Behavioural Modelling: Interaction Diagrams

Software Systems — Design — L4T2

Dr. Vadim Zaytsev aka @grammarware, 2020

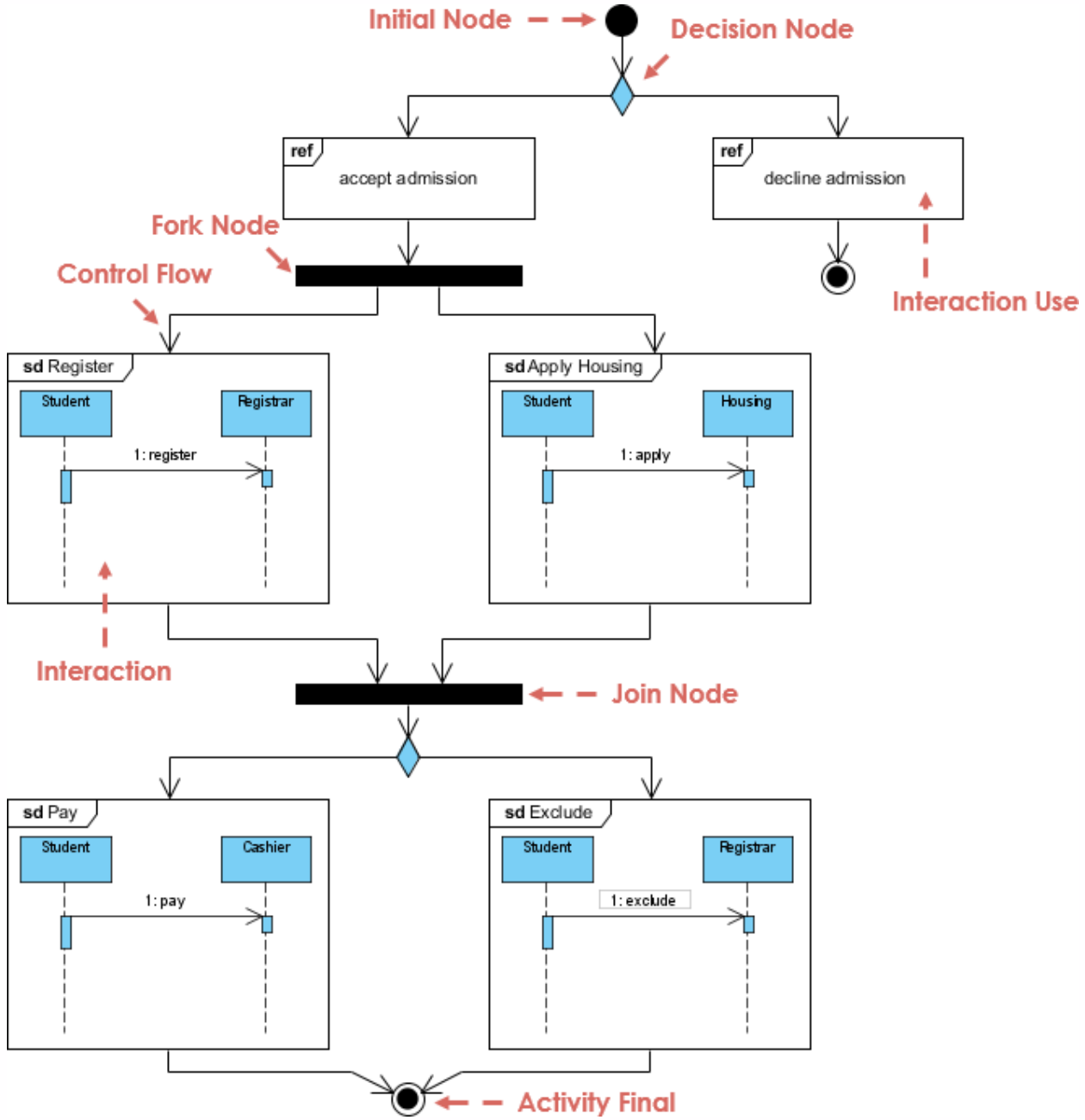
UNIVERSITY OF TWENTE.
Formal Methods & Tools

