

Synthesis pt1

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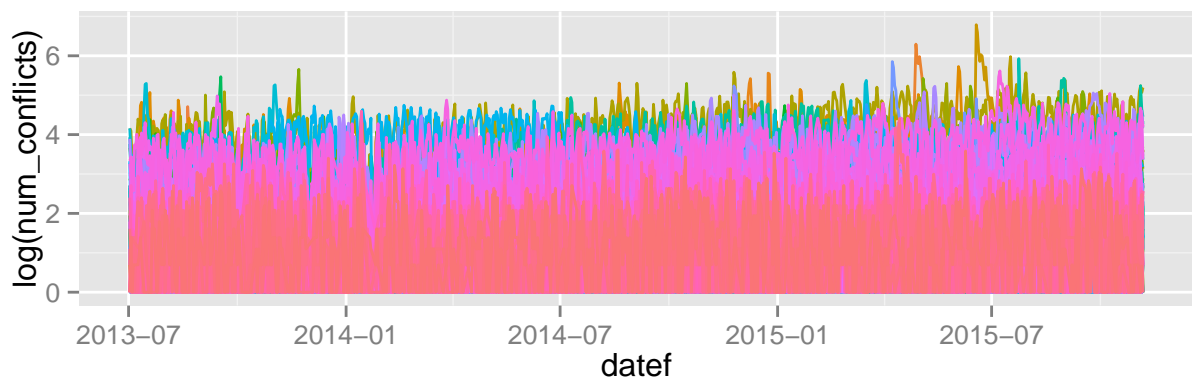
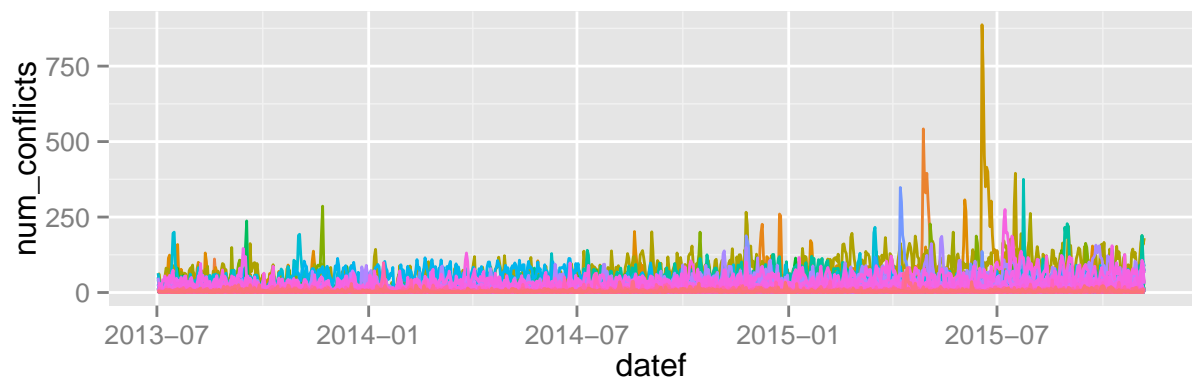
November 28, 2015

```
## Loading required package: DBI
##
## Attaching package: 'dplyr'
##
## The following object is masked from 'package:reshape':
##
##   rename
##
## The following objects are masked from 'package:stats':
##
##   filter, lag
##
## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union
```

