Objectives: Object Interaction (cont.)

You will be able to:

Use sequence diagrams to detail object interactions

What is a Sequence Diagram?

A sequence diagram shows object interactions arranged in time sequence

The diagram shows

The objects participating in the interaction

The sequence of messages exchanged
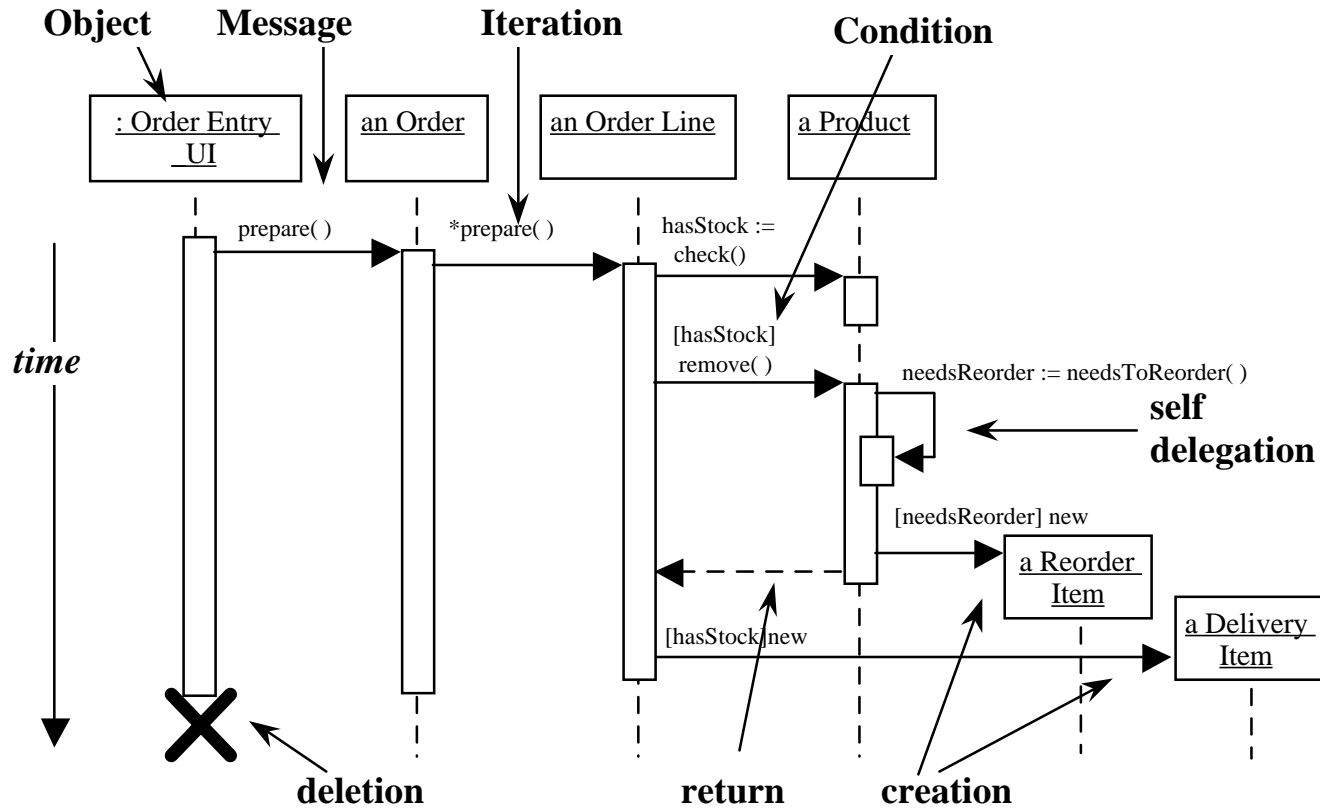
A sequence diagram contains:

Objects with their "lifelines"

