

Information Systems Concepts

Activity Diagrams

Roman Kontchakov

Birkbeck, University of London

Based on Chapter 5 of Bennett, McRobb and Farmer:
Object Oriented Systems Analysis and Design Using UML, (4th Edition), McGraw Hill, 2010



Outline

- Activity Diagrams
 - Section 5.3 (pp. 122 – 128)



Purpose of Activity Diagrams

- Activity Diagrams can be used to model
 - high-level business tasks
 - in the early stages of a project or
 - when the relevant objects or classes have *not* been identified
 - system functions (represented by use cases) or object operations
 - but communication/sequence diagrams are closer to the spirit of object-orientation



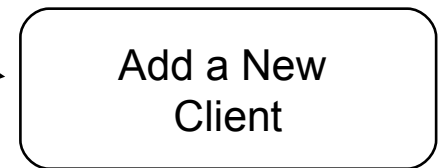
Notation of Activity Diagrams

- Activity Diagrams are essentially Flowcharts / Petri nets in an object-oriented context
 - sequence, selection, iteration
 - concurrence



Notation of Activity Diagrams (1)

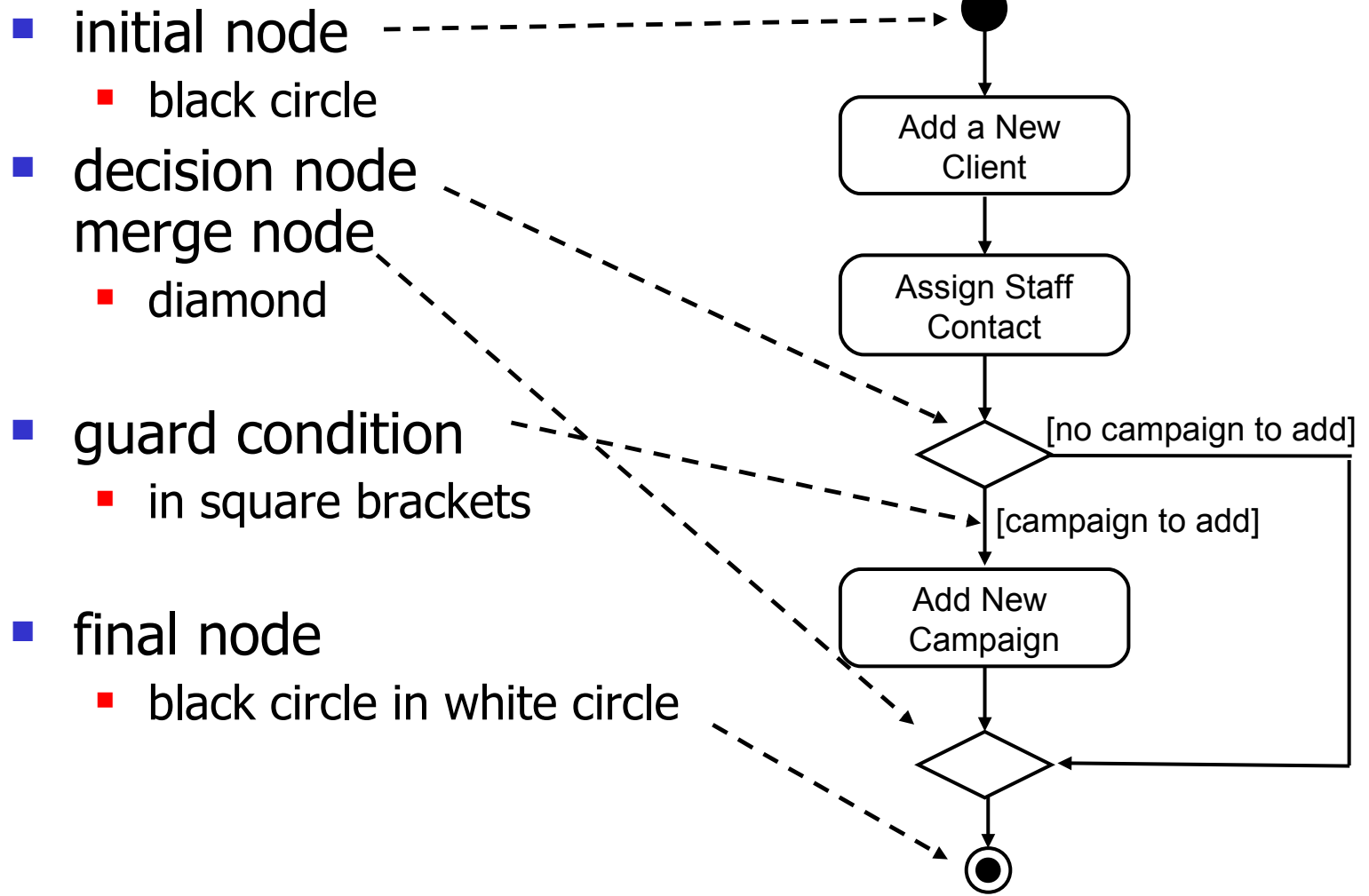
- action node
 - rectangle with rounded corners and a meaningful name