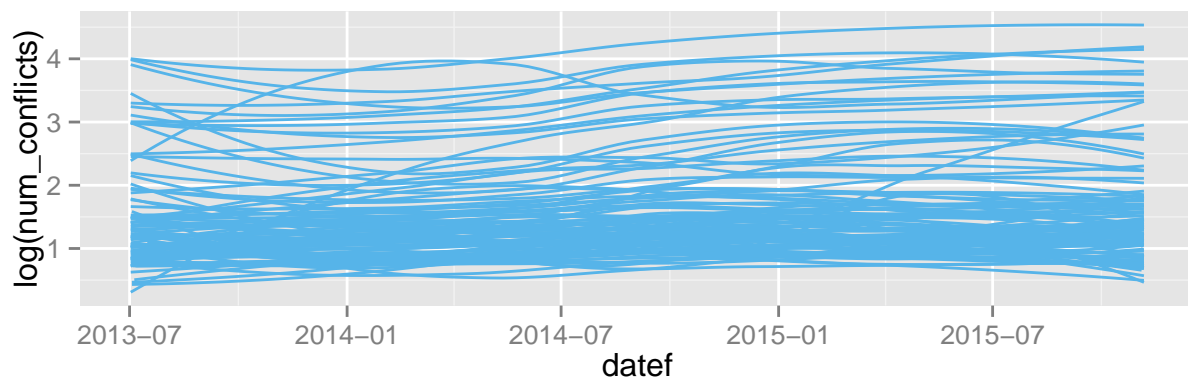
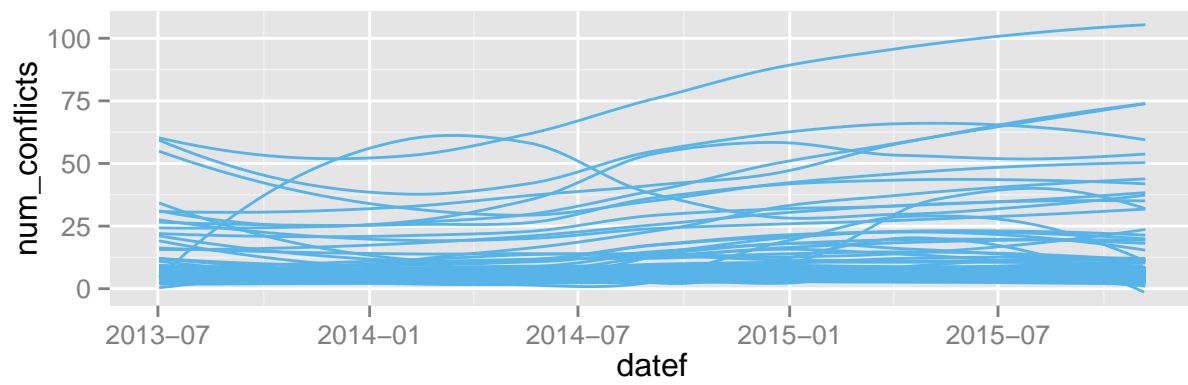
Data standardization

Before standardization...

```
## Loading required package: lattice
## Loading required package: plyr
## -----
## You have loaded plyr after dplyr - this is likely to cause problems.
## If you need functions from both plyr and dplyr, please load plyr first, then dplyr:
## library(plyr); library(dplyr)
## -----
##
## Attaching package: 'plyr'
##
## The following objects are masked from 'package:dplyr':
##
##   arrange, count, desc, failwith, id, mutate, rename, summarise,
##   summarize
##
## The following objects are masked from 'package:reshape':
##
##   rename, round_any
```

