BIKE SHARING USAGE IN HAMBURG

THE DATA

The map shows the bike sharing usage of StadtRAD, the bike sharing system in Hamburg - Germany. The data is available on the open data platform from Deutsche Bahn, the public railway company in Germany. The last new StadtRAD station was put into operation in May 2016, that is why I have chosen to display the usage of June 2016. The brighter the line, the more bikes have been cycled along that street.

THE PROCESSING

From data processing and spatial analysis to visualization the whole project was done in R. I have used the `rstudio` and `raster` packages to display the data interactively. The bike trajectories start from GPS, so the routes are estimated on a fastest route basis using the awesome OSMeeDir function. The biggest challenge has been to aggregate overlapping trajectories, find the overlap function from the `sp` package and put it into practice. It converts a series of overlapping lines and aggregates their values for overlapping segments.

The raw data file from Deutsche Bahn is quite huge and I straightforwardly imported the data into R to be able to process it. In the end the read.csv function from the `sqldf` package did the job. This way I did not need to import the whole file and just could filter out the bike rides for Hamburg.

The code could easily be used to map other spatial data, for example the car sharing data from car2go which is available via their API. This might be a future project.

When you look at the map you can see a widely spread bike sharing network over big parts of the city but also notice some overlapping processes where missing stations disconnect the ride from the high frequented and well connected city center. At the Elbe river opposite Hamburg in a northern and southern part it seems like bike routes become a well accepted means of transportation to keep both parts of the city connected.

THE MAP

As a cycling enthusiast and Hamburg native I have been using the streets of Hamburg for a long time now. Over the years I found my favorite cycle route throughout the city but also know the tight and problematic corners of Hamburg, where missing or overcrowded cycling paths bring you too close to other bikers, cars or pedestrians. It is amazing to see that the data set can proof some of my hypotheses about the current state of the bicycle infrastructure in Hamburg and even bring up new questions I have not even thought about before.

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