

# SWEN30006

## Software Modelling and Design

# UML ACTIVITY DIAGRAMS AND MODELLING

Larman Chapter 28

*If it wasn't backed-up, then it wasn't important.*

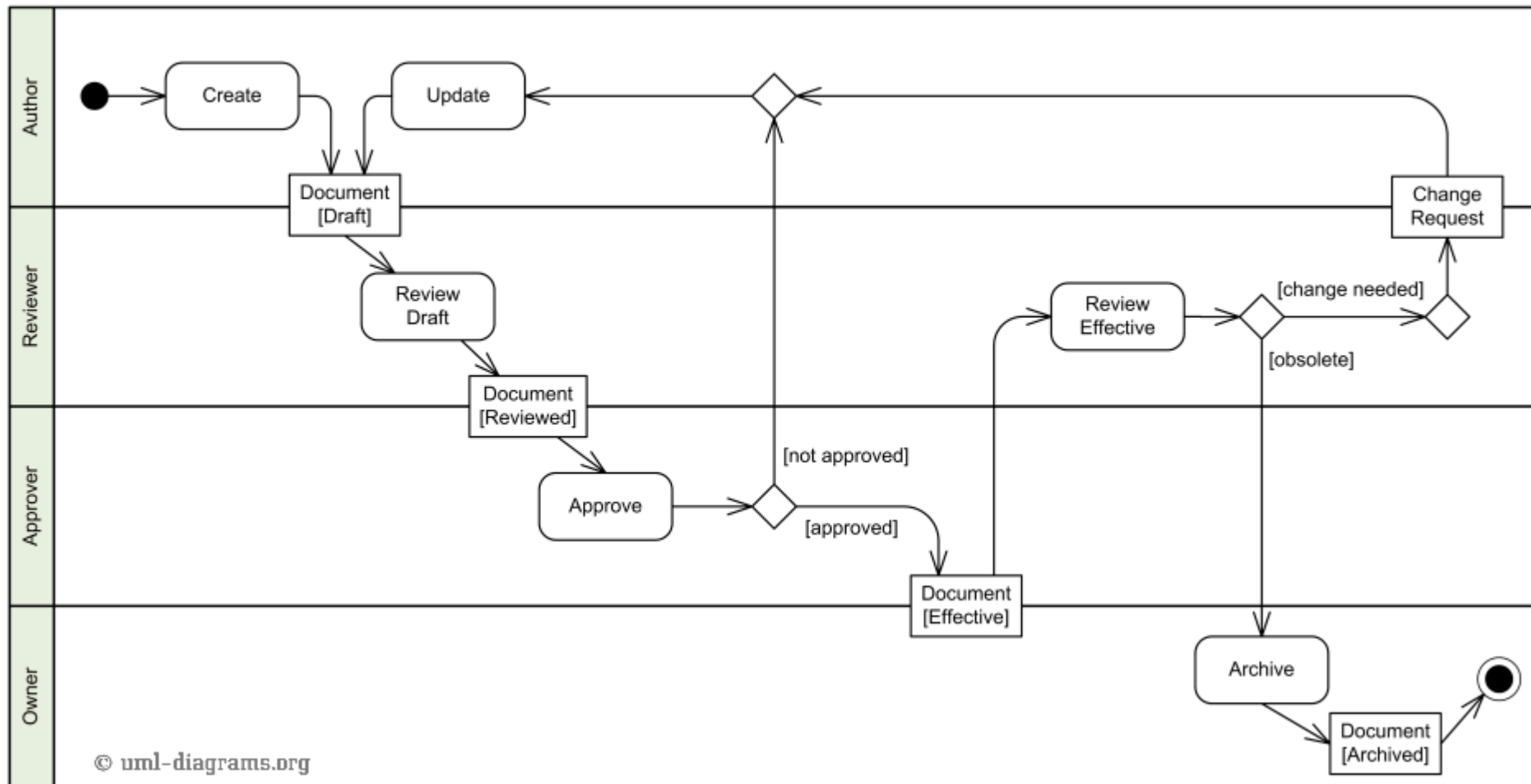
—*The Sysadmin Motto*

# UML Activity Diagrams

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