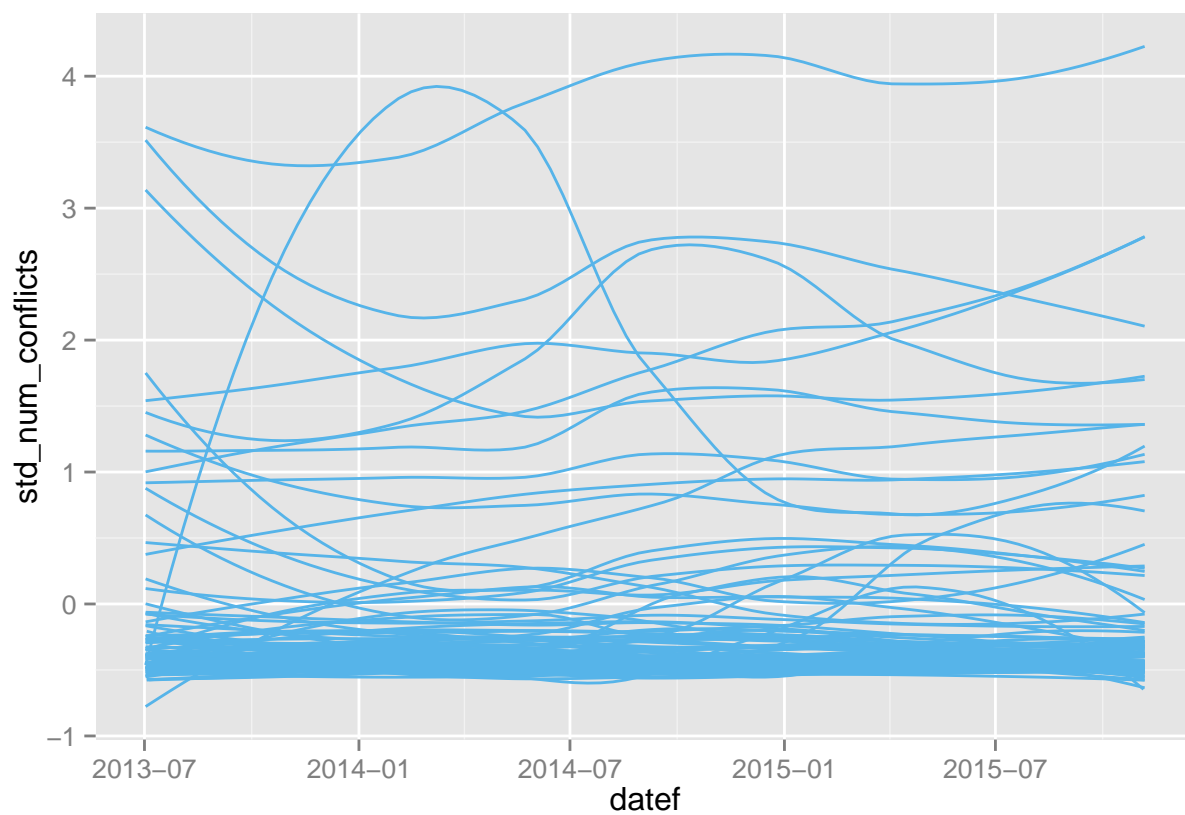


It's very noisy so we simplify the charts. . .

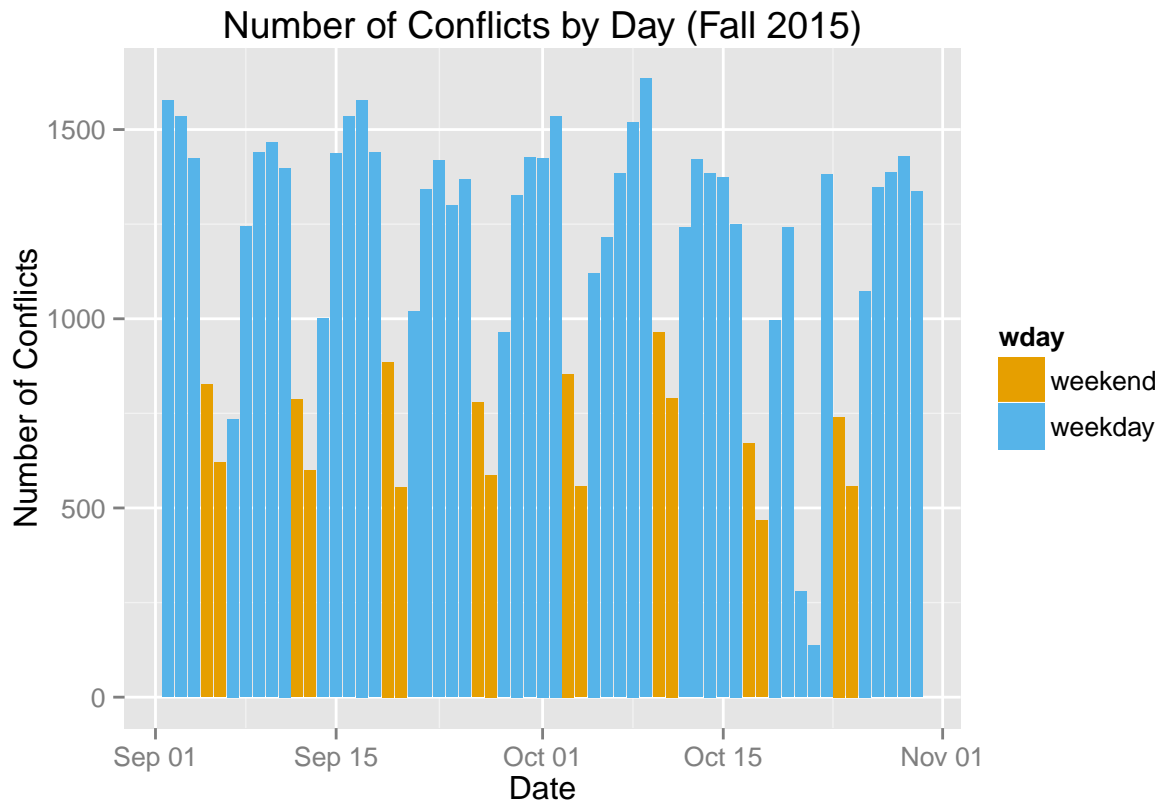


Actually looks ok... may not need standardization

After standardization...



