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Discrete-Time Sensitivity Analysis for MinMax Parameter Choice for the Heat Equation.

The goal of this work is to minimize the computational cost associated with the experimental determination of the critical parameter used in the design of the MinMax controller. To this end, the sensitivity of the controlled state to variations in the parameter is examined mathematically using Discrete-Time sensitivity equations. The sensitivity of the controller's performance, robustness and convergence with respect to the parameter is also studied. By analyzing these various sensitivities, it is hoped that a mathematically justified parameter can be determined. (Received September 22, 2010)