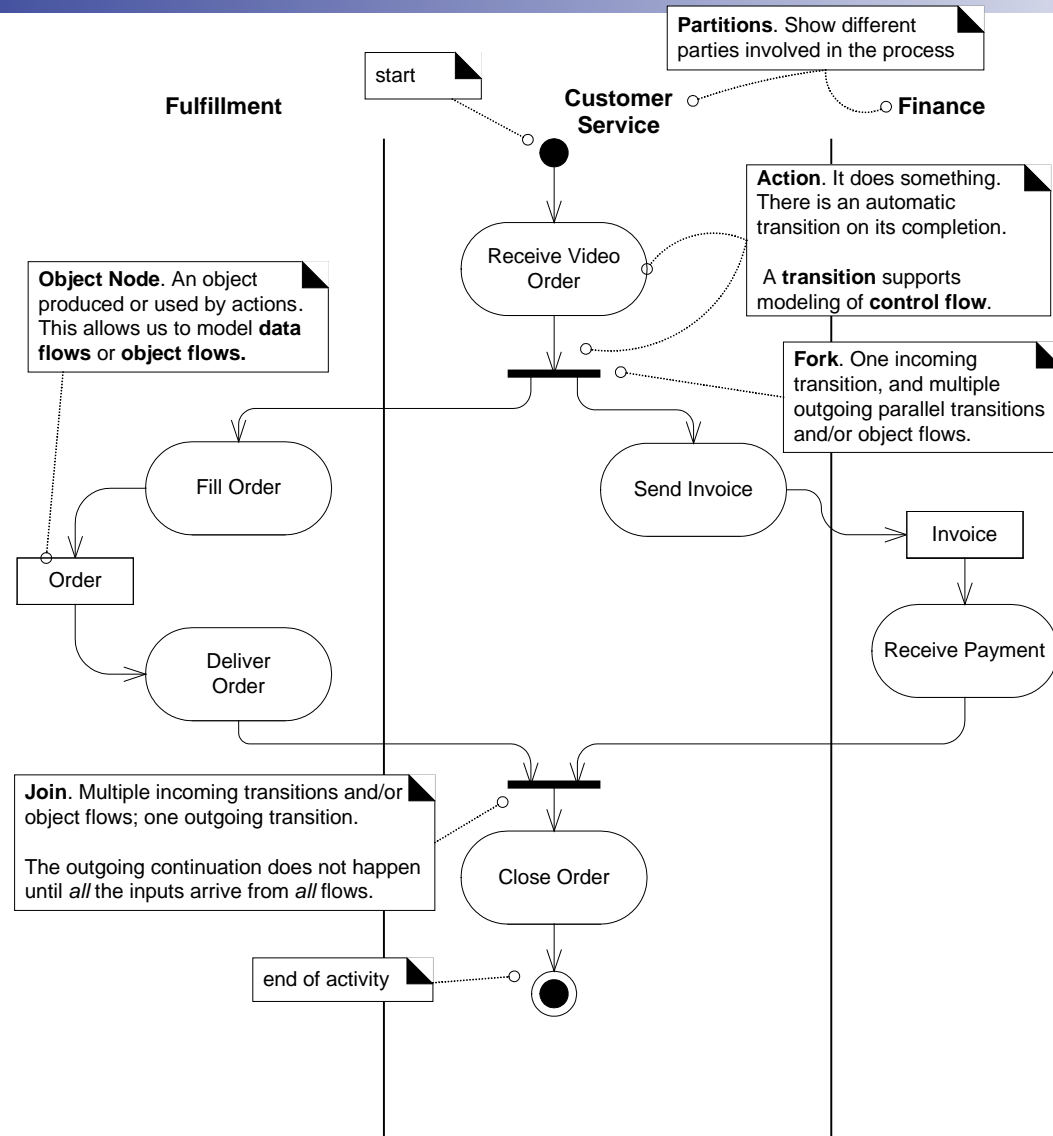
- ❑ show sequential and parallel activities in a process
- ❑ useful for modelling:
  - business processes
  - workflows
  - data flows
  - complex algorithms
- ❑ can show both control and data flow
- ❑ *once an action is finished, move to next action*