- action edge (control flow)
 - open arrow



Notation of Activity Diagrams (2)



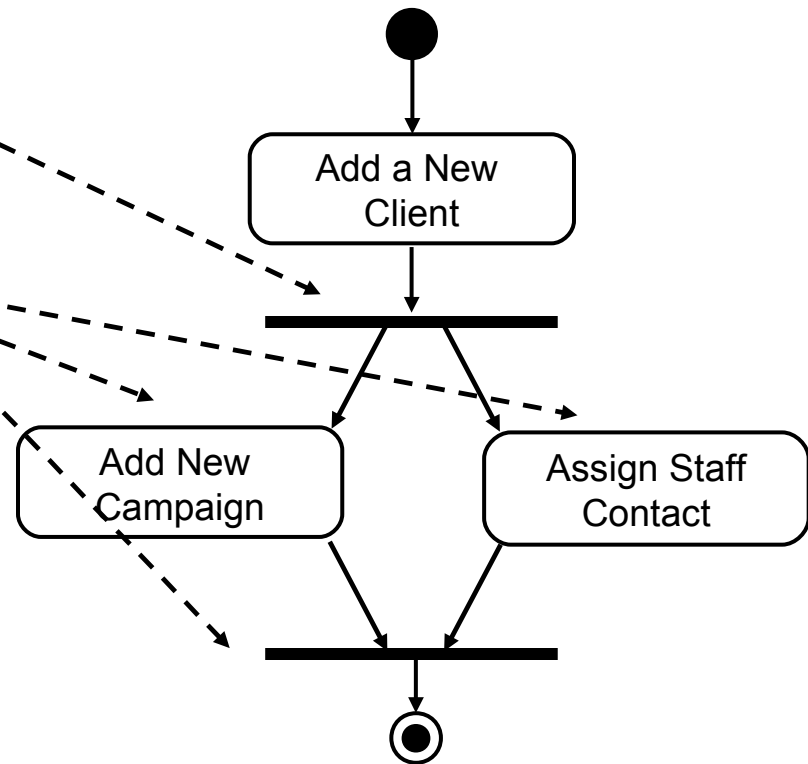


Tips on Activity Diagrams

- Multiple flows from an action are implicitly AND-ed
- Guard conditions do not have to be mutually exclusive, but it is advisable that they should be
- Decisions should be strictly nested, but a merge point can be combined with the following decision point

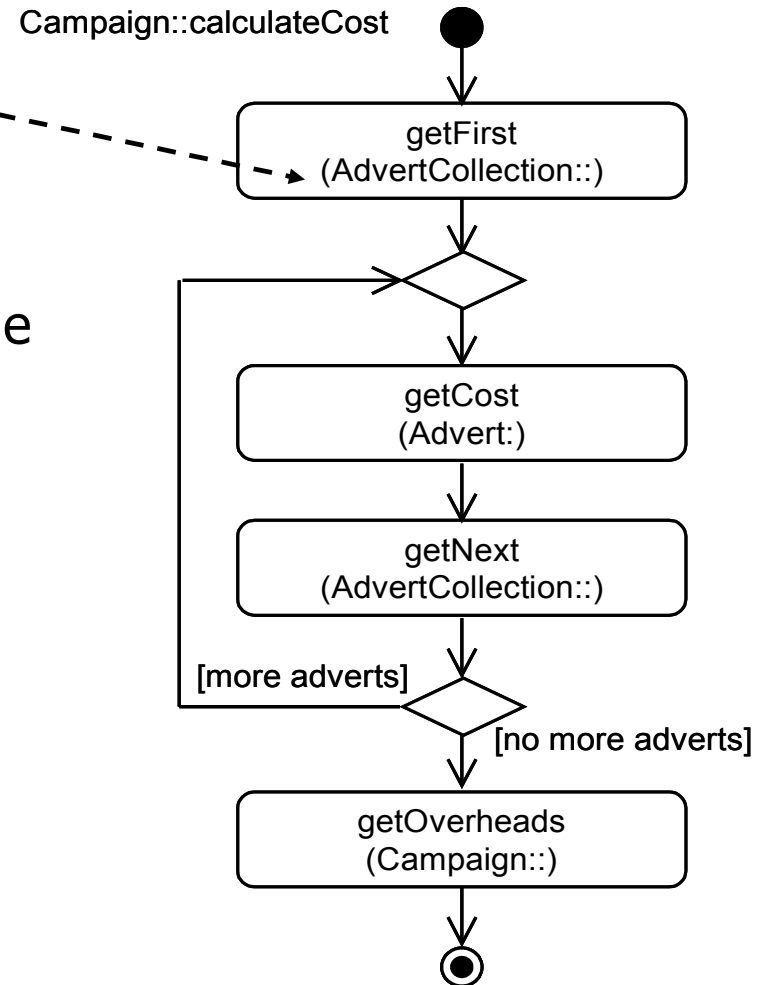
Notation of Activity Diagrams (3)

