

Mapping and periodising social movements using R and Python

A humble introduction through two examples

Mikael Brunila

CRADLE

Learning in Productive Social Movements

1. Mapping the Twitter hashtag **#StopBlackstone**

First: A word from my sponsors...

- **Learning in Productive Social Movements:** Project funded by Finnish Academy of Science, lead by professor Yrjö Engeström. Research on learning in housing and land movements on four continents.
- **My fieldwork:** CLT group in New York, housing rights group la PAH in Barcelona
- **Other sites:** Food co-op in Herttoniemi, Abahlali baseMjondolo in Durban and upcoming in Chile.

Data

- 18 in-depth interviews with members of the group
- Photos and video footage from a dozen actions and demonstrations
- All tweets from the #StopBlackstone action in October 2015 as JSON-data: 8310 tweets









#StopBlackstone

- International campaign against private-equity fund Blackstone
- **Blackstone:** Large purchases of foreclosed and/or public housing in Ireland, Spain, Brazil, the United States
- Hard to pressure using conventional methods → international campaign to gain traction
- Not very efficient so far

Twitter and geodata

- Tweepy: Great documentation, great tutorials and scripts
- Two kinds of data:
 1. Data on individual tweet → very rare
 2. User provided data on location → very common
- Possible to iterate user provided data and geocode it *en masse* → gives a **visual approximation**



EUROPE

Activists Gather Worldwide to Protest Against Housing 'Vulture Fund'

By Cat McShane

October 15, 2015 | 3:40 pm

Activists gathered on Wednesday in cities across the United States, Japan and Europe to