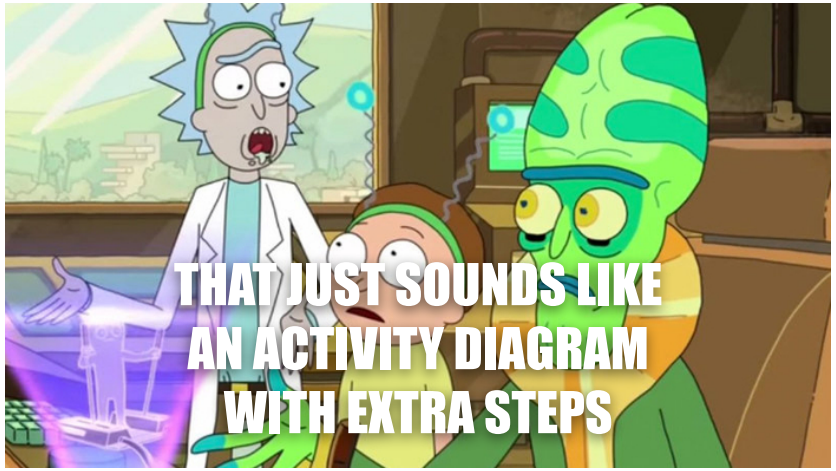
Behavioural Modelling

- is opposed to structural modelling
- Static views of the system:
  - Object Diagrams, Class Diagrams
- Dynamic views:
  - Activity Diagrams
  - Interaction Diagrams
    - Sequence Diagrams
  - State Machine Diagrams