- fork node
join node
 - thick bar
- actions carried out in parallel



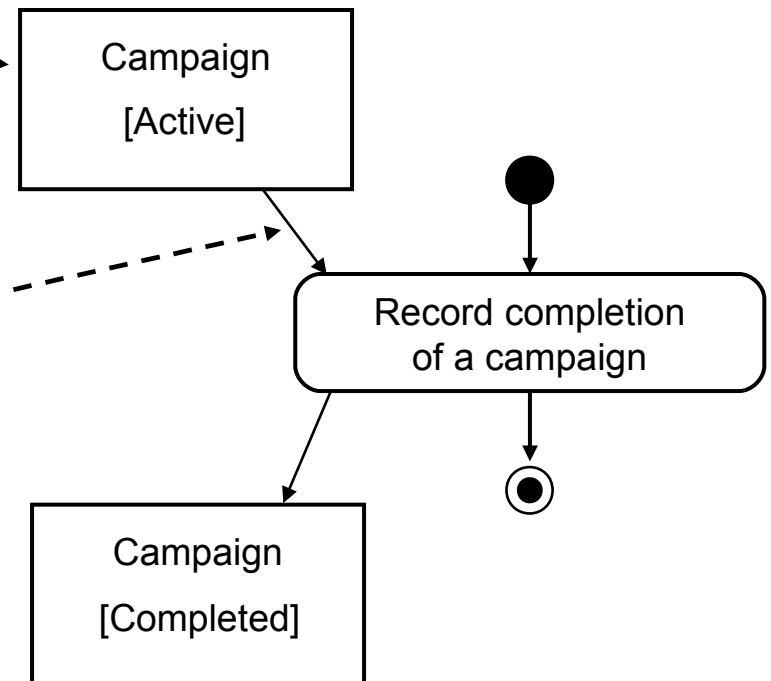
Notation of Activity Diagrams (4)

- class name
 - can be shown followed by double colons in brackets (parentheses) beneath the action name
- Operation Name
 - can be shown after the colons, when different with the action name



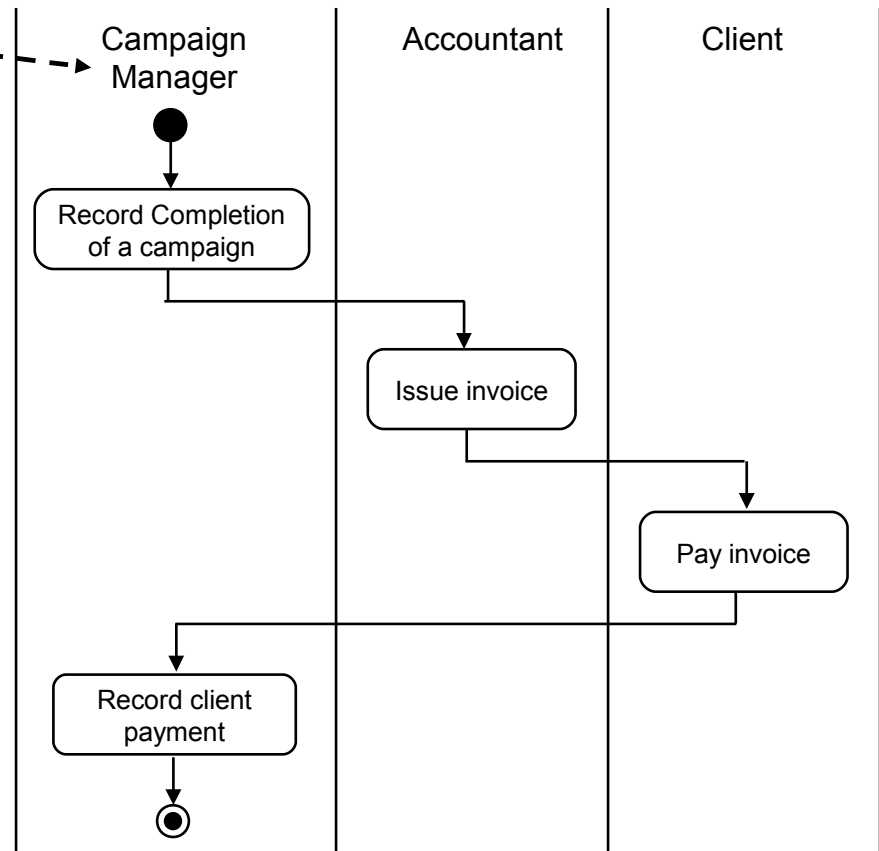
Notation of Activity Diagrams (5)