# UML Activity Diagram Example

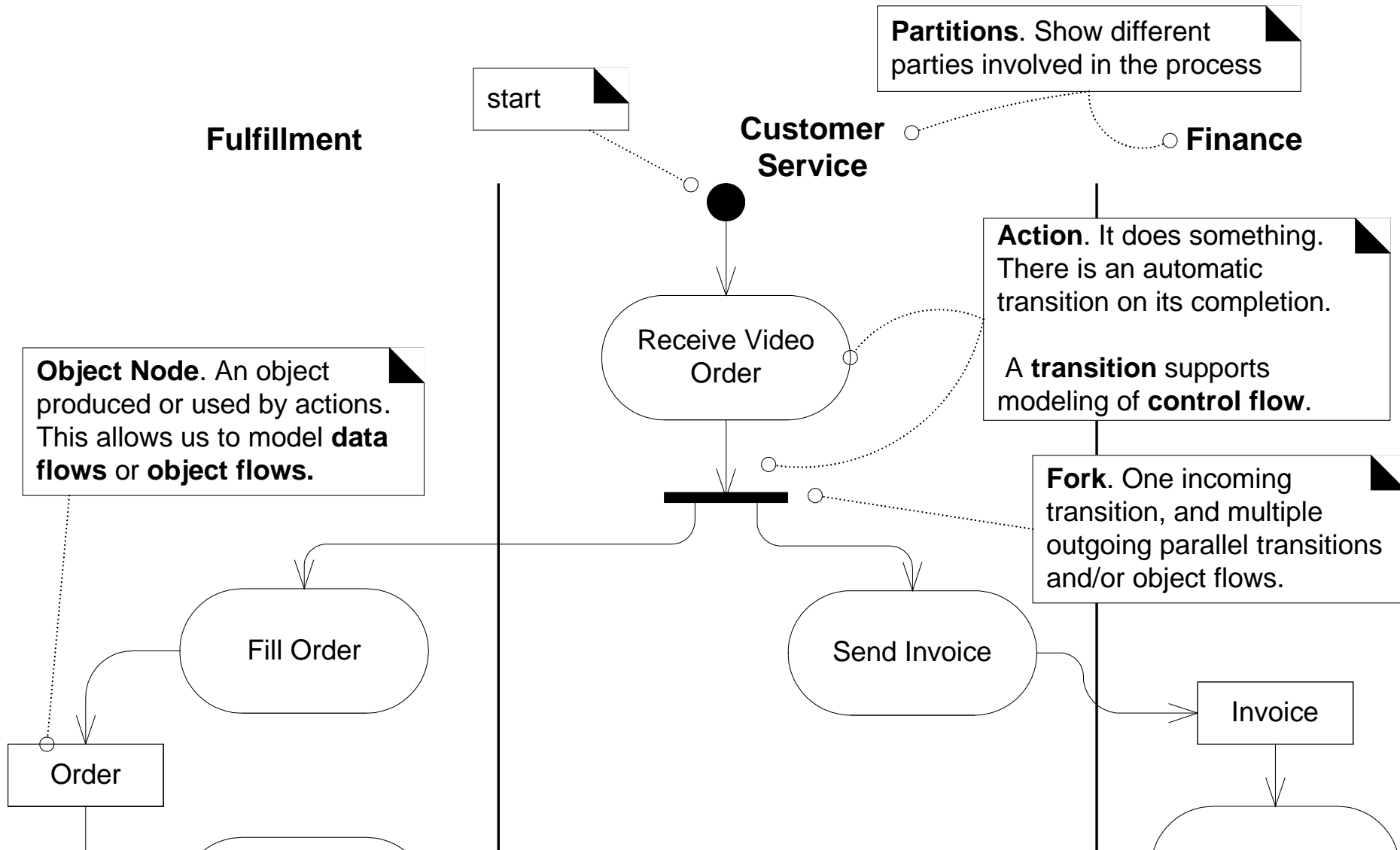


## Document Management Process

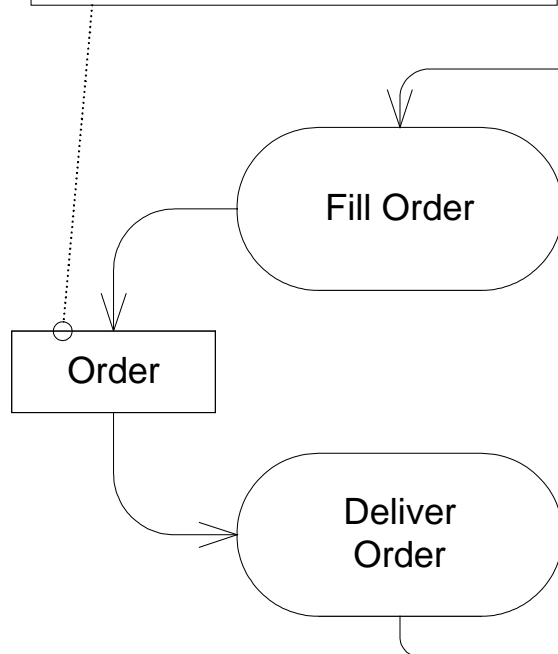
# Basic UML Activity Diagram Notation