Weekly trends



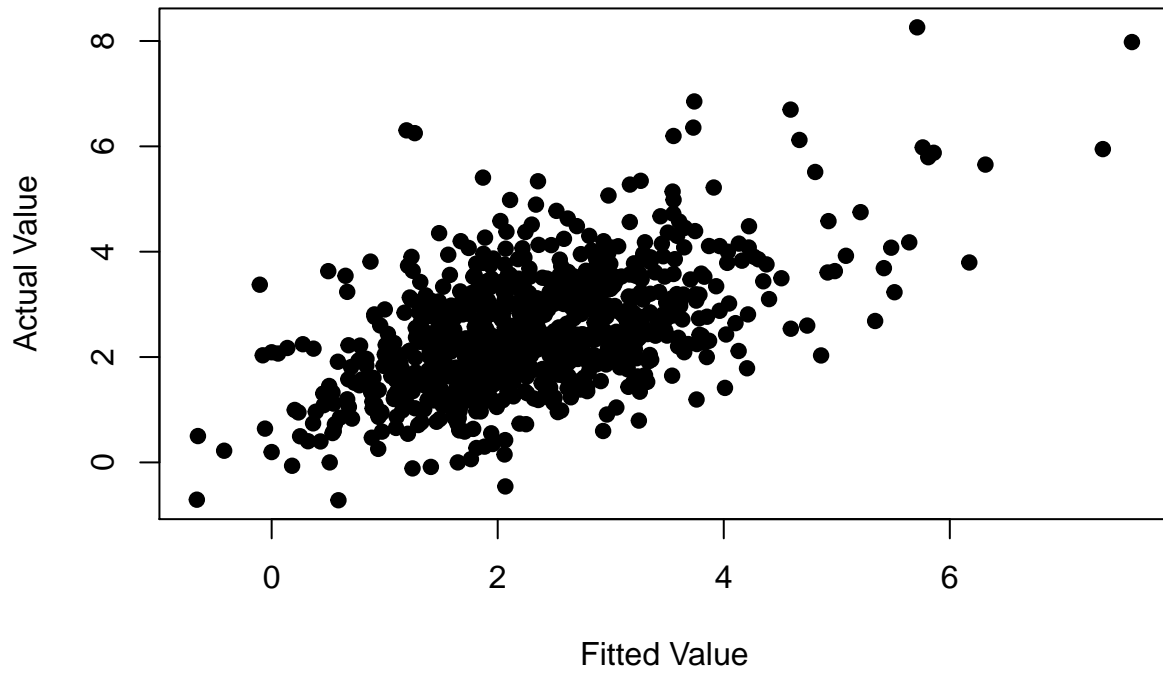
Auto-correlation

```
##
## Attaching package: 'reshape2'
##
## The following objects are masked from 'package:reshape':
##
##   colsplit, melt, recast
```

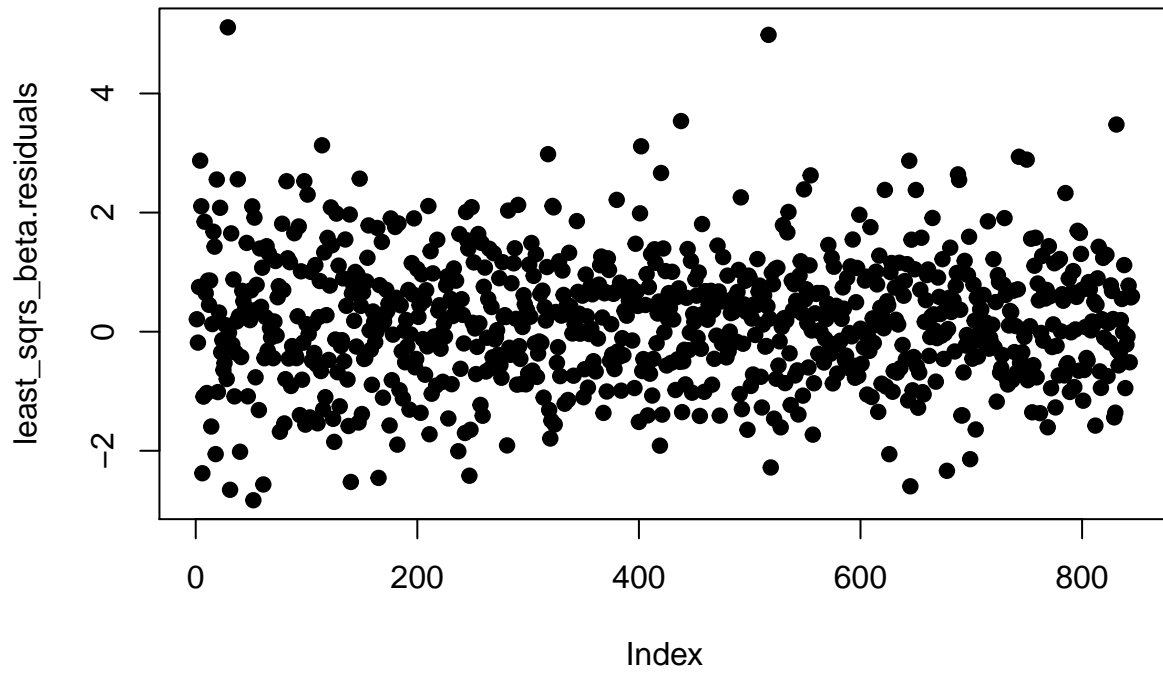
Example: Auto-correlation for a single city: Boston

```
##      [,1]
## [1,]    0
```