Visual Paradigm guides, *UML – Behavioral Diagram vs Structural Diagram*

Interaction Overview Diagram

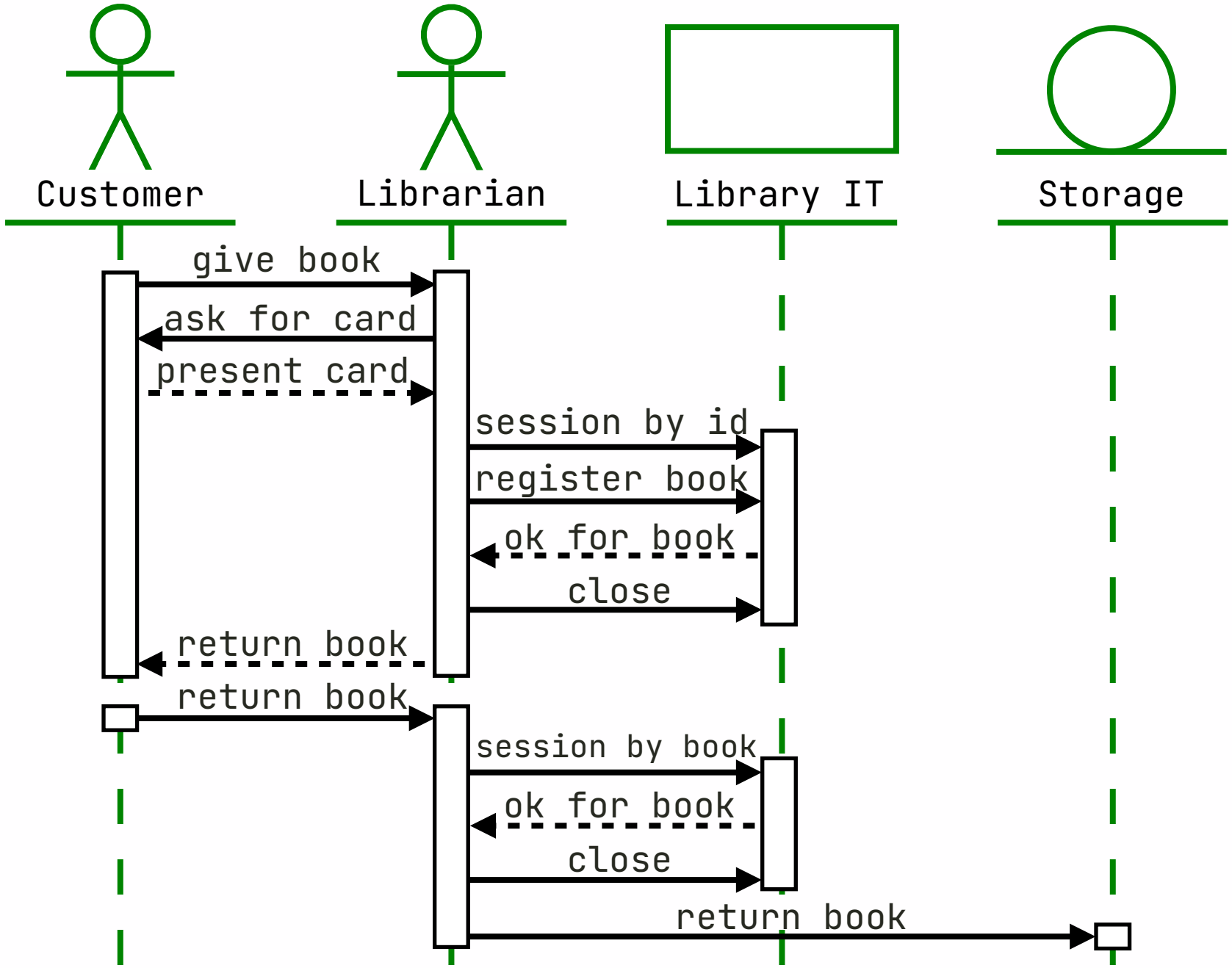




Visual Paradigm support, *What is Interaction Overview Diagram?*