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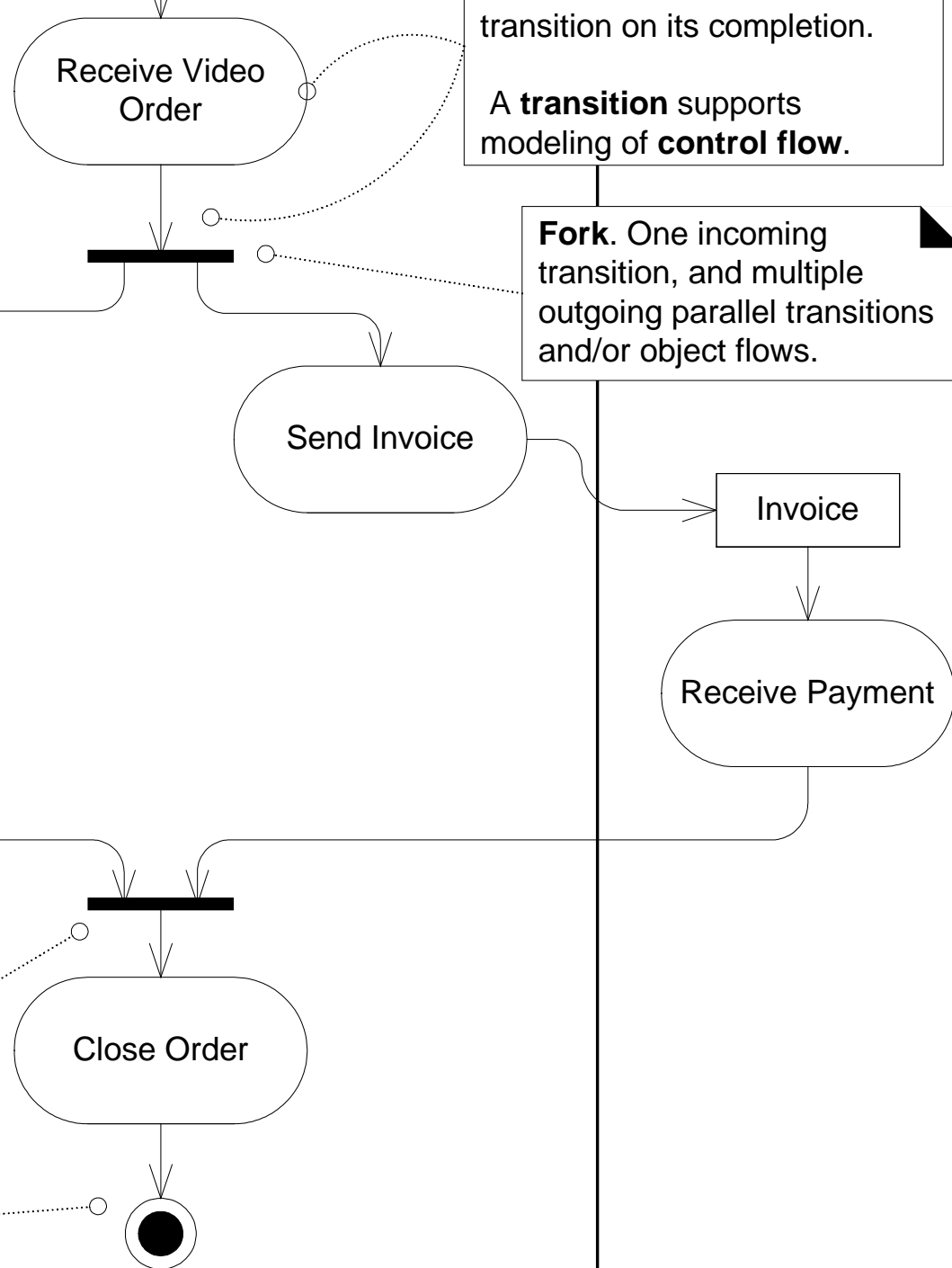
**Object Node.** An object produced or used by actions. This allows us to model **data flows** or **object flows**.