- objects
 - rectangle
 - optionally shows the state of the object in square brackets
- object flows
 - open arrow



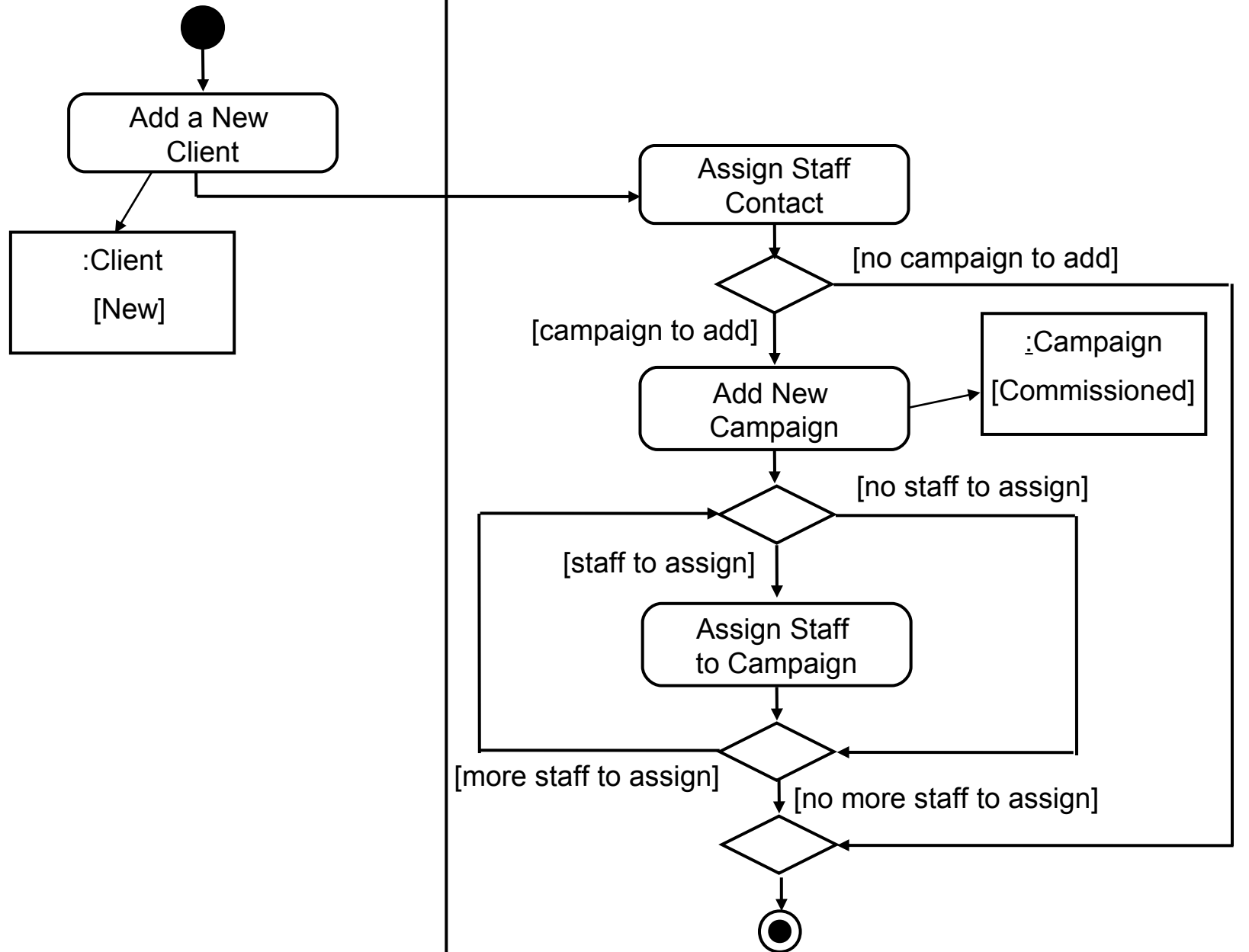
Notation of Activity Diagrams (6)

