Consistency in UML models

INF5150 – 10.10.08

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Whats'up?

- Consistency – brief overview.
- Consistency checking.
  - Manually
  - By using a tool

- Group session Monday: Consistency checking case study.

Consistency

- Every modeller should strive for consistent specifications. Can be checked manually, but should be done with a tool..

- Changes made to a model must be reflected wherever the affected model elements exists

- Interactions are incomplete specifications. State machines are complete specifications and may model (some of) the behavior in the interaction.

- As done in this course!

Consistency
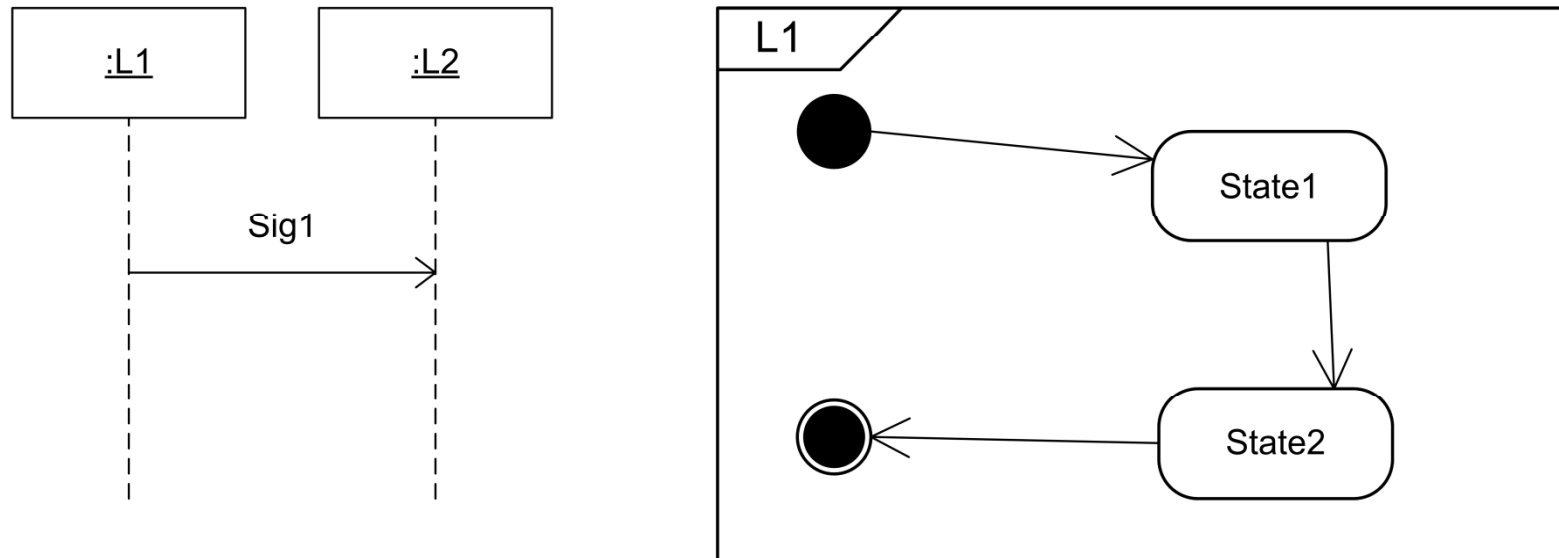
•Lifeline :L1 is further specified by state machine L1.
•We expect to find the behavior that sends signal Sig1 within the state machine, but where?

•It is **not** obvious that the lifeline should be aligned with the initial state.
•The state machine could model more behavior than found on the lifeline.