**Join.** Multiple incoming transitions and/or object flows; one outgoing transition.

The outgoing continuation does not happen until *all* the inputs arrive from *all* flows.

end of activity

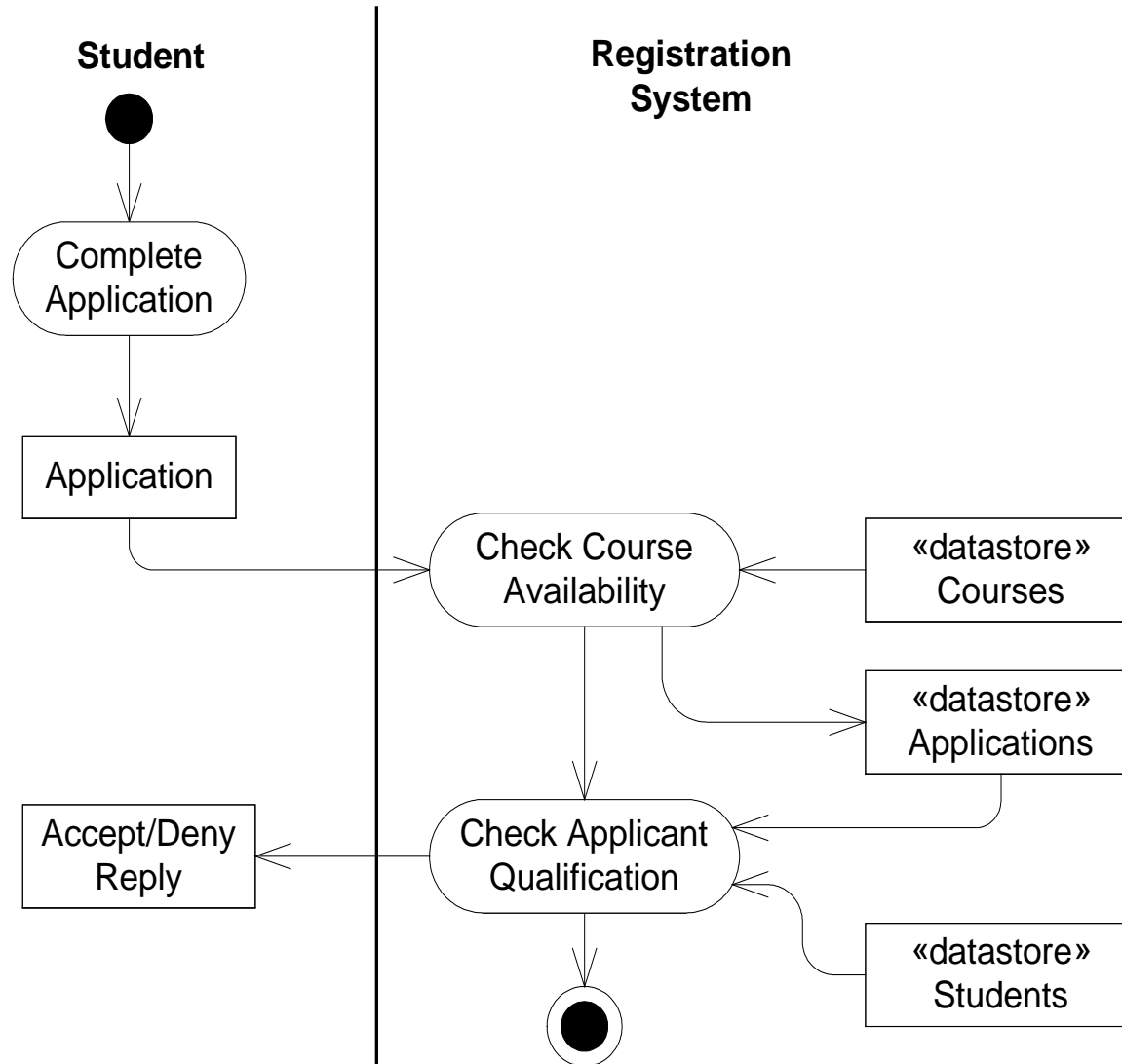