Fitted vs. Actual Values for 1-day lag in Boston



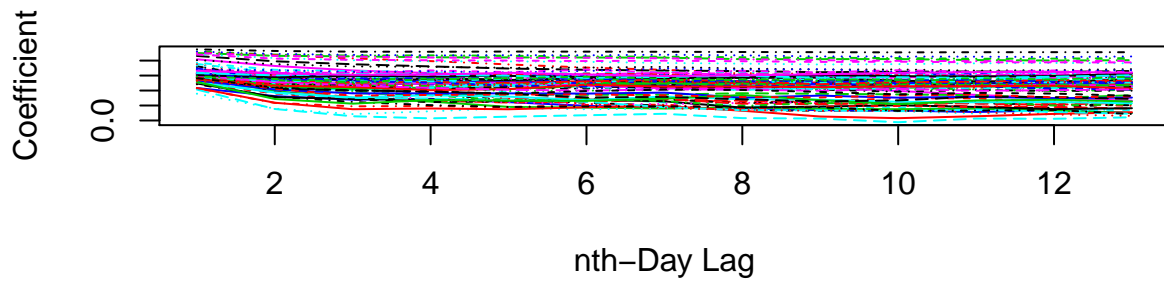
Boston: 1-day Lag Model Residuals



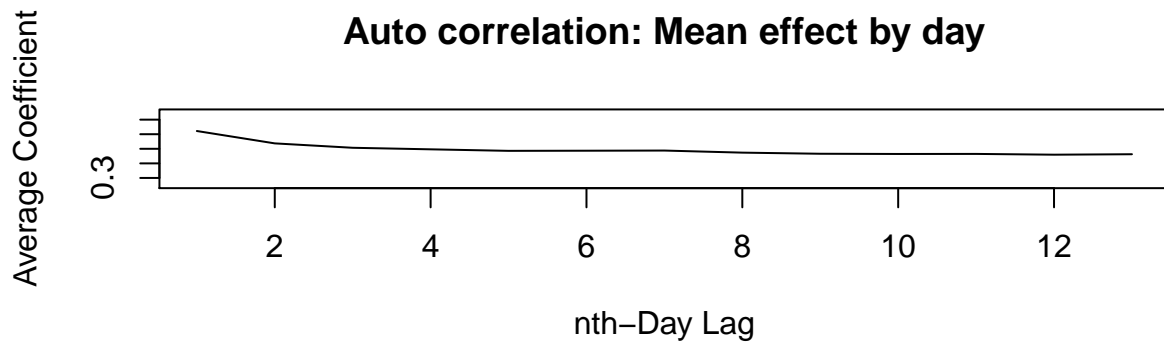
Evaluate auto-correlation by the nth-day lagged.

14 days selected for best effect-dropoff.

