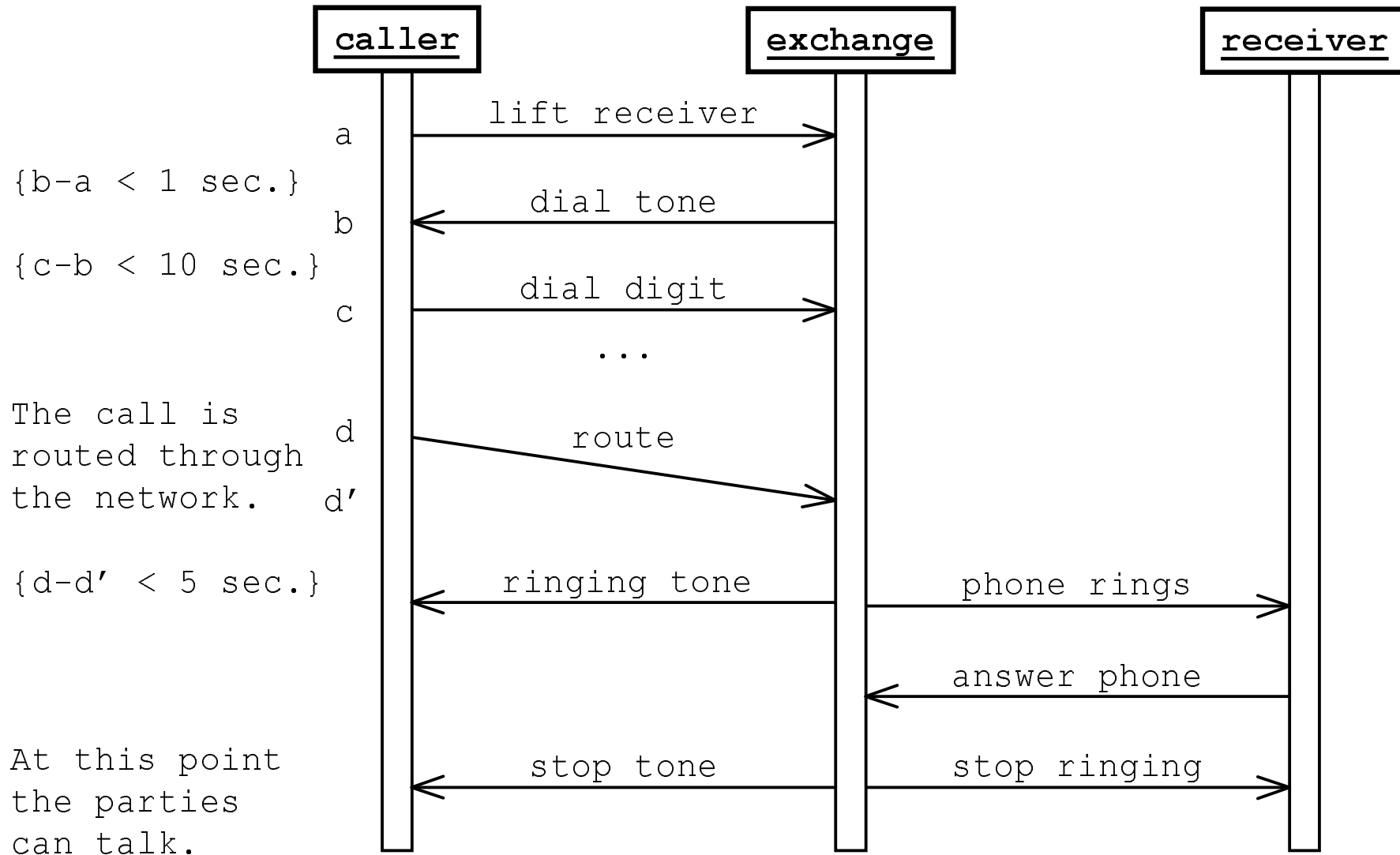
- Analysis and Design ⇒ use case implementation and interaction of objects

