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Stability switching and Hopf bifurcation in a multiple-delayed neural network

We consider a network of three identical neurons incorporating distributed and discrete signal transmission delays. The model for such a network is a system of coupled nonlinear delay differential equations. Two cases of a single Hopf bifurcation may occur at the trivial equilibrium of the system, a result of the symmetry of the network. These are the simple and the double root single Hopf bifurcations. The presentation examines the simple root case, arriving at a number of stability results.