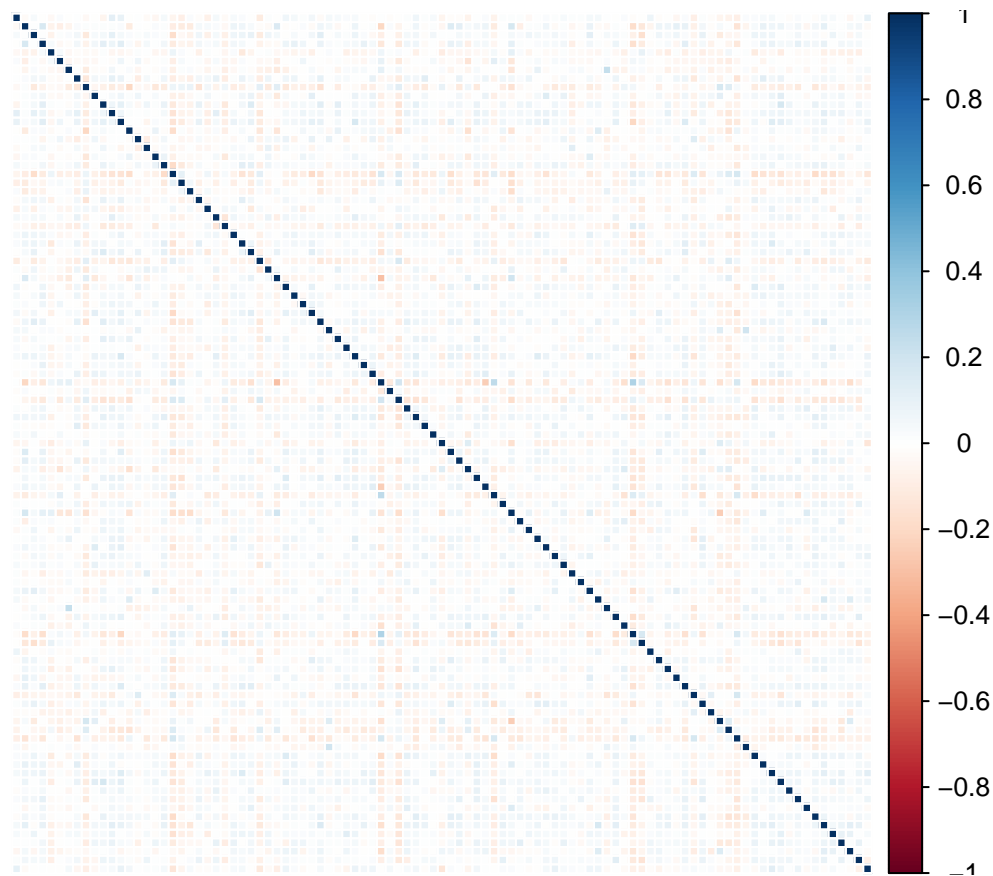
Auto correlation: effect by day



Auto correlation: Mean effect by day



Neighbors correlation



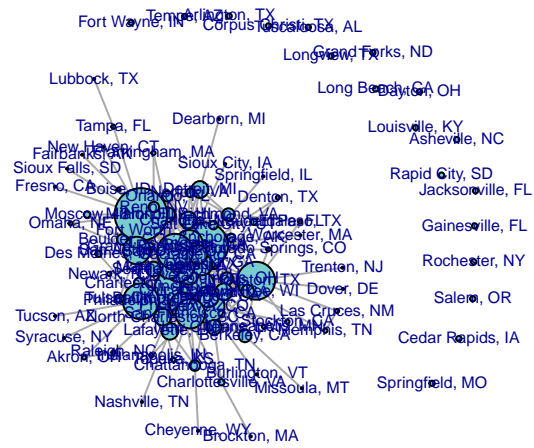
Neighborhoods

[ADD ME: plot convergence]