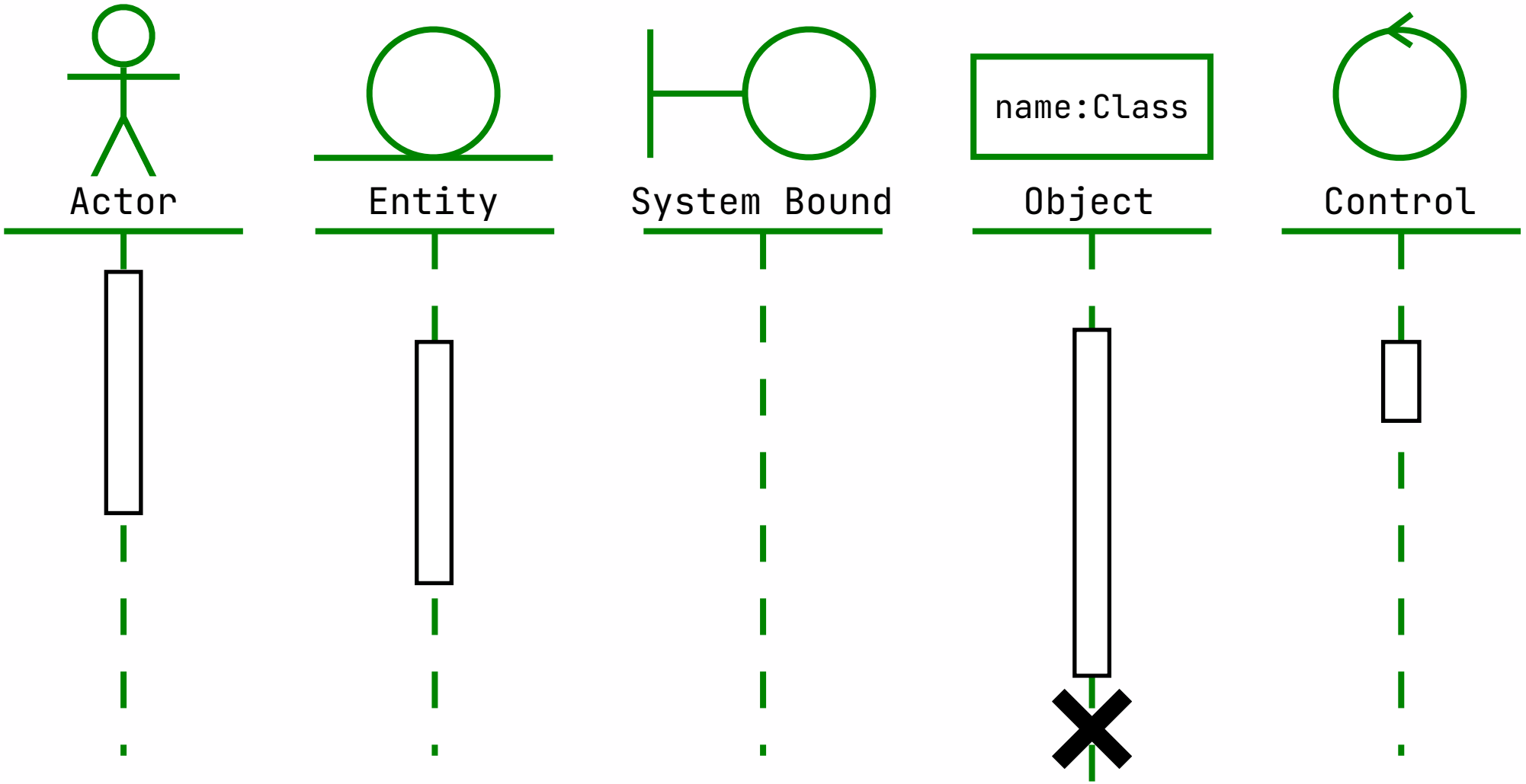
Sequence Diagrams

- As expressive as Communication Diagrams
- Accessible to non-coders
- Close to code in abstraction level
- Language-independent
- Useful in
  - Construction
  - Testing

