

## More applications of e-vectors

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**Question 2.** What happens to the populations if we do not set the initial populations according to the answer to Question 1?



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(Note that  $P_{n+1} + Q_{n+1} = P_n + Q_n$ , so the total population of all states is assumed to remain constant as  $n \rightarrow \infty$ .)



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The matrix  $A = \begin{bmatrix} .8 & .1 \\ .2 & .9 \end{bmatrix}$  is called a **left stochastic matrix**, since it is a nonnegative real matrix for which the row vector of all 1's is a left e-vector with e-value 1.

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