

# Automatic Regression Testing of Simulation Models and Concept for Simulation of Connected FMUs in PySimulator

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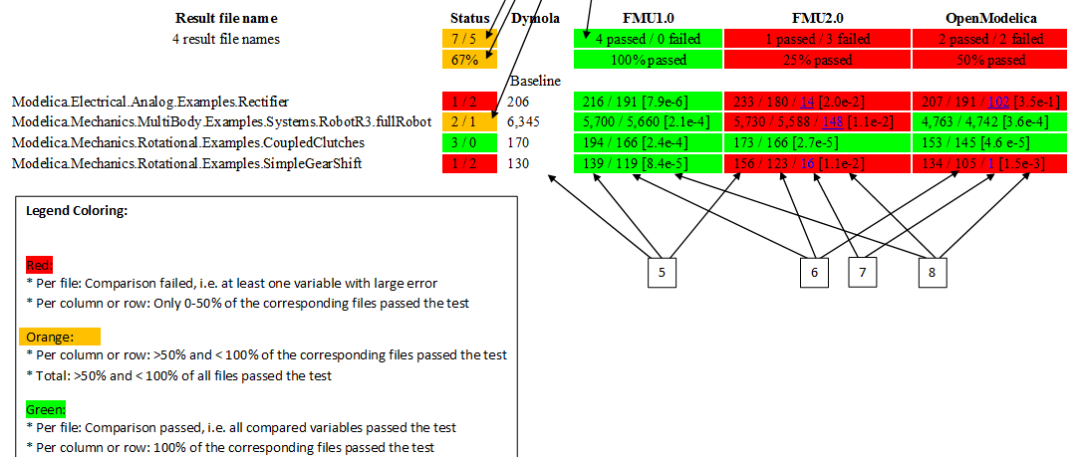
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The Modelica and FMI tool ecosystem is growing each year with new tools and methods becoming available. The open Modelica standard promises portability but it is important to ensure that a certain model behaves the same in different Modelica tools or in a different version of the same tool. It is also very important (for model evolution) to check that a new version of the same model produces comparable results. Finally, it is desirable to verify that a model exported in FMU form from a Modelica tool gives exactly the same results as the original model. This paper presents a framework for automatic regression testing as part of PySimulator which provides an efficient and concise way of testing if a model or a range of models behaves in the same way in several tools or versions of a tool by checking that the results produced are essentially identical. The following regression report summarizes the comparing of different result files.

## Regression Report

Given Error Tolerance: 1.0e-3  
 Disk space of all used result files: 34.4 MB  
 Total number of compared files: 12 against 4 baseline files  
 Total number of compared variables: 17,376 (17,095 passed, 281 failed)  
 Disk space of full report directory: 12.3 MB  
 Generated: 10:57AM on April 14, 2015 by PySimulator  
 Time Taken: 00h:00m:58s

[Legend](#)



The FMI standard has been adopted by many tool vendors and is growing in popularity each year. This paper proposes a concept for building and simulating a system made from connected FMUs generated by different tools. The FMUs for Co-Simulation can be connected together using a GUI. The system model built graphically in this way can be saved for later use or simulated directly inside PySimulator. Active development is going on to also support simulation of connected FMUs for Model Exchange.