blackstone_STREAM.json x

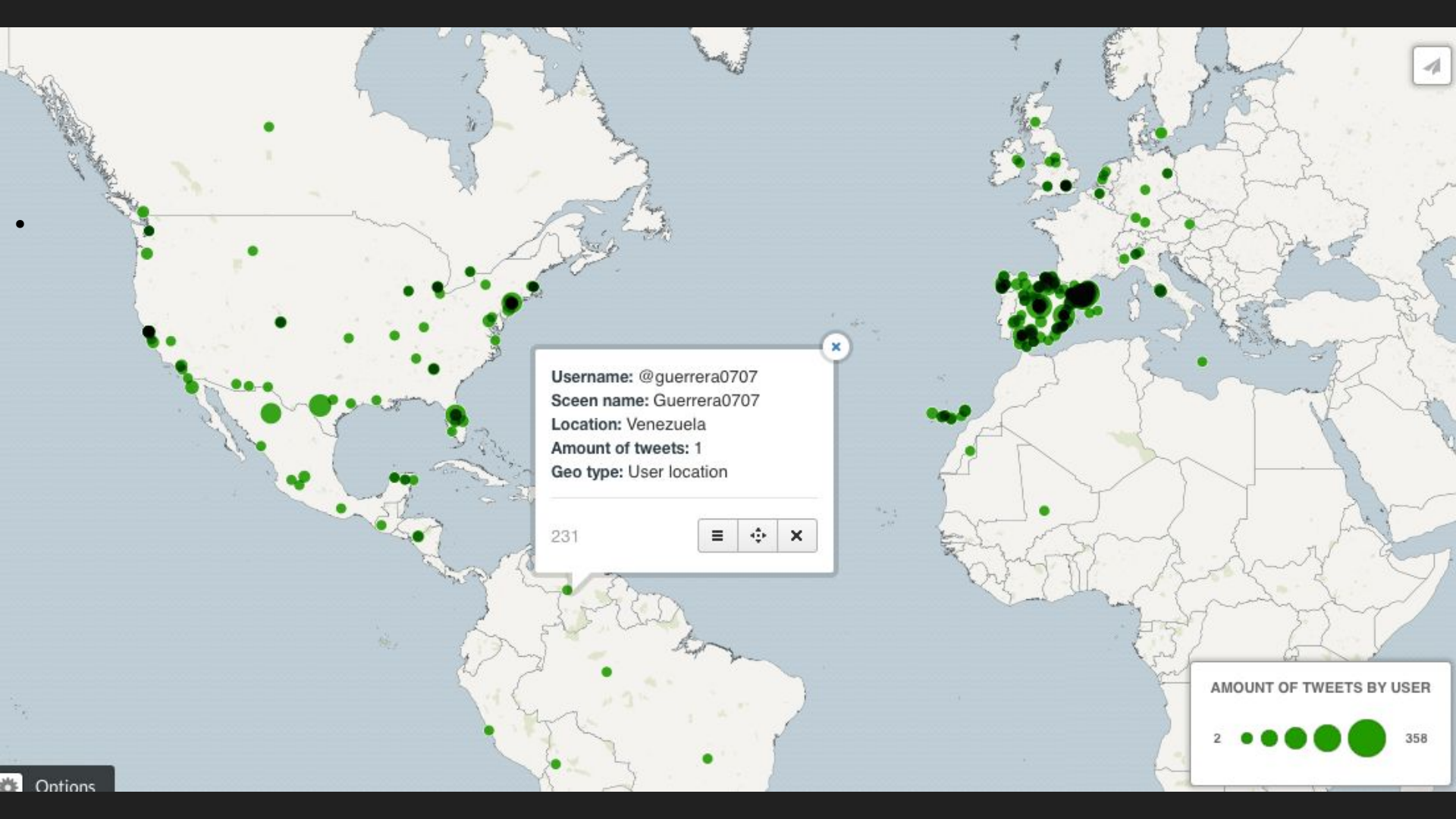
```
6389 {"created_at":"Wed Oct 14 17:33:07 +0000 2015","id":"654349227783491584","id_str":"654349227783491584","t
6390 {"created_at":"Wed Oct 14 17:33:09 +0000 2015","id":"654349235412930561","id_str":"654349235412930561","t
6391 {"created_at":"Wed Oct 14 17:33:10 +0000 2015","id":"654349239942836224","id_str":"654349239942836224","t
6392 {"created_at":"Wed Oct 14 17:33:32 +0000 2015","id":"654349330434945024","id_str":"654349330434945024","t
6393 {"created_at":"Wed Oct 14 17:33:35 +0000 2015","id":"654349345731551232","id_str":"654349345731551232","t
6394 {"created_at":"Wed Oct 14 17:33:42 +0000 2015","id":"654349371459432448","id_str":"654349371459432448","t
6395 {"created_at":"Wed Oct 14 17:34:07 +0000 2015","id":"654349477336207360","id_str":"654349477336207360","t
6396 {"created_at":"Wed Oct 14 17:34:08 +0000 2015","id":"654349483380228096","id_str":"654349483380228096","t
6397 {"created_at":"Wed Oct 14 17:34:10 +0000 2015","id":"654349489654902784","id_str":"654349489654902784","t
6398 {"created_at":"Wed Oct 14 17:34:12 +0000 2015","id":"654349498400030720","id_str":"654349498400030720","t
6399 {"created_at":"Wed Oct 14 17:34:38 +0000 2015","id":"654349608546627585","id_str":"654349608546627585","t
6400 {"created_at":"Wed Oct 14 17:34:43 +0000 2015","id":"654349628847079424","id_str":"654349628847079424","t
6401 {"created_at":"Wed Oct 14 17:34:56 +0000 2015","id":"654349682584457216","id_str":"654349682584457216","t
6402 {"created_at":"Wed Oct 14 17:35:07 +0000 2015","id":"654349730839928832","id_str":"654349730839928832","t
6403 {"created_at":"Wed Oct 14 17:35:17 +0000 2015","id":"654349770337701888","id_str":"654349770337701888","t
6404 {"created_at":"Wed Oct 14 17:35:43 +0000 2015","id":"654349880085708800","id_str":"654349880085708800","t
6405 {"created_at":"Wed Oct 14 17:36:28 +0000 2015","id":"654350069416767488","id_str":"654350069416767488","t
6406 {"created_at":"Wed Oct 14 17:36:45 +0000 2015","id":"654350141885972480","id_str":"654350141885972480","t
6407 {"created_at":"Wed Oct 14 17:36:59 +0000 2015","id":"654350200828506116","id_str":"654350200828506116","t
6408 {"created_at":"Wed Oct 14 17:37:04 +0000 2015","id":"654350220617252865","id_str":"654350220617252865","t
6409 {"created_at":"Wed Oct 14 17:37:13 +0000 2015","id":"654350259947237376","id_str":"654350259947237376","t
6410 {"created_at":"Wed Oct 14 17:37:13 +0000 2015","id":"654350258282086400","id_str":"654350258282086400","t
6411 {"created_at":"Wed Oct 14 17:37:44 +0000 2015","id":"654350389538635776","id_str":"654350389538635776","t
6412 {"created_at":"Wed Oct 14 17:37:50 +0000 2015","id":"654350412867366912","id_str":"654350412867366912","t
6413 {"created_at":"Wed Oct 14 17:37:54 +0000 2015","id":"654350431678767104","id_str":"654350431678767104","t
6414 {"created_at":"Wed Oct 14 17:38:01 +0000 2015","id":"654350460141314048","id_str":"654350460141314048","t
6415 {"created_at":"Wed Oct 14 17:38:12 +0000 2015","id":"654350505502765056","id_str":"654350505502765056","t
6416 {"created_at":"Wed Oct 14 17:38:12 +0000 2015","id":"654350506345824256","id_str":"654350506345824256","t
6417 {"created_at":"Wed Oct 14 17:38:19 +0000 2015","id":"654350537199099905","id_str":"654350537199099905","t
6418 {"created_at":"Wed Oct 14 17:38:26 +0000 2015","id":"654350565602914304","id_str":"654350565602914304","t
6419 {"created_at":"Wed Oct 14 17:38:33 +0000 2015","id":"65435059432374177","id_str":"65435059432374177","t
```

