Tutorial on using spatial SSAs in DiffEqJump
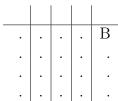
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This tutorial shows how to use spatial solvers added to `DiffEqJump` in summer 2021. See the documentation for a tutorial on getting started with `DiffEqJump`.

0.1 Installing `DiffEqJump`

Once in REPL, do `] add DiffEqJump`. After the installation finishes, you will be able to use all the functionality described below.

0.2 Reversible binding model on a grid

A 5 by 5 Cartesian grid:

Suppose we have a reversible binding system described by $A + B \rightarrow C$ at rate k_1 and $C \rightarrow A + B$ at rate k_2. Further suppose that all A molecules start in the lower left corner, while all B molecules start in the upper right corner of a 5 by 5 grid. There are no C molecules at the start.

We first create the grid:

```
using DiffEqJump
dims = (5,5)
num_nodes = prod(dims) # number of sites
grid = CartesianGrid(dims) # or use LightGraphs.grid(dims)

A Cartesian grid with dimensions (5, 5)
```

Now we set the initial state of the simulation. It has to be a matrix with entry (s, i) being the number of species s at site i (with the standard column-major ordering of the grid).

```
num_species = 3
starting_state = zeros(Int, num_species, num_nodes)
starting_state[1,1] = 25
starting_state[2,end] = 25
starting_state
```