Messages exchanged between objects in ordered sequence
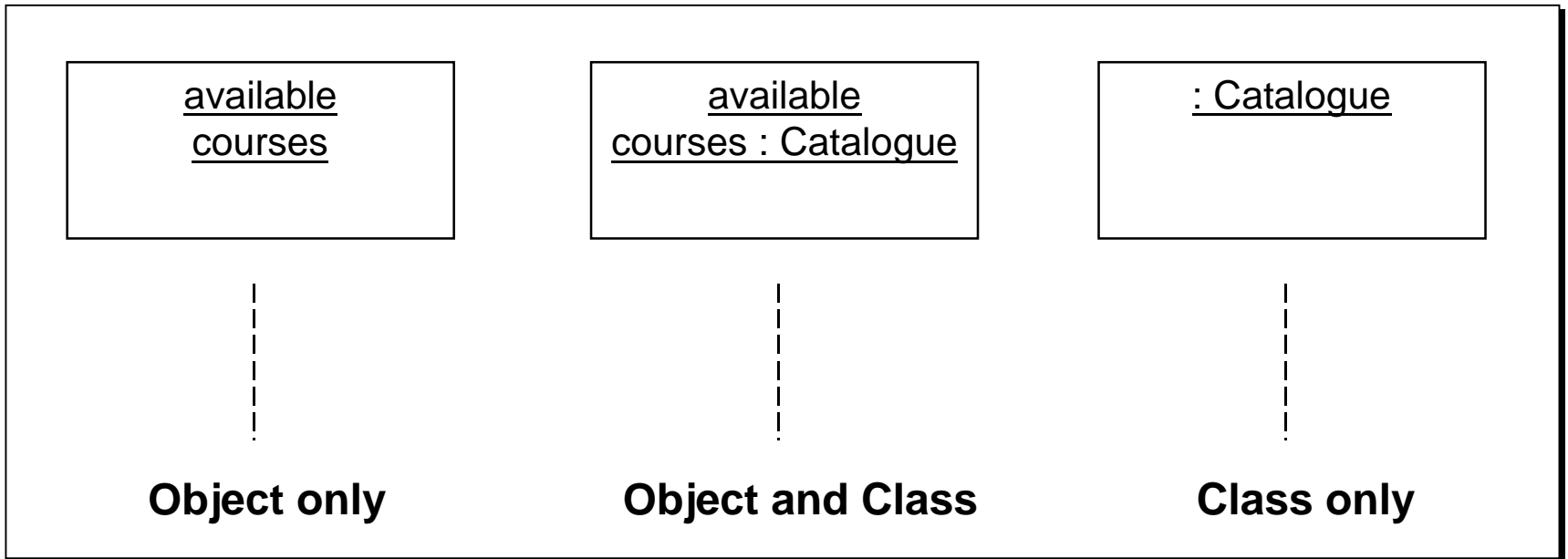
Focus of control (optional)

A Sequence Diagram

. *For example,*

Object   **Message**   **Iteration**   **Condition**

: Order Entry UI   an Order   an Order Line   a Product

time

prepare( )

*prepare( )

hasStock := check()

[hasStock] remove( )

needsReorder := needsToReorder( )

self delegation

[needsReorder] new

a Reorder Item

[hasStock] new

a Delivery Item

deletion   **return**   **creation**

Naming Objects in Sequence Diagrams

Objects are drawn as rectangles with underlined names

Object "lifelines" are represented by descending dashed lines

available courses	available courses : Catalogue	: Catalogue

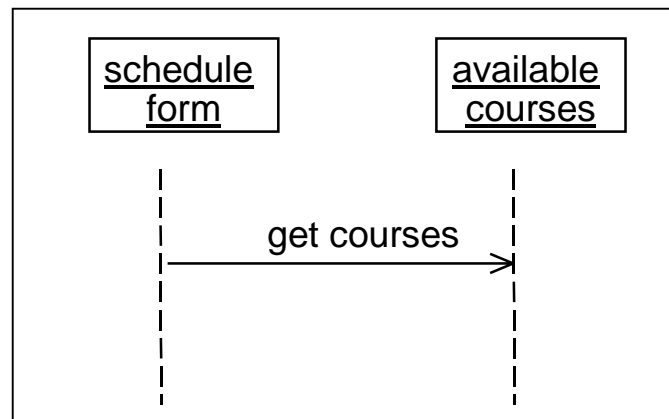**Object only**　　　　**Object and Class**　　　　**Class only**

