An overview of the spnet package

Emmanuel Rousseaux and Marion Deville

February 23, 2014

Contents

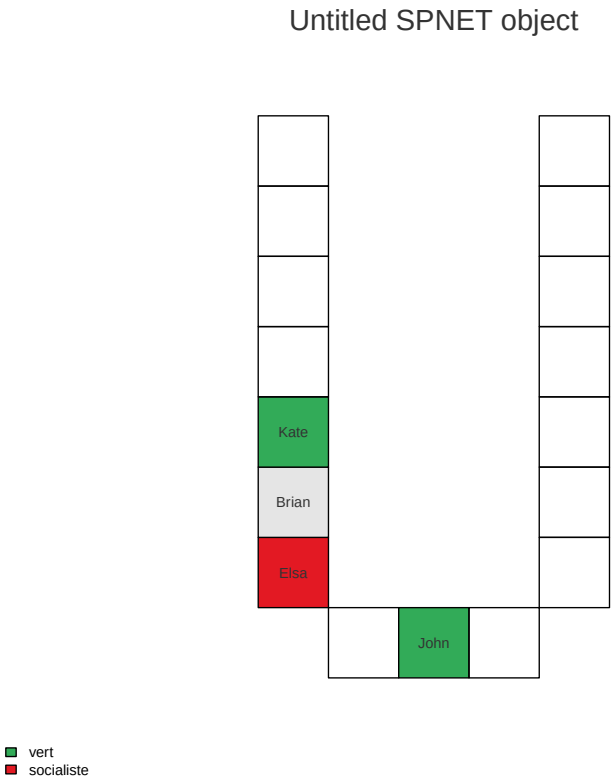
1 Introduction

The `spnet` package offers methods for dealing with spacial social networks. It allows to plot networks for which actors have a specific location on a map (participants in a political debate, cities, etc.). `SpatialPolygons` objects from the `sp` package are supported.

2 Main functionalities / Gallery

The —spnet.example.basic— function provides a working example involving basic functionnalities of the —spnet— package.

```
net1 <- spnet.example.basic()
plot(net1)
```



3 Usage

3.1 Create a Spnet object

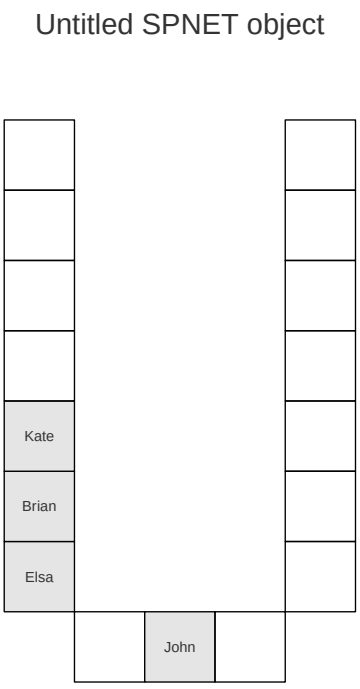
3.2 Set colors

To set colors you basically need:

- A categorical variable affecting each node to a class
- a legend of color specifying the color to use for each class

Here is a practical example. First, we create an basic `Spnet` object containing a map.

```
net1 <- spnet.example.basic.map()
plot(net1)
```



This example contains the following data:

```
data.frame(net1)
```

```
##    NODE POSITION
## 1  John        2
## 2  Elsa        4
## 3 Brian        6
## 4  Kate        8
```

We add a categorical variable affecting each node to a class:

```
net1$parti <- c("vert", "socialiste", "autre", "vert")
```

Data are now:

```
data.frame(net1)
```

```
##    NODE POSITION      parti
## 1  John        2       vert
## 2  Elsa        4 socialiste
## 3 Brian        6      autre
## 4  Kate        8       vert
```

Then we specify we want to use the variable `parti` to colorize the map:

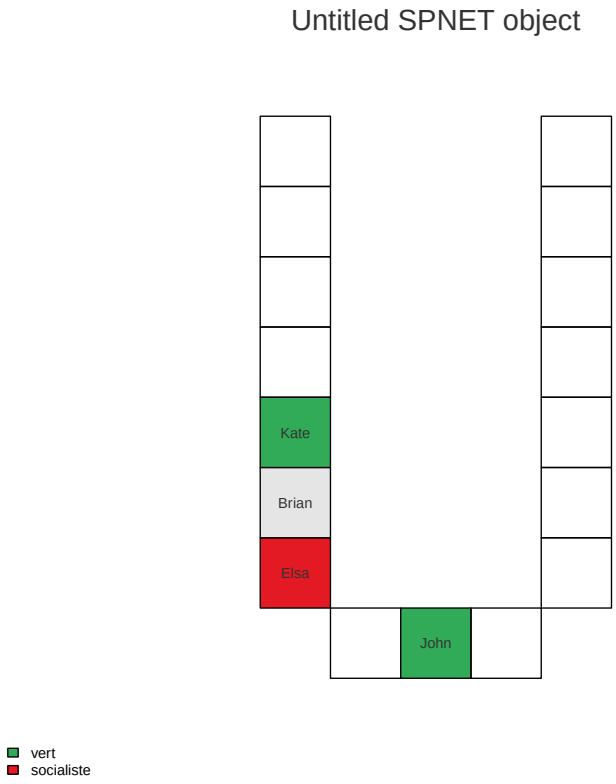
```
spnet.color.variable(net1) <- "parti"
```

Finally we specify the colors to use:

```
spnet.color.legend(net1) <- c(vert = "#32AB58", socialiste = "#E31923")
```

Now the `plot` function is able to colorize the graphic:

```
plot(net1)
```



4 Maps

4.1 SpatialPolygons maps

4.2 Rooms

The easiest way to create a room to represent a debate is the `room.create.grid` function. Here is an example of use:

```
col <- 5
row <- 6
m <- matrix(rep(-1, col * row), nrow = row)
m[1, 2:4] <- 0
m[3, c(1, 5)] <- 0
m[4, c(1, 5)] <- 0
m[5, c(1, 5)] <- 0
```

```r
m[6, c(1, 5)] <- 0
m
```

```
##      [,1] [,2] [,3] [,4] [,5]
## [1,]   -1    0    0    0   -1
## [2,]   -1   -1   -1   -1   -1
## [3,]    0   -1   -1   -1    0
## [4,]    0   -1   -1   -1    0
## [5,]    0   -1   -1   -1    0
## [6,]    0   -1   -1   -1    0
```

```r
room1 <- room.create.grid(m, seat.width = 2, seat.height = 1)
plot.position(room1)
```

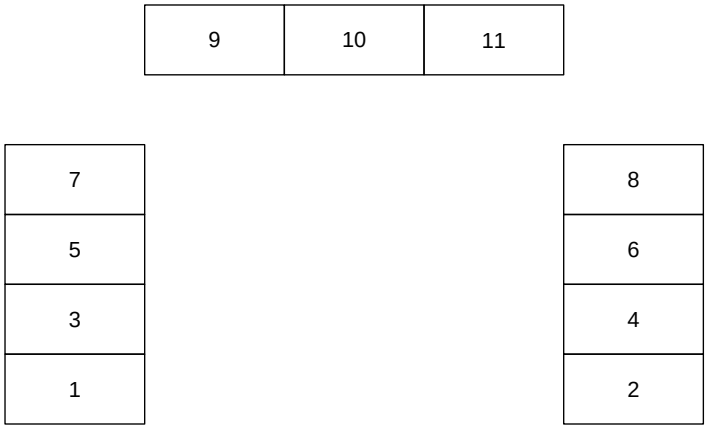


Figure 1: A simple room with table in invered 'U' form