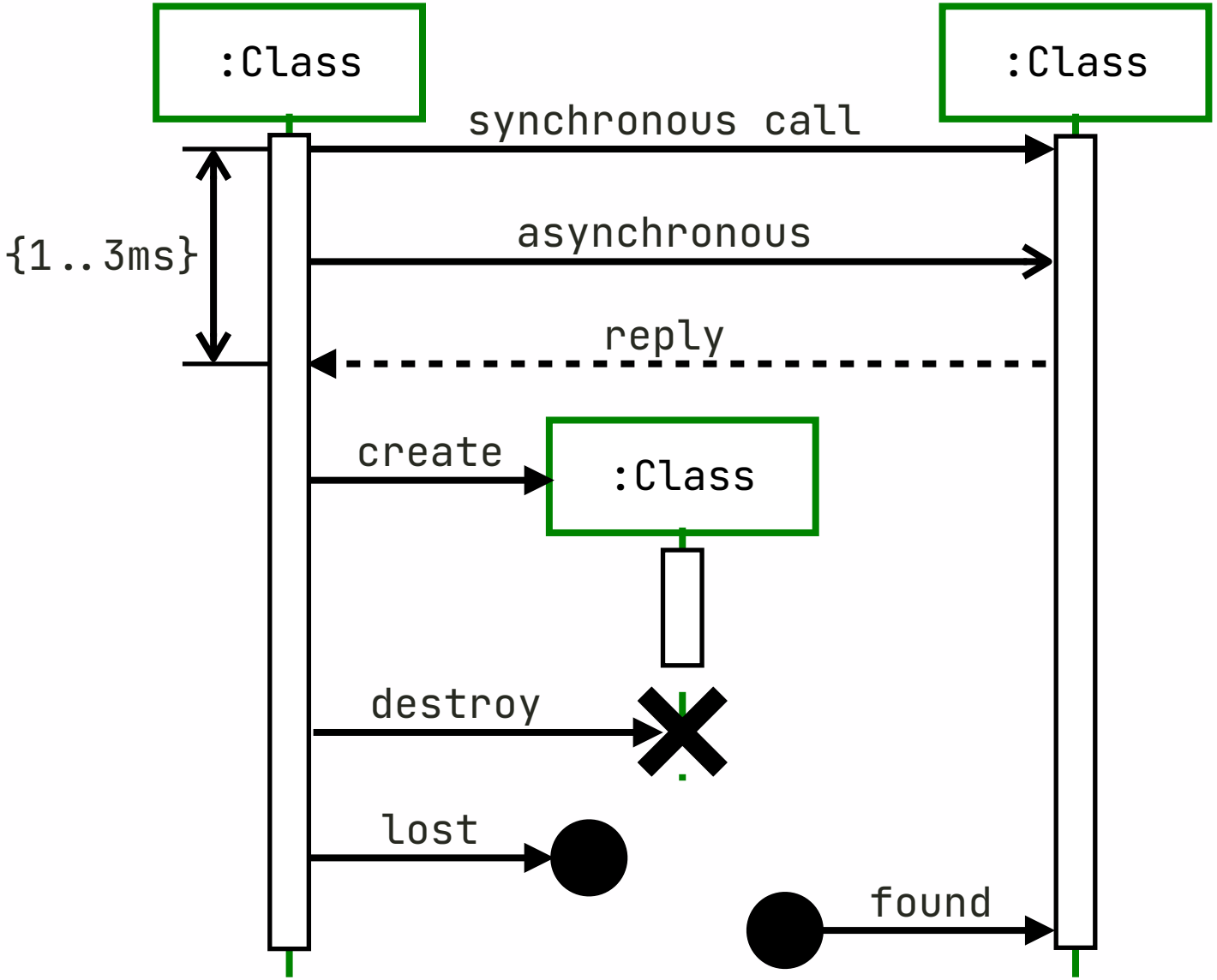


Sequence Diagram

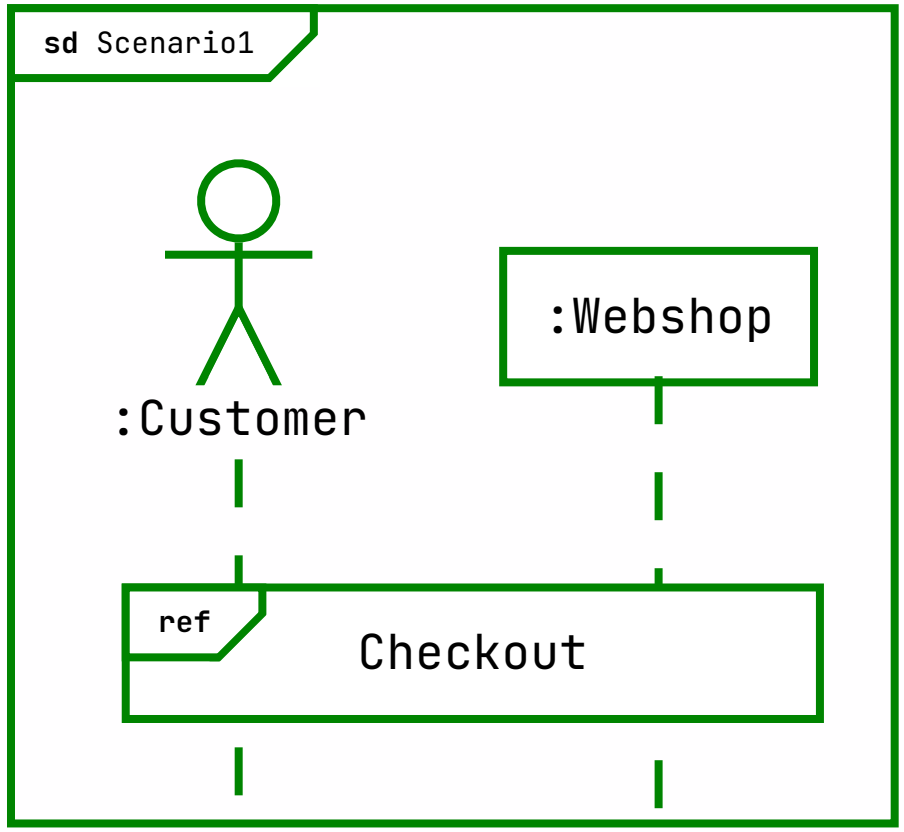
Lifelines

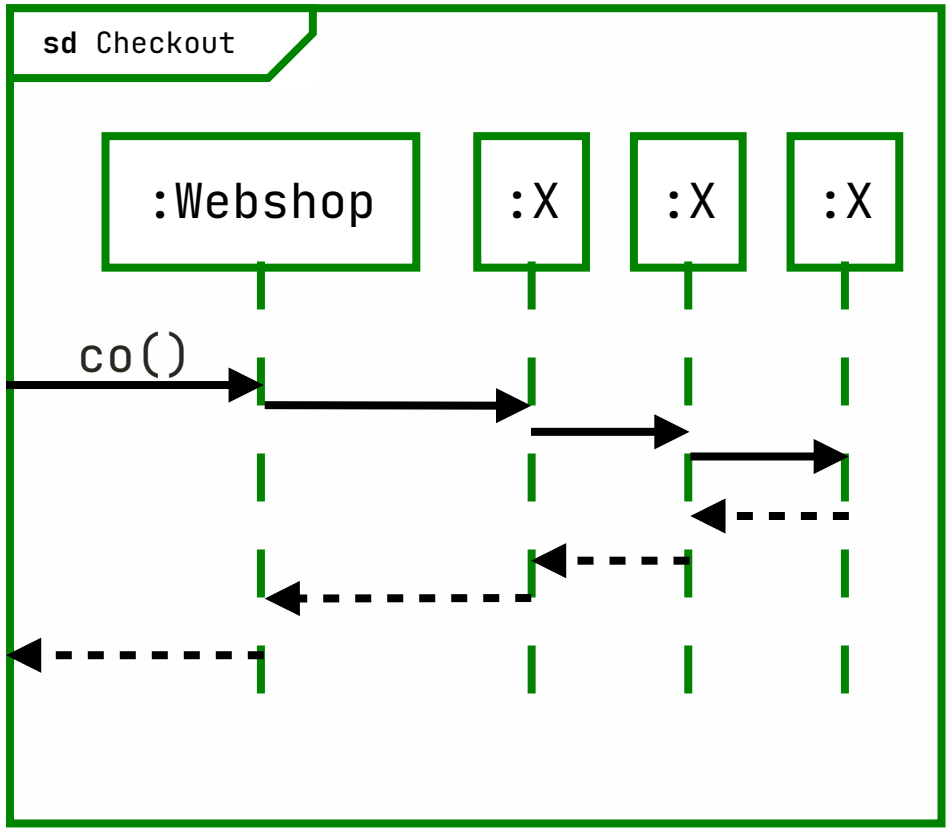


Messages

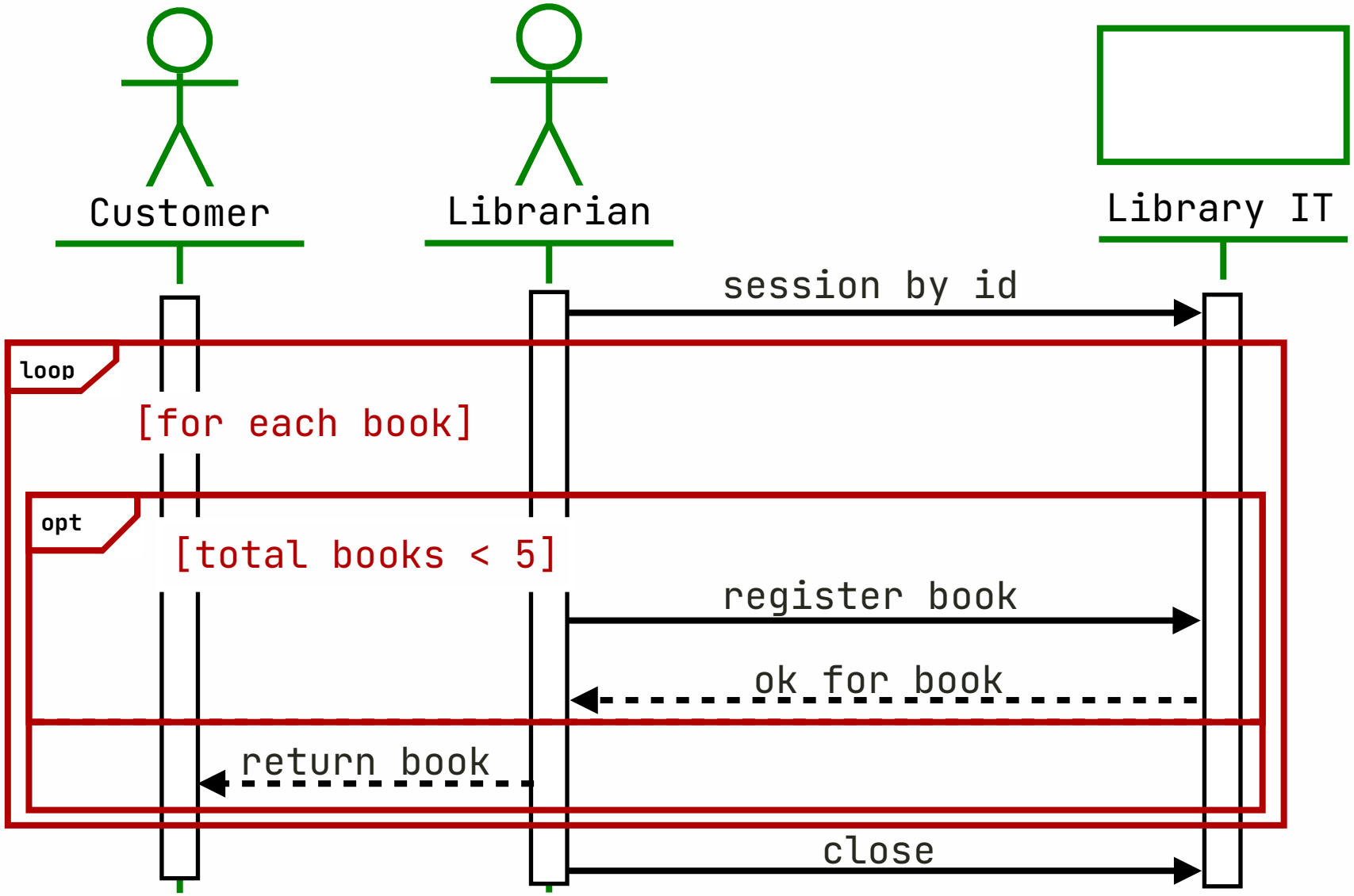

:Class
:Class
synchronous call
{1..3ms}
asynchronous
reply
create
:Class
destroy
lost
found

References and Gates





Other Blocks



Conclusion

- Interaction diagrams model behaviour
  - Sequence diagrams demonstrate object interaction
- Lifelines for
  - actors, entities, control object, other objects
- Executions and lifespans
- Messages sent
- Blocks can be reused or iterated
- Concrete scenarios in *not quite* code

Topics/Slides Disclaimer

- Good ✅
  - watch before Q&A
  - embrace reality
  - try out at labs
  - ask for feedback
  - apply to project
  - dig deeper
  - recall from slides
- Bad ❌
  - slides over videos
  - assumptions
  - blanks
  - timing