.* Aa " " brunila

Find

Find Prev

Find All



Username: @guerrera0707
Screen name: Guerrero0707
Location: Venezuela
Amount of tweets: 1
Geo type: User location

231



AMOUNT OF TWEETS BY USER



#StopBlackstone: Tools

1. Python script for scraping Twitter
2. [Python script](#) for extracting locations
3. Google Refine to convert data into CSV and geocode it with the Google Maps API
4. [CartoDB](#) to map and visualize data

Python script showed:

- Locations for 709 users out of 1245,
- They produced 5184 out of the total 8310 of tweets I scraped during that day
- Very concentrated in Spain, many outliers and even data points in the US actually in Spain.
- Power of the Spanish networked social movement after 15M and the indignados

```
36     }
37     }
38
39     #Iterate through different types of geo data to
40     if tweet['coordinates']:
41         user_data["features"]["primary_geo"] = str
42         user_data["features"]["geo_type"] = "Tweet
43     elif tweet['place']:
44         user_data["features"]["primary_geo"] = twe
45         user_data["features"]["geo_type"] = "Tweet
46     else:
47         user_data["features"]["primary_geo"] = twe
48         user_data["features"]["geo_type"] = "User
49
50     #Add only tweets with some geo data to .json.
51     if user_data["features"]["primary_geo"]:
52         users_with_geodata['data'].append(user_dat
53         geo_tweets += 1
54
55     #If user already listed, increase their tweet coun
56     elif user_id in all_users:
57         for user in users_with_geodata["data"]:
58             if user_id == user["user_id"]:
59                 user["features"]["tweets"] += 1
60
61     #Count the total amount of tweets for those users that had
62     for user in users_with_geodata["data"]:
63         geo_tweets = geo_tweets + user["features"]["tweets"]
64
65     #Get some aggregated numbers on the data
66     print "The file included " + str(len(all_users)) + " uniqu
67     print "The file included " + str(len(users_with_geodata['d
68     print "The users with geo data tweeted " + str(geo_tweets)
69
70     # Save geo data
71     with open('Blackstone_users_geo_2.json', 'w') as fout:
```

Facet / Filter Undo / Redo 0

709 records

2% complete Cancel

Extensions: Freebase ▼

« first < previous 1 - 10 next > last »

Using facets and filters



Use facets and filters to select subsets of your data to act on. Choose facet and filter methods from the menus at the top of each data column.