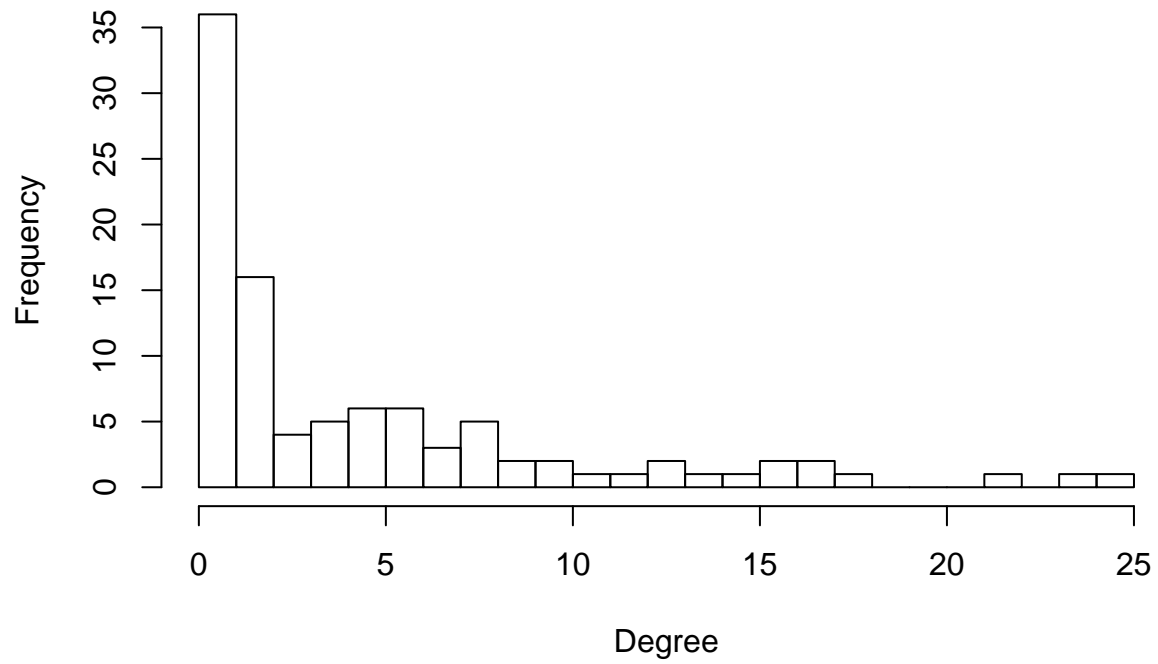
[FIXME: Graph is too close together]

```
##
## Attaching package: 'igraph'
##
## The following objects are masked from 'package:dplyr':
##
##   %>%, as_data_frame, groups, union
##
## The following objects are masked from 'package:stats':
##
##   decompose, spectrum
##
## The following object is masked from 'package:base':
##
##   union

## [1] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## [36] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

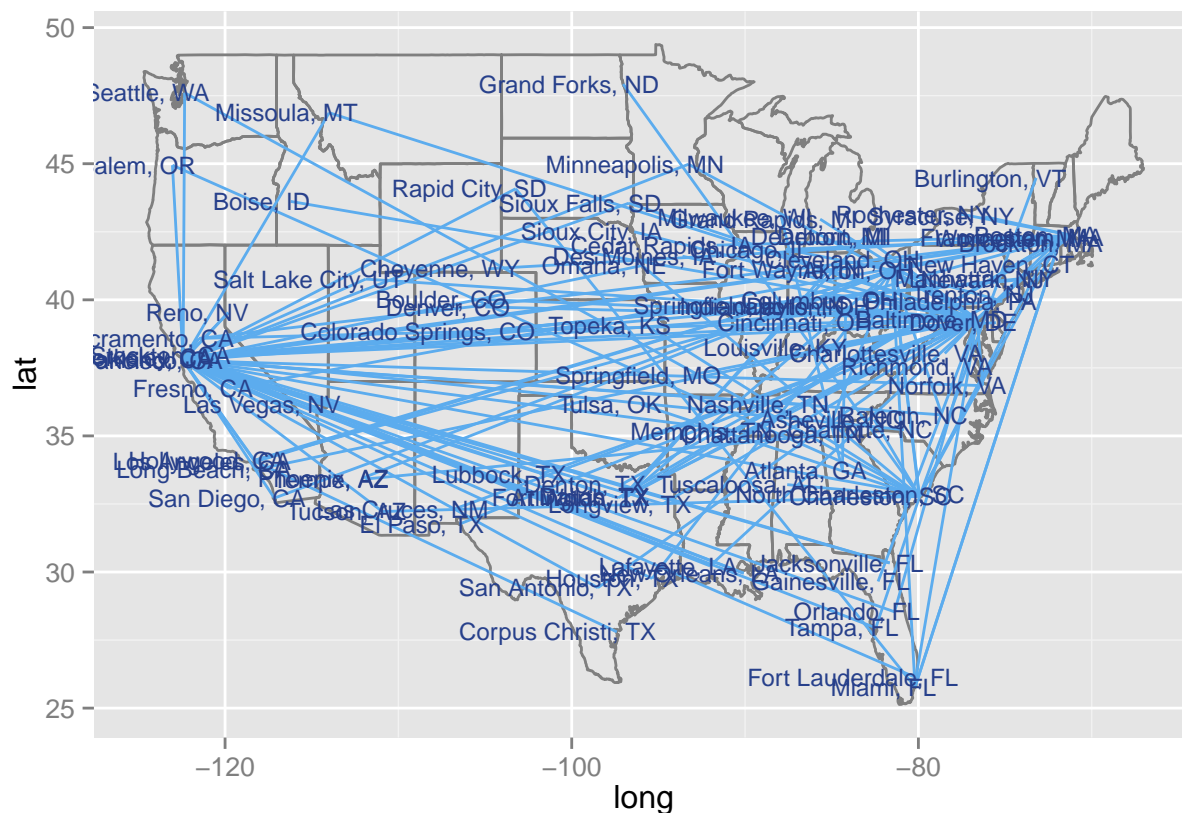
[illegible]

Degree of vertices



[ADD ME: Degree distribution]

[1] 146



[ADD ME: Calculate statistical significance of lasso.coefs.select]

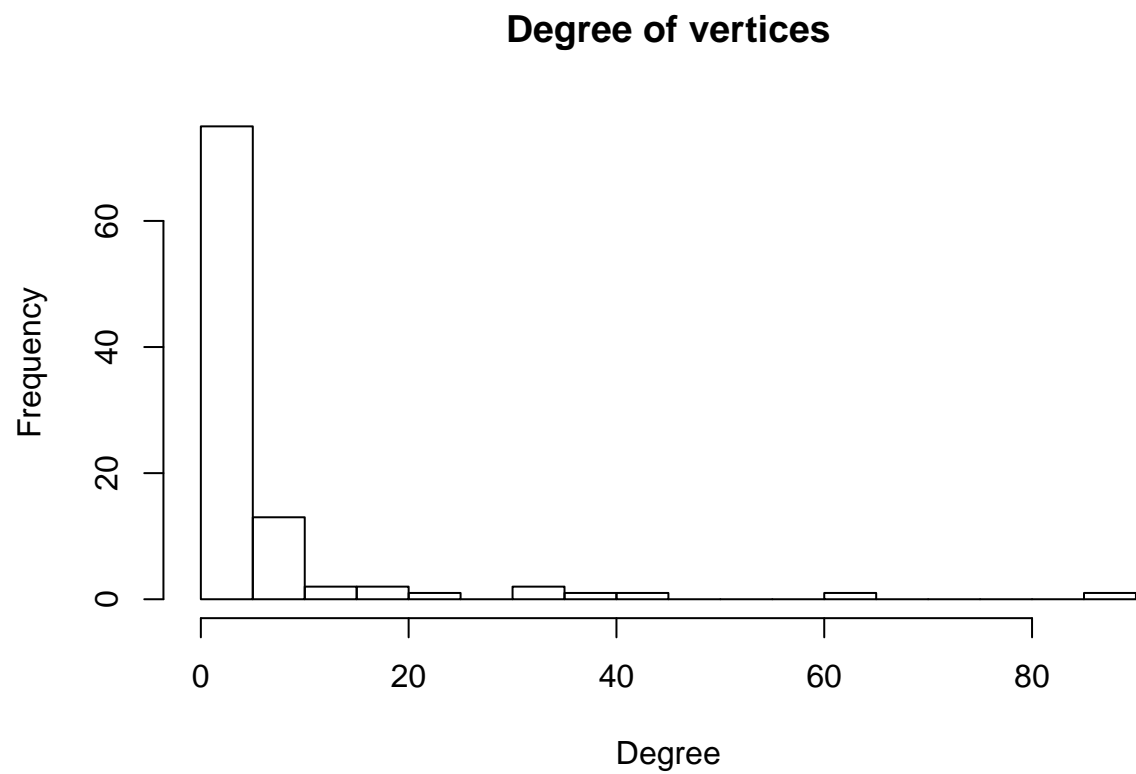
Compare with SPACE results

```
## [1] "iter=1"
## [1] "iter=2"

## [1] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## [36] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## [71] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## [106] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## [141] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## [176] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## [211] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## [246] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## [281] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## [316] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

New Haven, CT

Springfield, IL Grand Rapids, MI
Minneapolis, MN Honolulu, HI
Atlanta, GA New York, NY Toronto, ON, Canada
Columbus, OH San Francisco, CA Portland, ME
Milwaukee, WI Boston, MA Denver, CO
Columbus, OH Houston, TX Phoenix, AZ
Syracuse, NY Chicago, IL Dallas, TX
Des Moines, IA Indianapolis, IN Cleveland, OH
Anchorage, AK Seattle, WA San Jose, CA
Colorado Springs, CO Salt Lake City, UT
Gainesville, TX Las Vegas, NV
Akron, OH Raleigh, NC



Evalute std_num_conflicts v. avg:same_region + avg:other_regions

[ADD ME: Some summary of results][FIX ME: Regress on each region, so each region's effect is differentiated]

```
## [1] "iter 1"
## [1] "iter 2"
## [1] "iter 3"
## [1] "iter 4"
## [1] "iter 5"
```