- activity partitions (swimlanes)
 - vertical columns
 - labelled with the person, organization, department or system responsible for the activities in that column

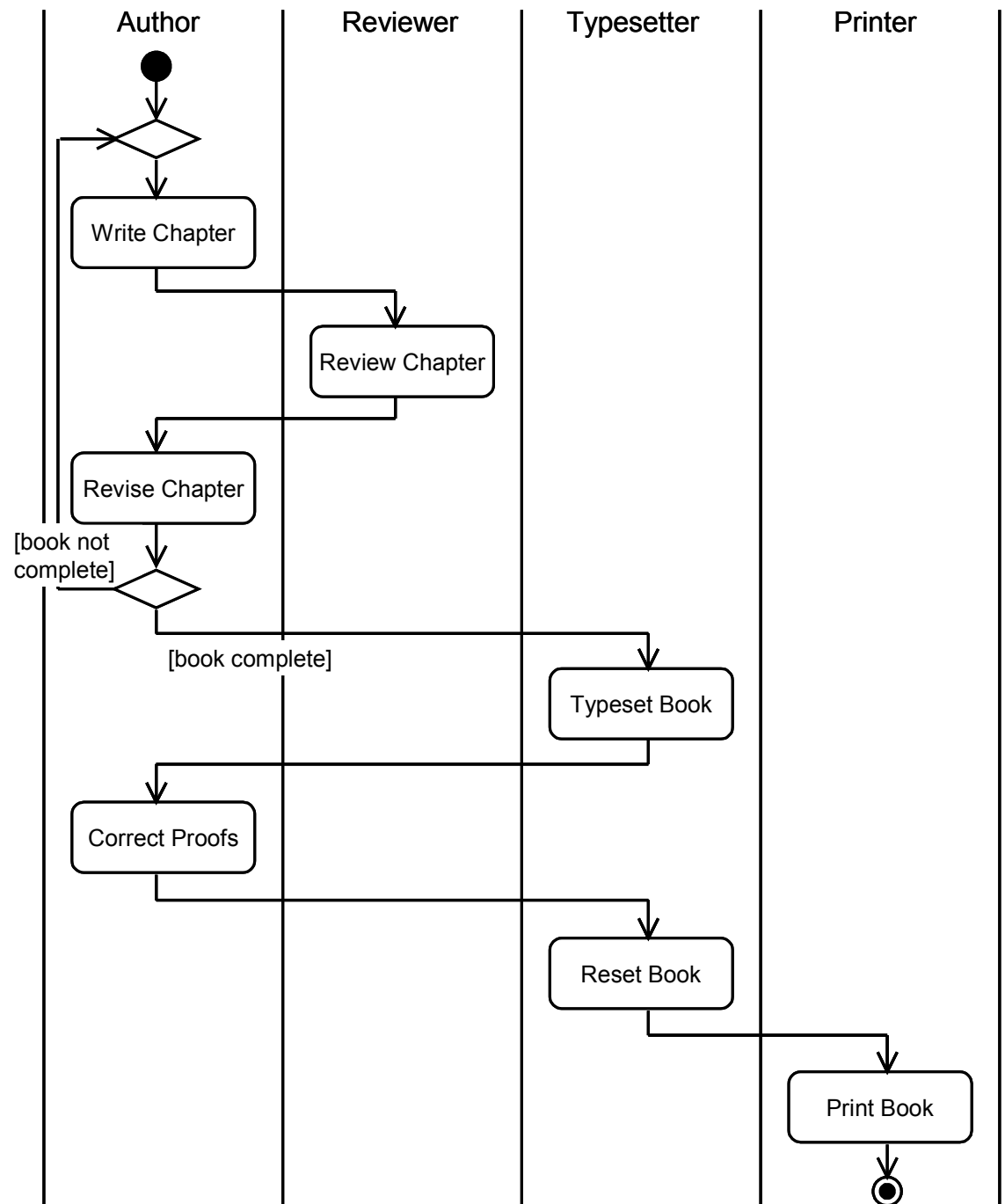


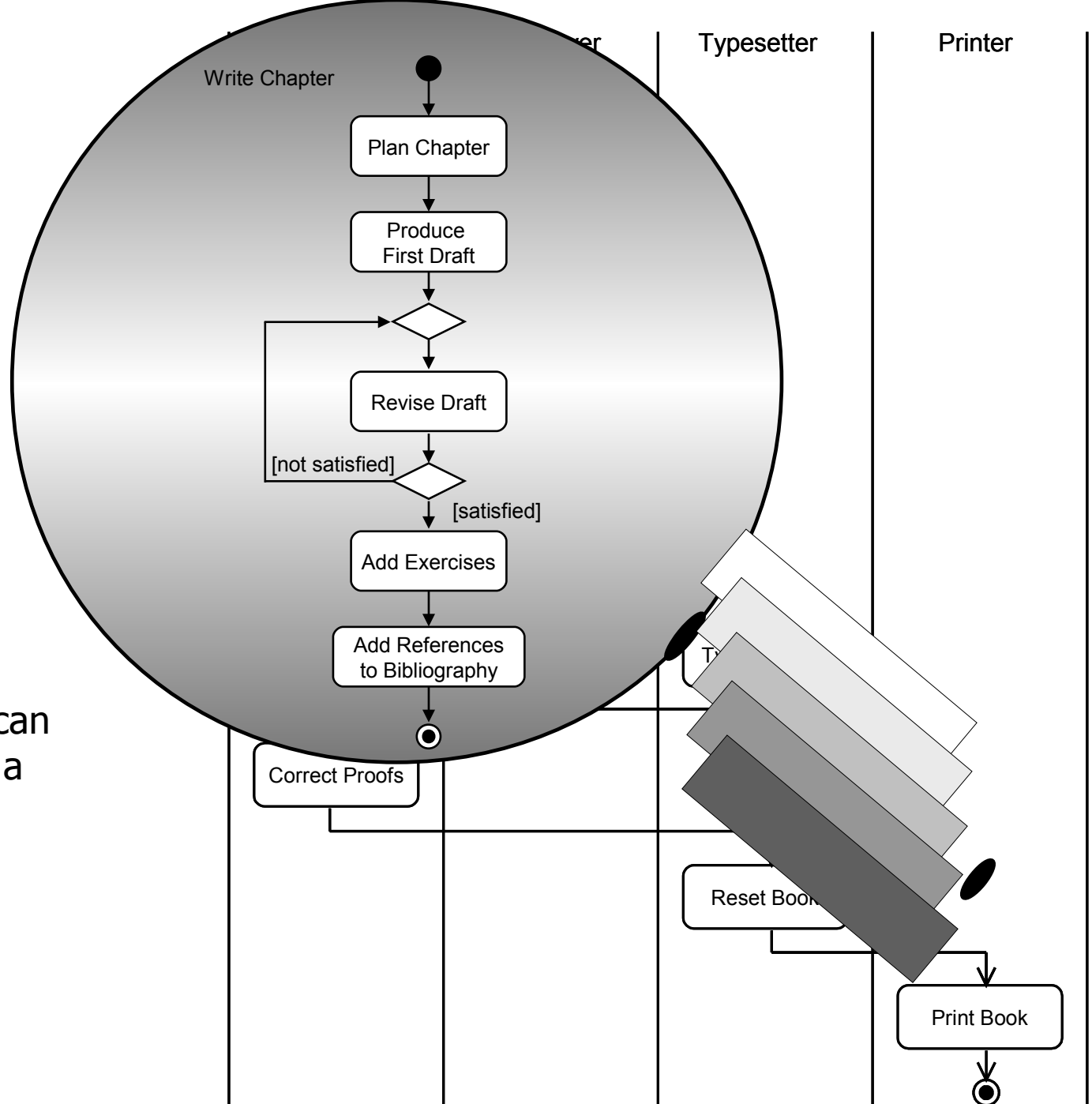
Administrator

Campaign Manager



Activity Diagram for producing a book.





More details can
be shown on a
lower level.



Exercise: Supermarket Self-service Checkout



TESCO



Take Home Messages

- Activity Diagrams
 - Purpose
 - Notation