FMI Tutorial - Modelica FMI Test Library

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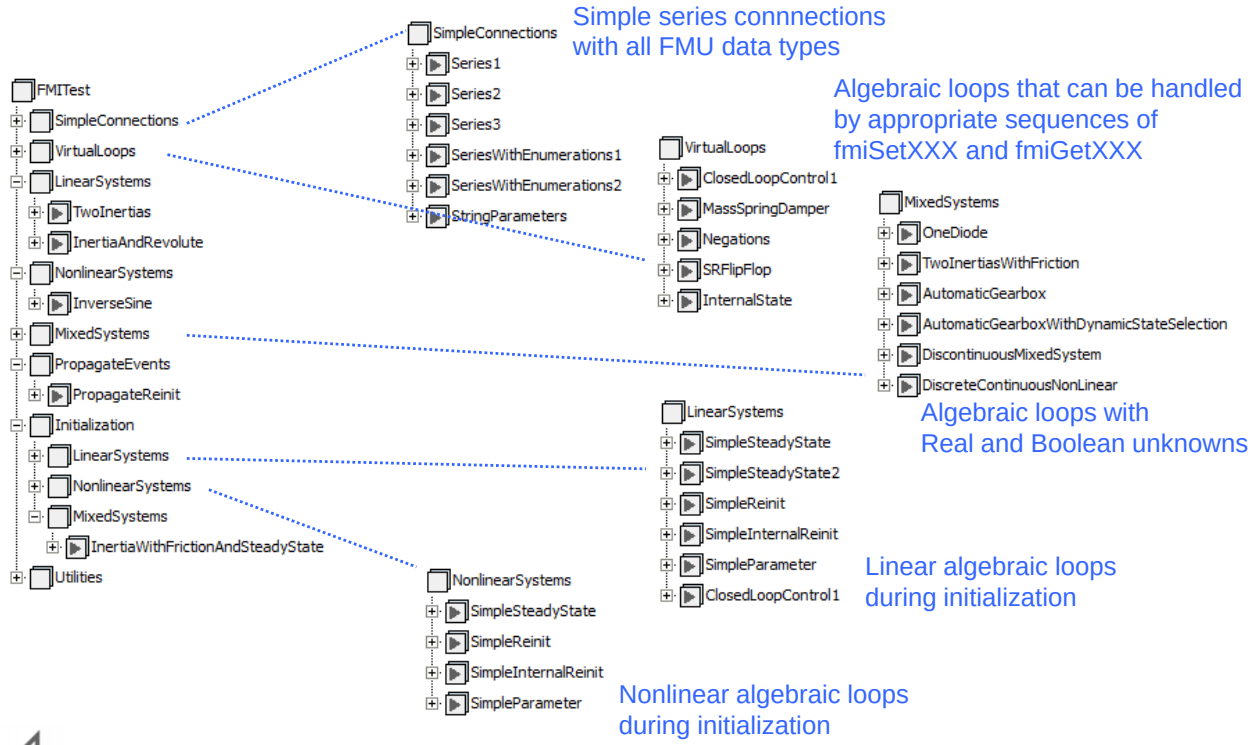
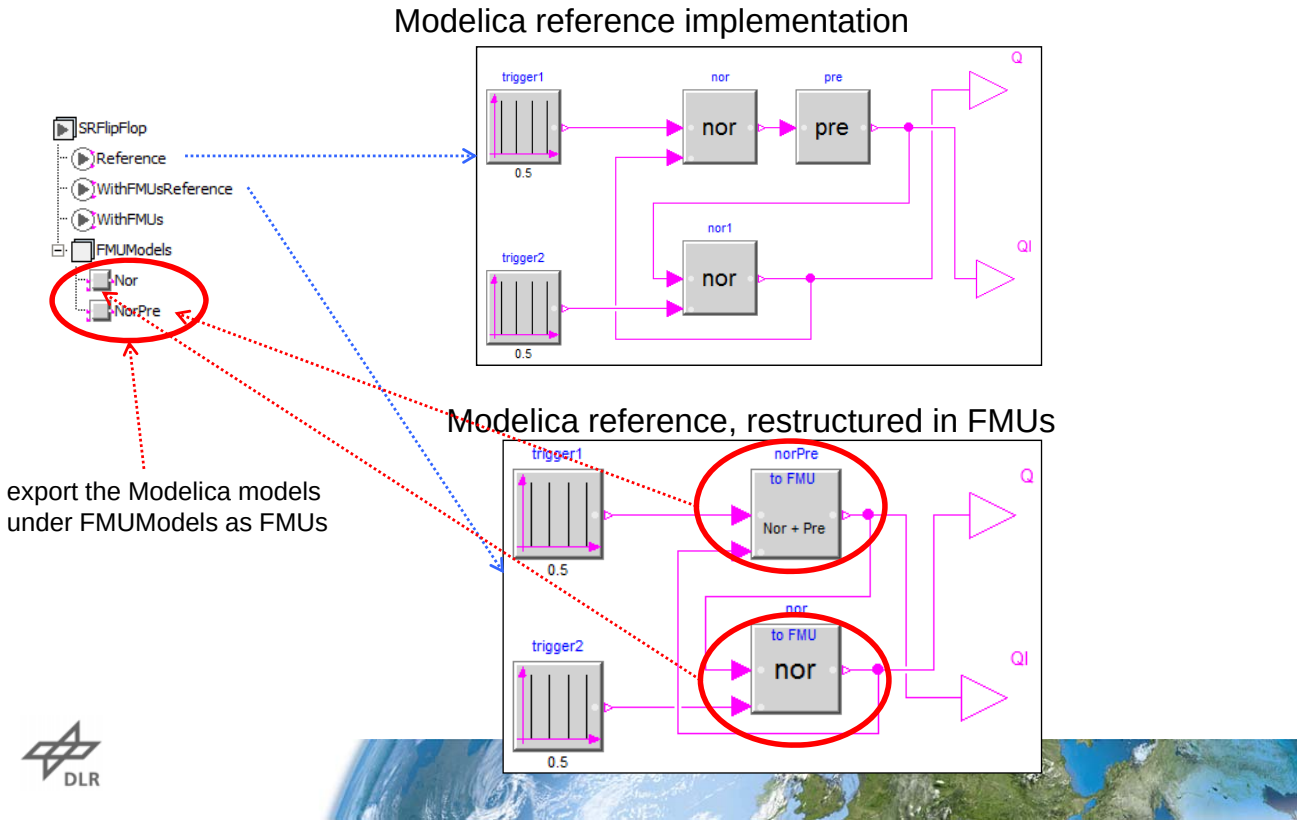
Goal: Provide models to test connected FMUs of FMI 2.0