Showing Object Interaction

Object interaction is indicated by horizontal arrows which are directed from the vertical line representing the client object to the line representing the supplier object

Horizontal arrows are labeled with message

Time ordering of messages is indicated by vertical position, with the earliest appearing at the top

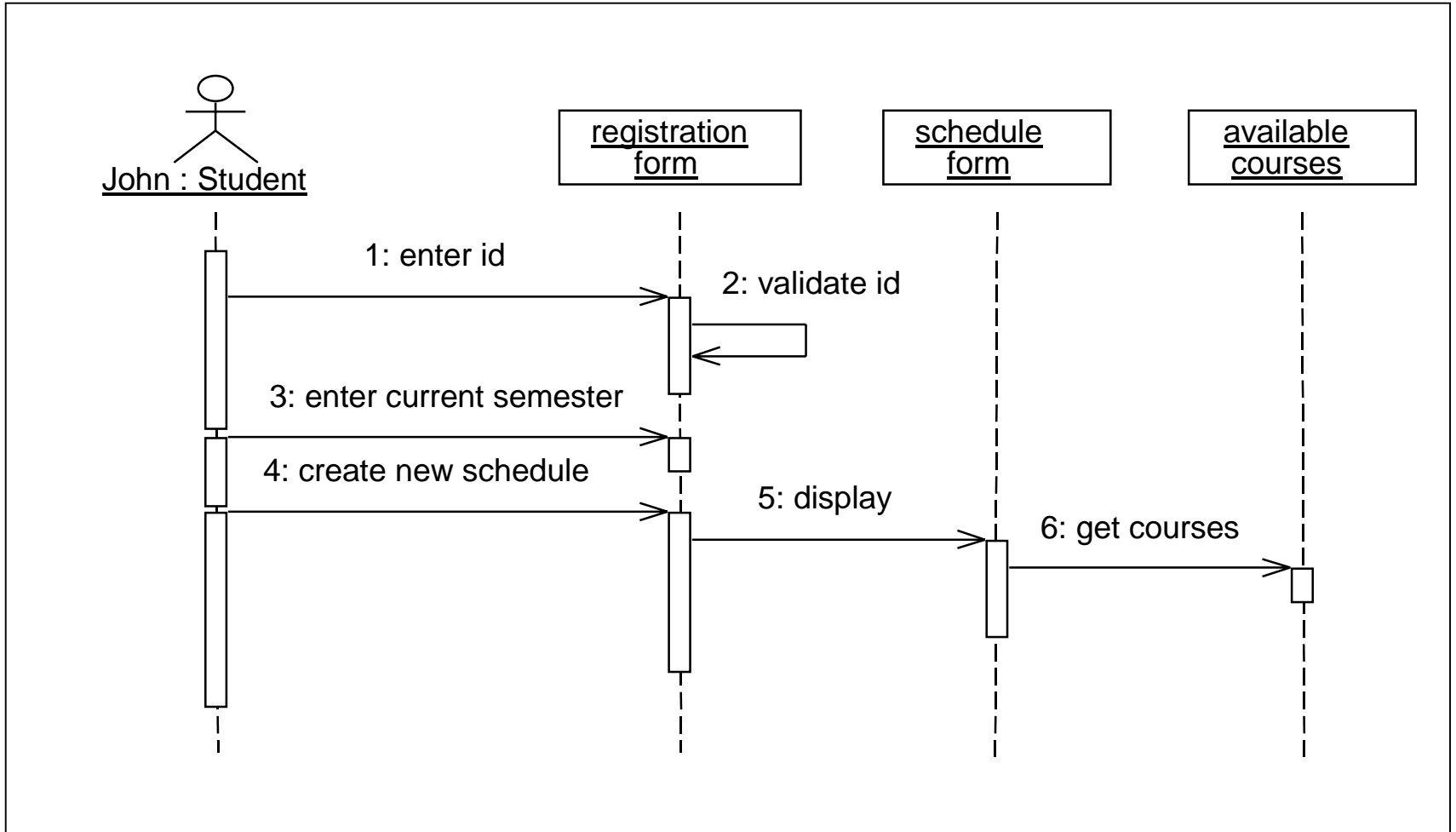Numbering is optional as order is based on vertical position

What is Focus of Control?

