

# Package ‘BML’

May 15, 2015

**Title** Biham Middleton Levine Traffic Model Toolkit

**Description** Tools to simulate Biham Middleton Levine Traffic Models  
and detect phase transition point.

**Version** 0.3-0

**License** MIT + file LICENSE

**Author** Qiwei Li

**Maintainer** Qiwei Li <qwli@ucdavis.edu>

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createBMLGrid	<i>createBMLGrid</i>
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## Description

Create a BML simulation grid

## Usage

```
createBMLGrid(r, c, ncars = c(red = 0, blue = 0), density = 0)
```

## Arguments

r	An integer representing row size of the grid
c	An integer representing column size of the grid
ncars	An integer vector of length 2 representing number of blue cars and red cars in the grid (optional)
density	An numeric value representing the proportion of cars in the grid. Blue cars and red cars will split evenly.

**Value**

returns a BML grid

**Examples**

```
grid = createBMLGrid(r = 67, c = 127, density = 0.5)
grid = createBMLGrid(r = 67, c = 127, ncars = c(red = 1000, blue = 1500))
```

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crunBMLGrid	<i>crunBMLGrid</i>
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**Description**

Simulates BML model interfacing C code

**Usage**

```
crunBMLGrid(grid, numSteps)
```

**Arguments**

grid	A BML grid
numSteps	An integer representing number of moves of the simulation

**Value**

return the final grid

**Examples**

```
grid = createBMLGrid(r = 67, c = 127, density = 0.5)
g = crunBMLGrid(grid, numSteps = 100)
```

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runBMLGrid	<i>runBMLGrid</i>
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**Description**

Simulates BML model

**Usage**

```
runBMLGrid(grid, numSteps, ifPlot = FALSE, ifVelocity = FALSE, method)
```

**Arguments**

<code>grid</code>	A BML grid
<code>numSteps</code>	An integer representing number of moves of the simulation
<code>ifPlot</code>	An logical value representing if to plot the animation of simulation with UNIX based graphic device <code>x11</code>
<code>ifVelocity</code>	An logical value representing if to plot the number of moved cars (velocity) over time
<code>method</code>	One of the following methods: "fast", "slow", and "simultaneous"

**Value**

A BML object

**Examples**

```
grid = createBMLGrid(r = 67, c = 127, density = 0.5)
g = runBMLGrid(grid, numSteps = 50, method = "fast")
g = runBMLGrid(grid, numSteps = 50, method = "slow")
g = runBMLGrid(grid, numSteps = 50, method = "simultaneous")
```

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