- Modelica library **FMITest**: https://svn.fmi-standard.org/fmi/branches/public/Test_FMUs/_FMIModelicaTest/FMITest
- **> 30 test models**
  - Real, Boolean, Integer, Enumeration, String interface signals
  - Virtual, linear, nonlinear, mixed algebraic loops
  - Algebraic loops at initialization, events, continuous integration
- Implemented by Martin Otter (DLR-SR). Suggestions for the design by Hilding Elmqvist, Karl Wernersson (Dassault Systèmes) and Torsten Blochwitz (ITI).
- Tested by Karl Wernersson (Dassault Systèmes) with Dymola 2014 FD01.
- **All FMUs exported by Dymola** are also available on the **svn** above (so tool vendors can import these FMUs and can test connected FMUs).

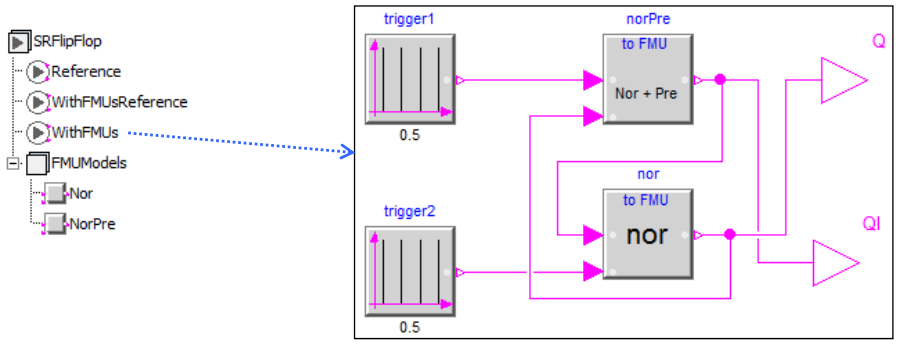
Structure of FMITest



Example: VirtualLoops.SRFlipFlop (1)



Example: VirtualLoops.SRFlipFlop (2)



Same as WithFMUsReference:
Replace the Modelica models above (`norPre`, `nor`) by the imported FMUs and simulate system!

Note, this system connection is non-trivial, because

- the output of `norPre` is an input of `nor` (and depends on pre(..) of one input)
- the output of `nor` is an input of `norPre`.

Therefore: fmiSetBoolean, fmiGetBoolean of the two FMUs must be called in the „right order“ and the FMUs must be able to appropriately handle this order.

Summary

- The (free) **FMITest** library is a **challenging** set of **benchmarks** to determine whether connected FMUs can be handled by a tool.
- All Modelica tools should evaluate their import/export FMU features with this library (and/or guide their development with this library)