# Sequence Diagram

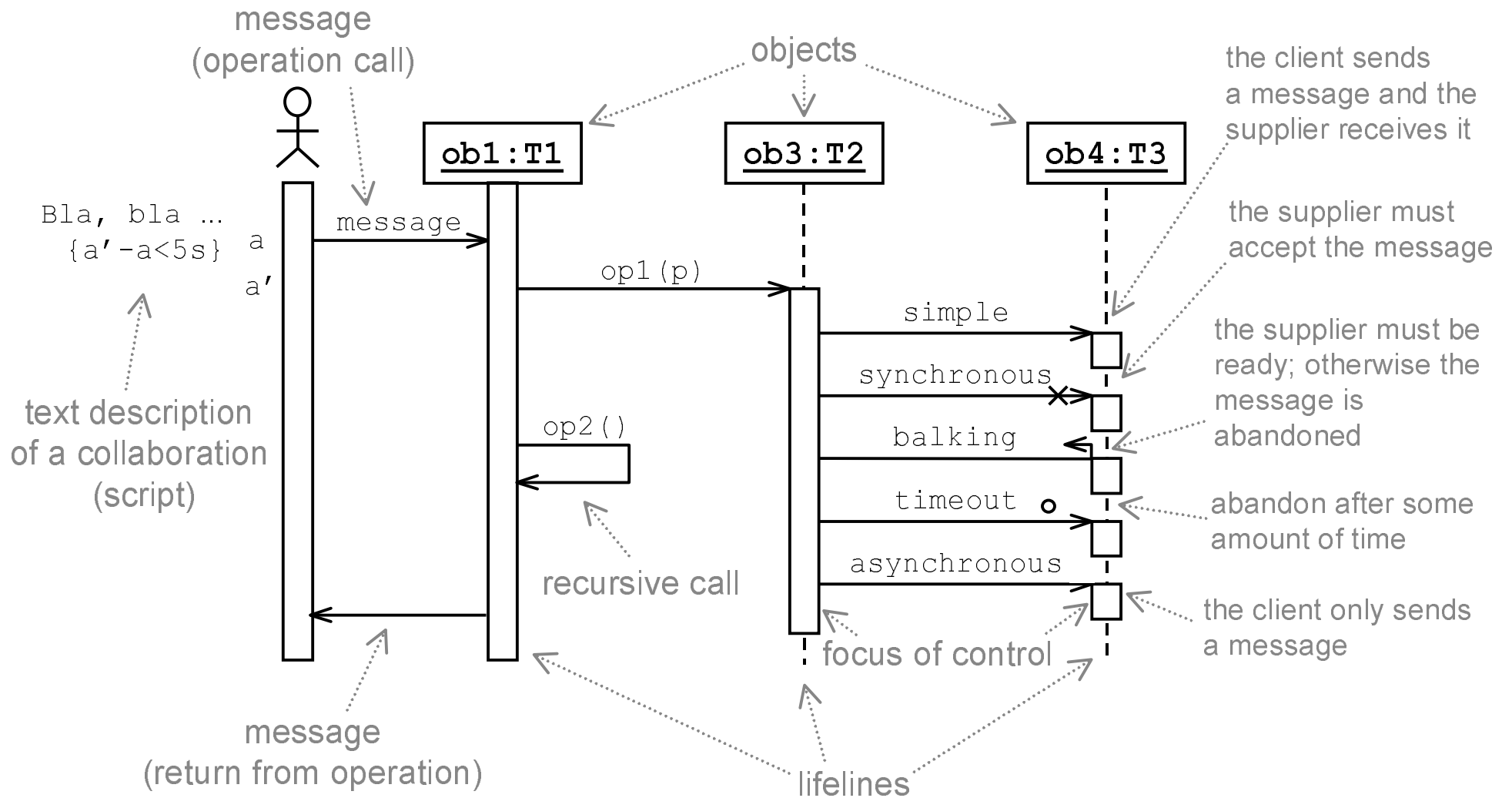
→ **object interactions (messages sending) arranged in time sequence**

