

Modeling Supply and Demand in Modelica

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Abstract

This paper demonstrates using component oriented modeling and acausal semantics to create a basic library of behavioral components to model supply and demand. The models presented are each steady state models. While some examples include shifting economic conditions that cause the equilibrium points to change during the simulation, none of the models feature dynamic states. The main purpose of this paper is to demonstrate to people unfamiliar with Modelica (Modelica Association 2017) how Modelica can be used to model non-engineering systems and how it makes such modeling faster, easier and less error-prone compared to other approaches (*e.g.*, using spreadsheets).