MDE Sequence diagrams and Petri nets
Interoperability problem description
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UML Sequence diagrams are a popular dynamic modeling solution in UML because they specifically focus on lifelines, or the processes and objects that live simultaneously, and the messages exchanged between them to perform a function before the lifeline ends.

Petri nets is one of several mathematical modeling languages for the description of distributed systems.

In this project we'd like to provide a transformation technique from UML Sequence diagrams to Petri nets and vice versa.

For that we create two meta models describing respectively Sequence diagrams and Petri nets and a pivot(transformation) meta-model between them that will allow us to interoperate between these language notations.

The motivation behind the project is simple: while Sequence diagrams are modern and up to date instrument for modeling control flow, Petri nets have an exact mathematical definition of their execution semantics, with a well-developed mathematical theory for process analysis.

This allows for formal verification of Sequence diagrams using Petri nets and further utilizing mathematical apparatus of the aforementioned modeling language.