transition on its completion.

A **transition** supports modeling of **control flow**.

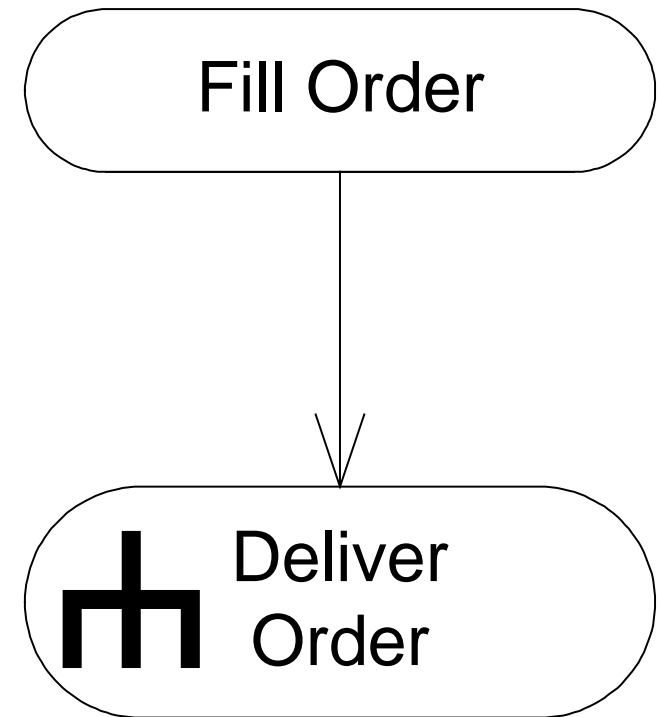
**Fork.** One incoming transition, and multiple outgoing parallel transitions and/or object flows.