Alignment

Where to start

:L1   :L2

Sig1

L1
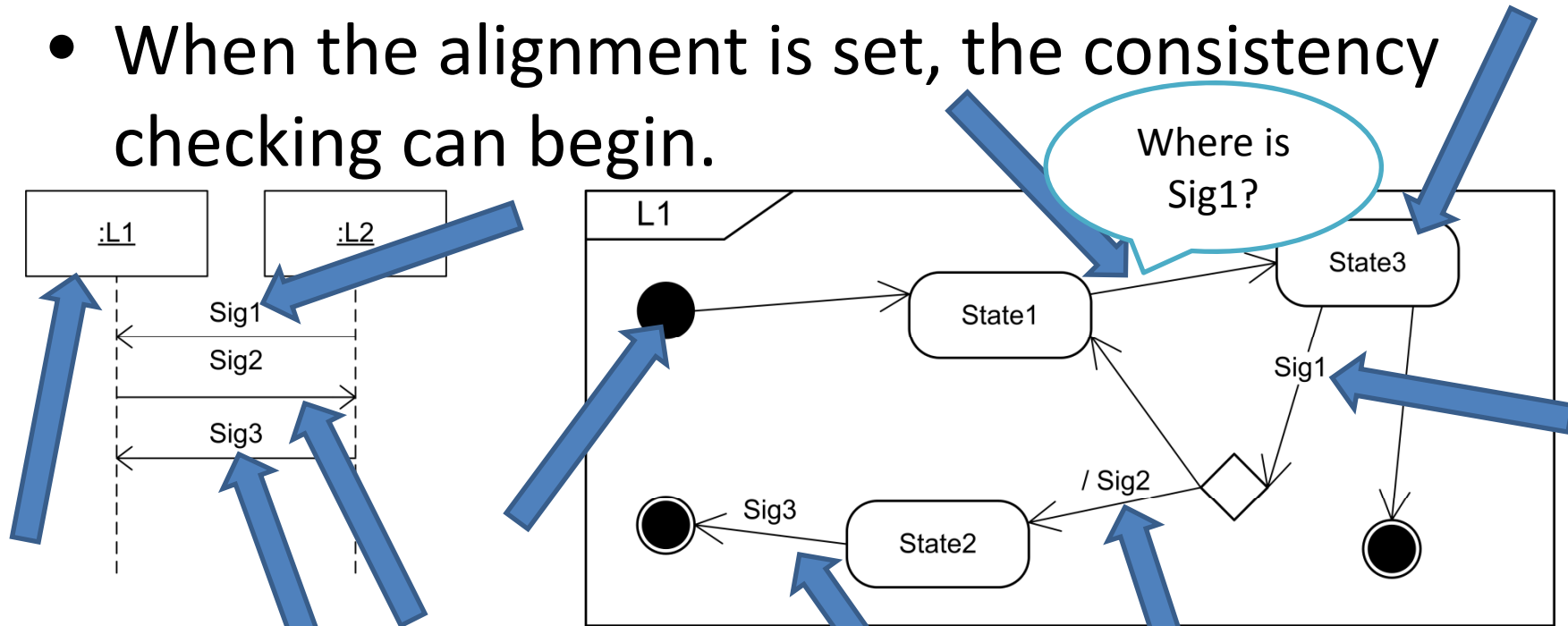
/ Sig1

State1

/ Sig1

/ Sig1   State2
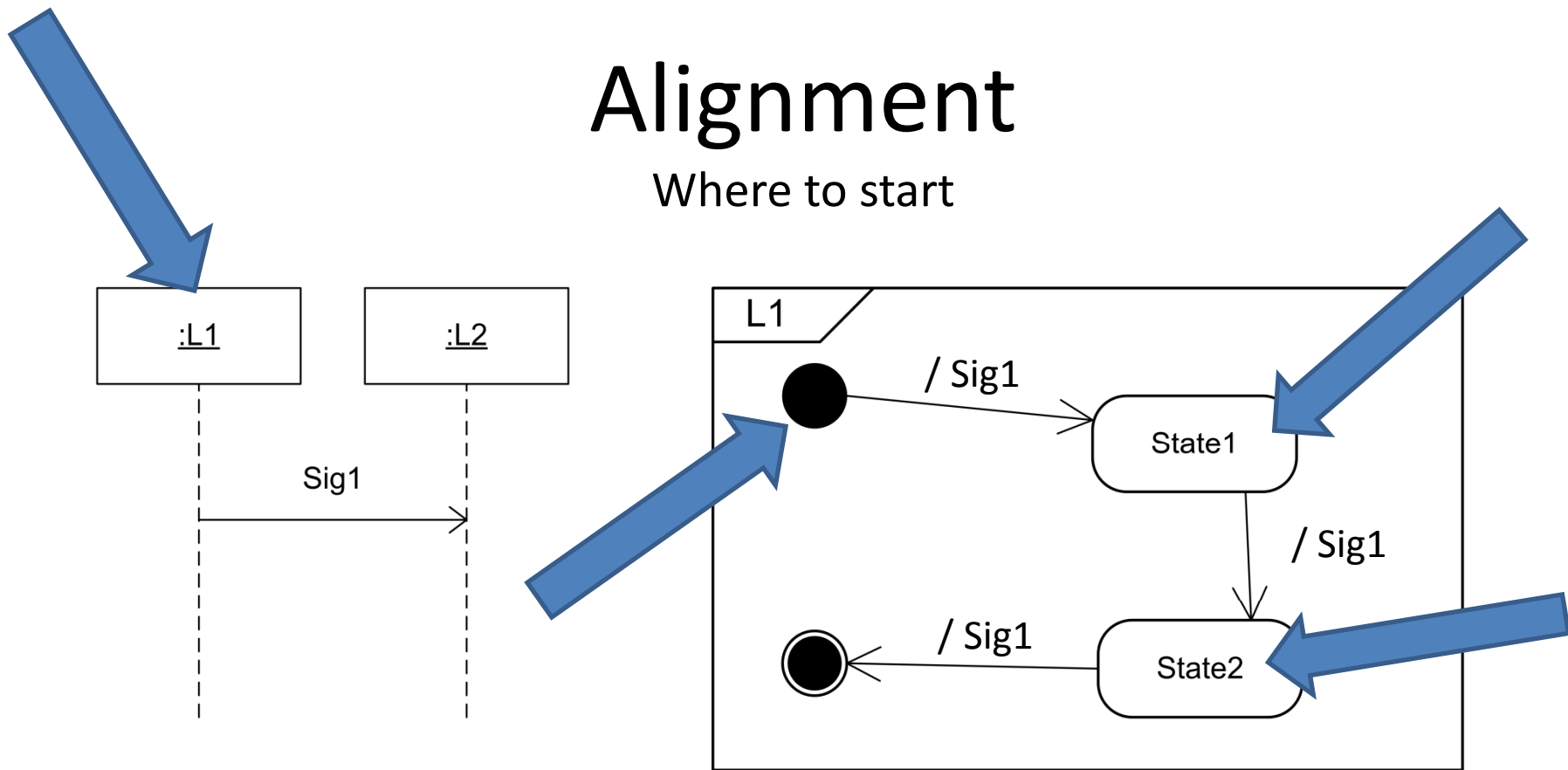
- Semantics of a lifeline: "The order of OccurrenceSpecifications along a Lifeline is significant denoting the order in which these OccurrenceSpecifications will occur."

