DYNAMO

The Game

Normal form game : $\begin{array}{c} \\ A \\ B \\ C \end{array}\begin{pmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 3 \end{pmatrix}$

Payoff vector field : $F\begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} x \\ 2\,y \\ 3\,z \end{pmatrix}$

Nash equilibria :

{{0, 0, 1}, {0, 1., 0}, {0, 0.6, 0.4}, {0.666667, 0.333333, 0}, {0.545455, 0.272727, 0.181818}, {0.75, 0, 0.25}, {1., 0, 0}}

The Dynamic

Name of dynamic : Replicator

Law of motion :

$$V_F\begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} -x\left(-x + x^2 + 2\,y^2 + 3\,z^2\right) \\ -y\left(x^2 - 2\,y + 2\,y^2 + 3\,z^2\right) \\ -z\left(x^2 + 2\,y^2 + 3\,(-1+z)\,z\right) \end{pmatrix}$$

Stable rest points :

{{0, 0, 1}, {0, 1., 0}, {1., 0, 0}}

Unstable rest points :

{{0, 0.6, 0.4}, {0.666667, 0.333333, 0}, {0.545455, 0.272727, 0.181818}, {0.75, 0, 0.25}}

Graphics

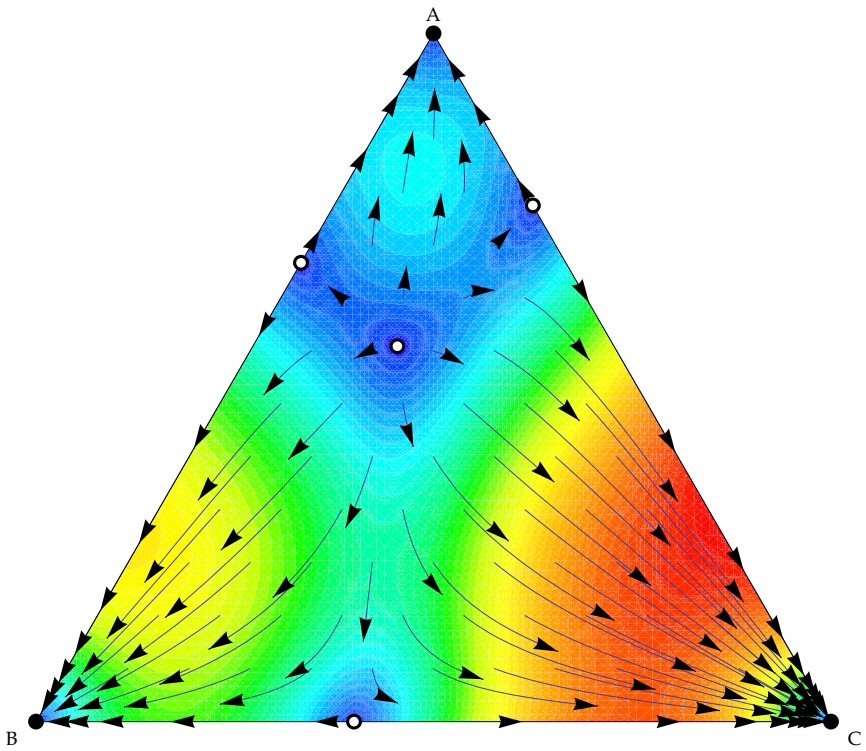
Name of Contour Function : Speed

Definition of Contour Function :

$$\psi(x\ y\ z) = \sqrt{x^2\left(x - x^2 - 2\,y^2 - 3\,z^2\right)^2 + y^2\left(-x^2 + 2\,y - 2\,y^2 - 3\,z^2\right)^2 + z^2\left(-x^2 - 2\,y^2 + 3\,z - 3\,z^2\right)^2}$$

Minimum Value = 0.

Maximum Value = 0.535722



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