# Applying AD Notation: Data Flow Model



# Activity Hierarchies

the “rake” symbol (which represents a hierarchy) indicates this activity is expanded in a sub-activity diagram

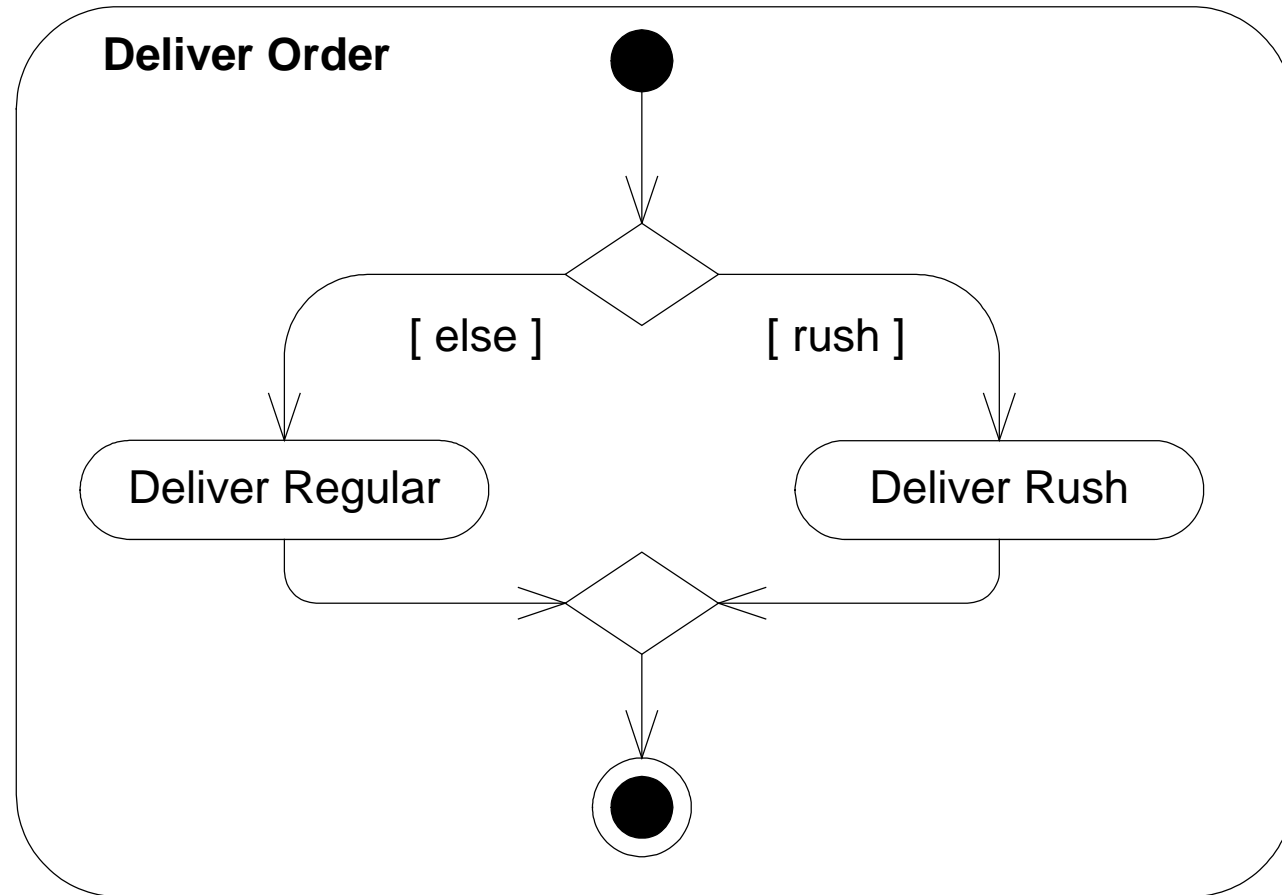




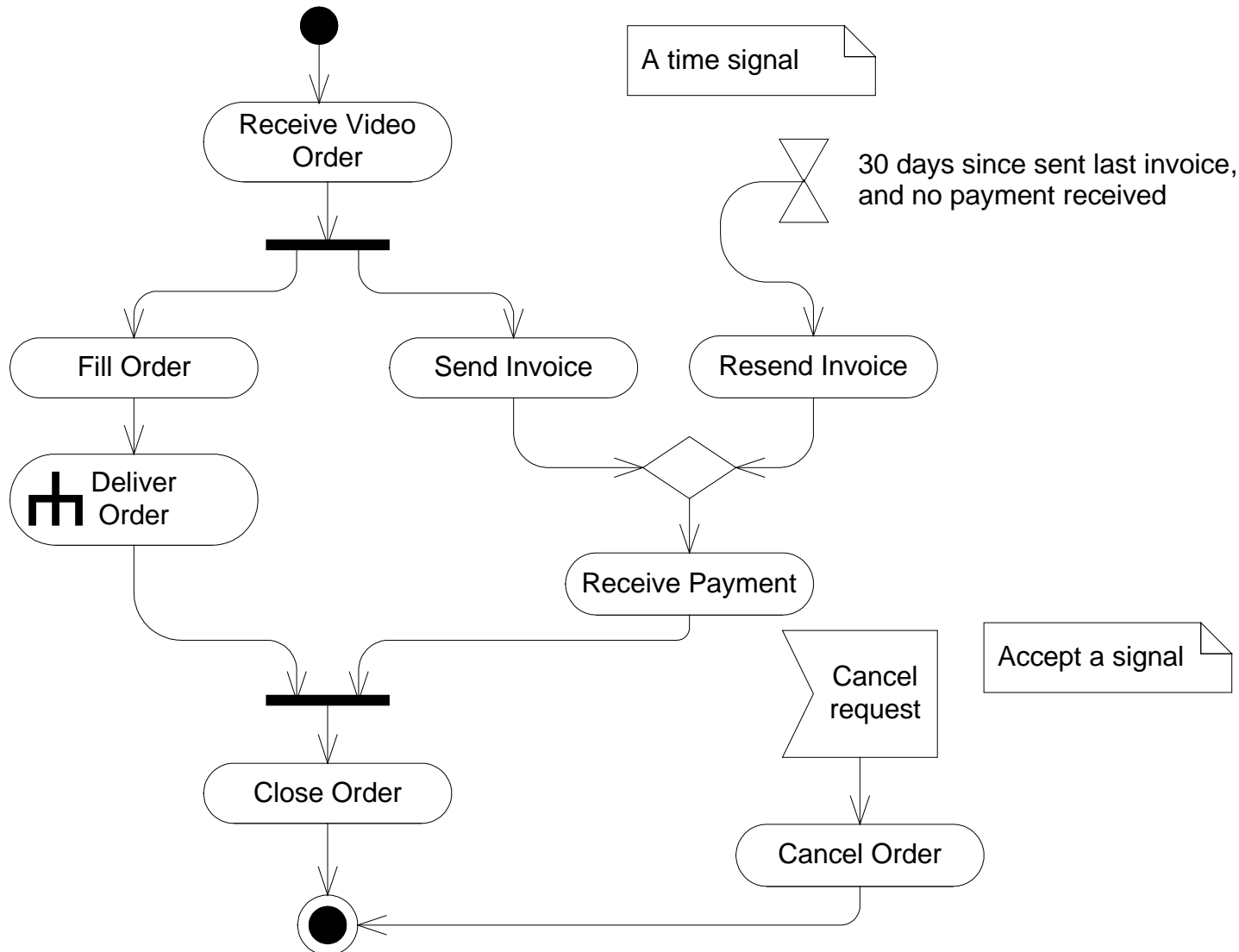
# Expansion of an Activity

**Decision:** Any branch happens. Mutual exclusion

**Merge:** Any input leads to continuation. This is in contrast to a *join*, in which case *all* the inputs have to arrive before it continues.



# Signals



# Modelling *Process Sale* Use Case