- 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

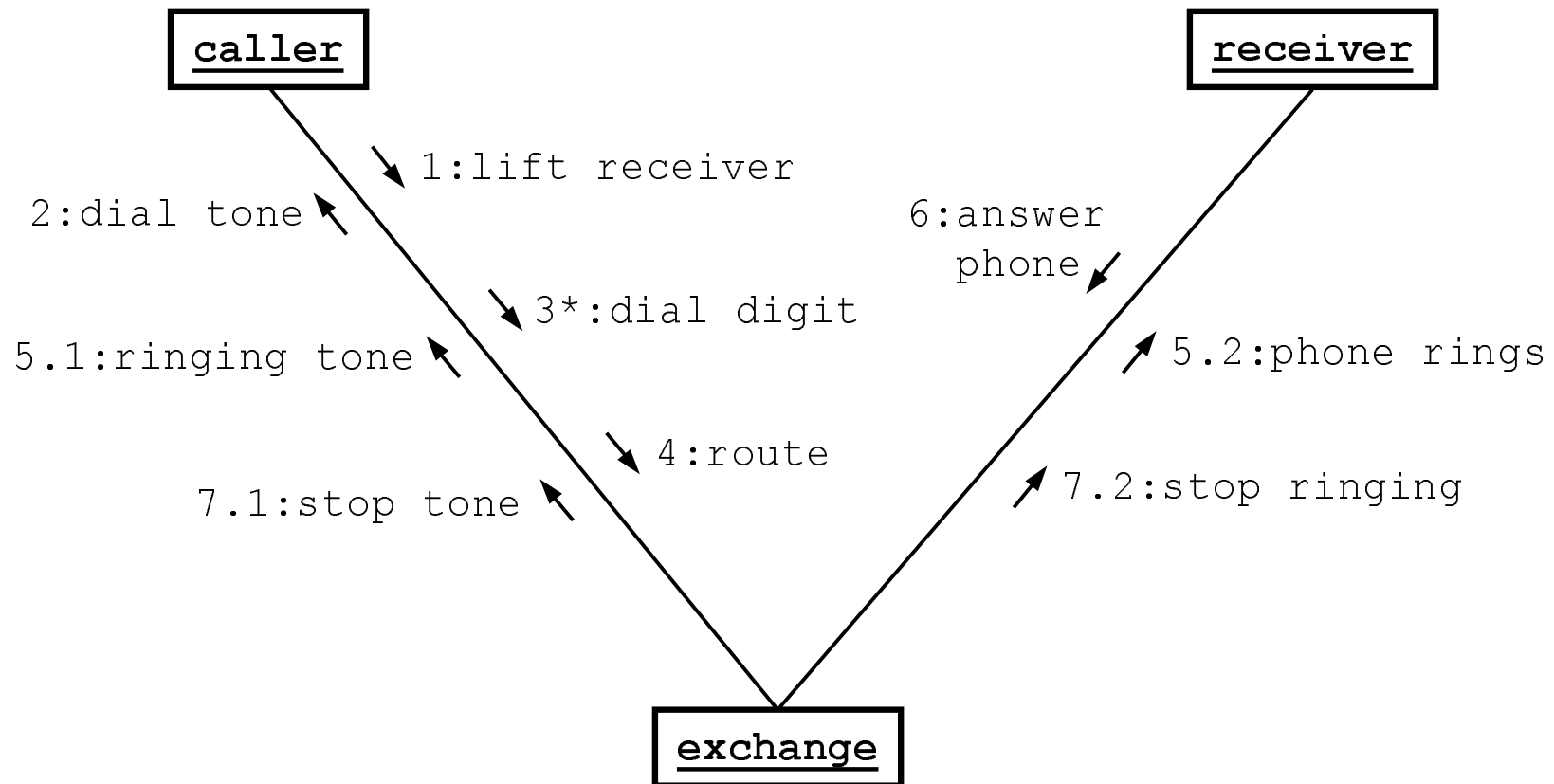
→ description of static structure of the involved objects, including relevant links, attributes and operations

### 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