Focus of Control represents the relative time that the flow of control is focused in an object

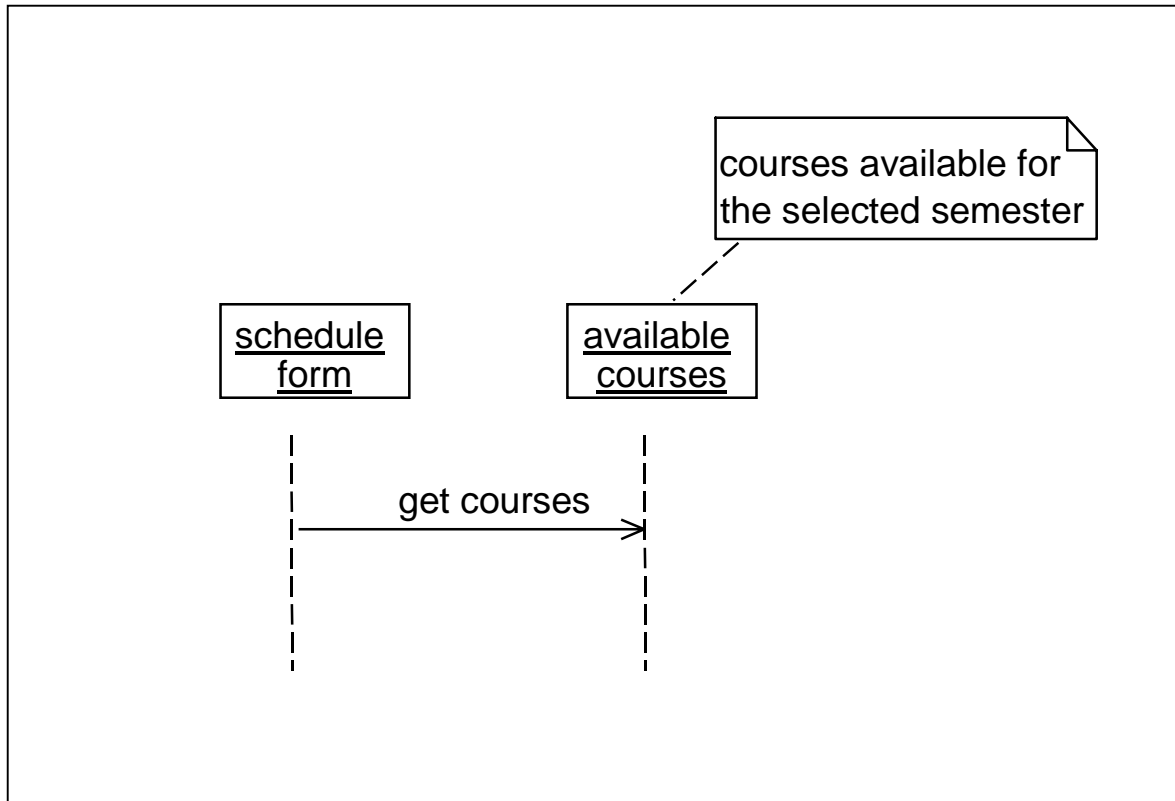It represents the time an object is directing messages