Alignment

- Interaction + Lifeline & State machine + State

- Semantics: "Align the lifeline with a corresponding state machine. When looking at the first event on the **lifeline**, we need to know where to start looking within the sm. Thus we need to choose in what **state** to start the consistency checking. "

What are we looking for?

- When the alignment is set, the consistency checking can begin.

What if we align the lifeline with the initial state?

Then we dont find the triggering transition of Sig1 = inconsistent.

But what if we align the lifeline with State3?

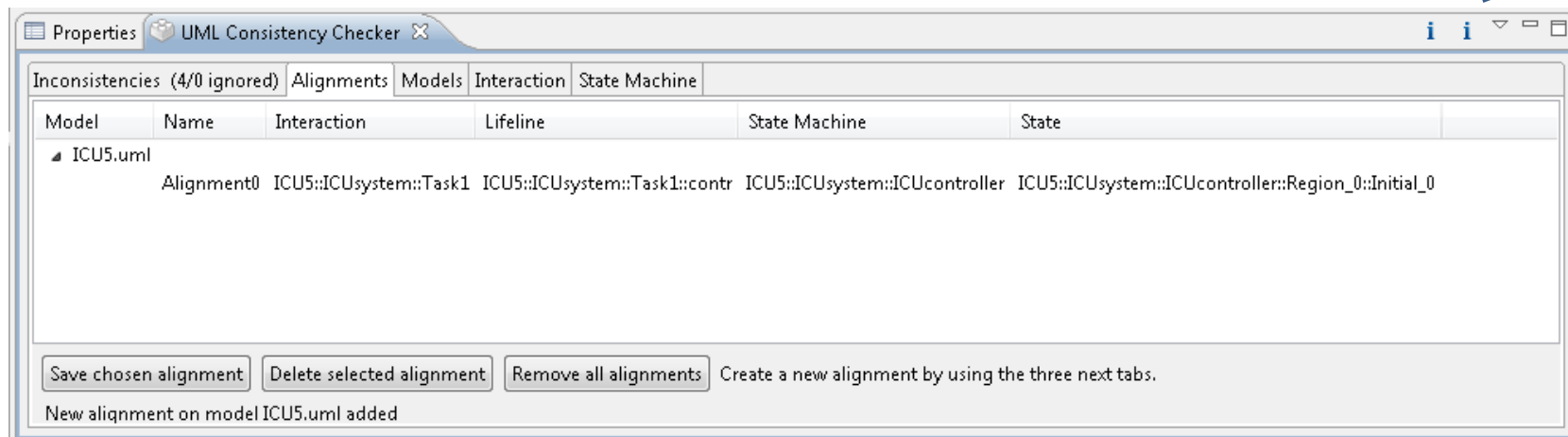Then we find the transition with Sig1..   And Sig2 ..   And Sig3!

Consistent!

Tool

- Consistency Checker tool.
- Eclipse plugin, found at update site:

http://www.bjornbra.no/umlconsistency/update

- Early version..

Tool demo

- Add an alignment, save the alignment and your're off!

Click on the info button for a quick guide.
Proper documentation does not exist .. Yet ..
Questions, comments and bugs - bjornbra@ifi.uio.no

Case study!

- Next group session (13.10.08) is a case study for the UML consistency checking tool.

- We will be working with ICU4, so you will get a head start on what's to come in the course.

- Please install the tool and try it out in advance.

- Please attend! (There are prizes for everyone ☺)