Focus of Control may be shown on a sequence diagram

Focus of Control

Notes

Notes may be added to add more information to the diagram

courses available for
the selected semester

schedule
form

available
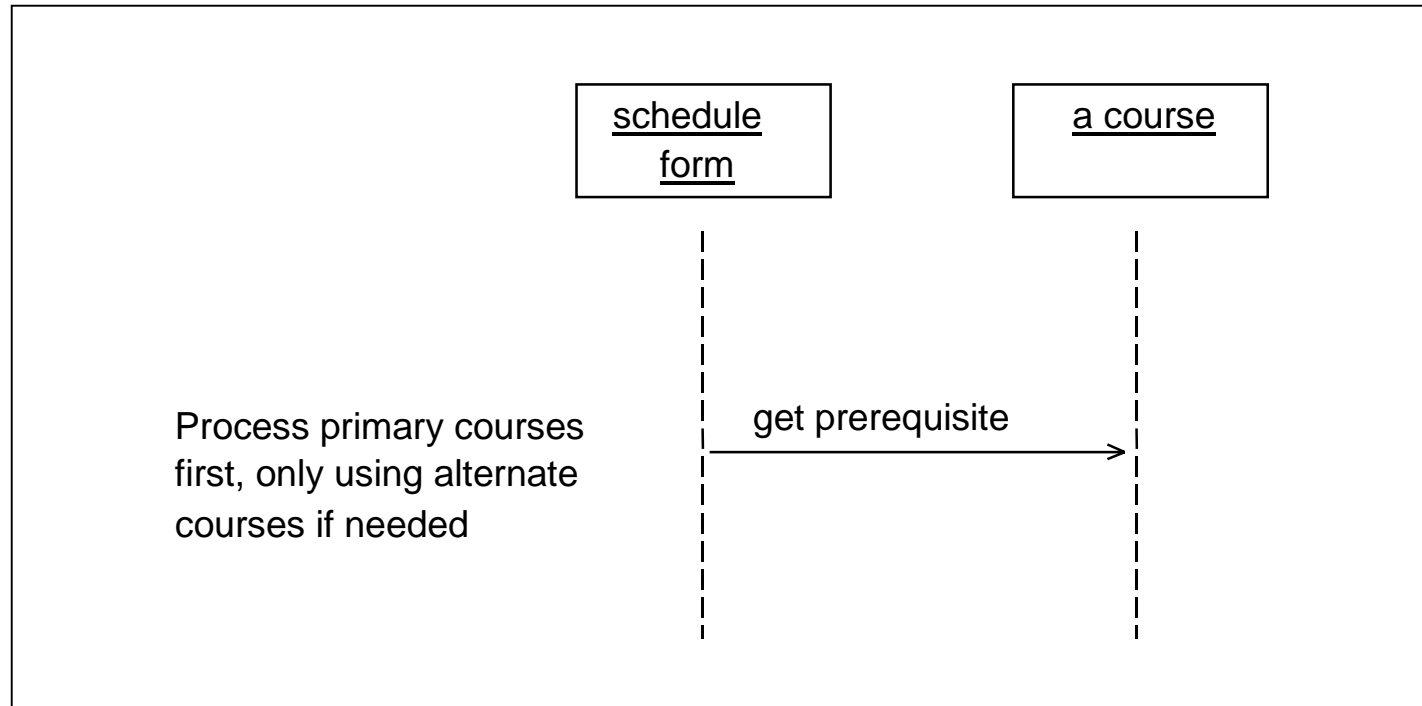courses

get courses

Scripts for Sequence Diagrams

For complex scenarios, sequence diagrams can be enhanced by the use of scripts

A script is written at the left of a sequence diagram with the steps of the script aligning with the object interactions

Scripts can be written in natural language or pseudo code

Sample Script

. *The script text can come from the use case narrative…*

Summary: Object Interaction

Object interaction can be represented graphically in a sequence diagram which shows the existence of objects and the interactions between the identified objects

Objects are represented by rectangles with underlined names

An object "lifeline" is represented by dashed vertical lines descending from the object

Messages are indicated by horizontal arrows which are directed from the client object (sender) to the supplier object (receiver)

The horizontal arrows are labeled with the message name

An optional script may be added to provide more detail to the diagram