Not sure how to get started?
[Watch these screencasts](#)

| Show as: rows records | | | | | | | | | |
|--------------------------|-----------------|--|----------------------|-----------------|----------------------|-----------------|--------------------------------|-----------------|------------|
| Show: 5 10 25 50 records | | | | | | | | | |
| ▼ All | ▼ __anonymous__ | ▼ __anonymous__ - text | ▼ __anonymous__ | ▼ __anonymous__ | ▼ __anonymous__ | ▼ __anonymous__ | ▼ __anonymous__ | ▼ __anonymous__ | ▼ |
| ☆ 1. | 594015329 | RT @OccupyWallSiNYC: Tomorrow at 1pm in #NYC Our Homes are NOT Commodities! #StopBlackstone https://t.co/3foWJ6XsE4 http://t.co/BYBmLIQ8WG | Mikael Brunila | 1 | Helsinki Barcelona | User location | Wed Oct 14 00:13:54 +0000 2015 | | Hels |
| ☆ 2. | 59242341 | RT @OccupyWallSiNYC: Tomorrow at 1pm in #NYC Our Homes are NOT Commodities! #StopBlackstone https://t.co/3foWJ6XsE4 http://t.co/BYBmLIQ8WG | Tenants Together | 1 | San Francisco, CA | User location | Wed Oct 14 00:45:28 +0000 2015 | | San |
| ☆ 3. | 431102443 | #StopBlackstone DESAHUCIA FAMILIAS MIENTRAS @LA_PAH SALVA VIDAS @GetafeAsamblea | PAH_GETAFE | 1 | Getafe madrid | User location | Wed Oct 14 06:31:10 +0000 2015 | | Geta |
| ☆ 4. | 467691169 | RT @PAHGETAFE: #StopBlackstone DESAHUCIA FAMILIAS MIENTRAS @LA_PAH SALVA VIDAS @GetafeAsamblea | MARIA | 2 | España | User location | Wed Oct 14 06:50:11 +0000 2015 | | Esp |
| ☆ 5. | 2841147471 | Vamos de camino @lketomohiro ya ha cumplido en Tokyo. Ahora nos toca a nosotras @LA_PAH @ourcity #StopBlackstone | Juanjo Ramón García | 1 | Barcelona | User location | Wed Oct 14 07:25:15 +0000 2015 | | Bar |
| ☆ 6. | 159147843 | La PAH se moviliza desde tres continentes contra Blackstone http://t.co/pNQ7ESH3PH #StopBlackstone | El Boletín | 1 | Madrid, España | User location | Wed Oct 14 07:31:39 +0000 2015 | | Mad |
| ☆ 7. | 283012001 | RT @elboletinmadrid: La PAH se moviliza desde tres continentes contra Blackstone http://t.co/pNQ7ESH3PH #StopBlackstone | ★ RECLUTACIÓN ★ | 1 | SPAIN Colony TROIKA | User location | Wed Oct 14 07:32:15 +0000 2015 | | SPA TRO |
| ☆ 8. | 2447925656 | RT @PAHGETAFE: #StopBlackstone DESAHUCIA FAMILIAS MIENTRAS @LA_PAH SALVA VIDAS @GetafeAsamblea | veronica esteban | 1 | Toledo | User location | Wed Oct 14 07:35:48 +0000 2015 | | Tole |
| ☆ 9. | 540160691 | RT @elboletinmadrid: La PAH se moviliza desde tres continentes contra Blackstone http://t.co/pNQ7ESH3PH #StopBlackstone | jliftweet | 1 | retuiteando 2.0 | User location | Wed Oct 14 07:37:46 +0000 2015 | | retu |
| ☆ 10. | 320203214 | RT @elboletinmadrid: La PAH se moviliza desde tres continentes contra Blackstone http://t.co/pNQ7ESH3PH #StopBlackstone | Sosad #NOaITTIP #OXI | 1 | Aranjuez | User location | Wed Oct 14 07:40:48 +0000 2015 | | Aran |

Concluding thoughts

- La PAH extremely efficient locally: method of empowerment through assemblies, direct action and popular policy initiatives
- Blackstone changes context, creates opaque and hard to pressure opponent
- Power of la PAH comes from all the other work. This power can then be mobilized against Blackstone as well.
- Without similar strategies of “building power” hard to mobilize



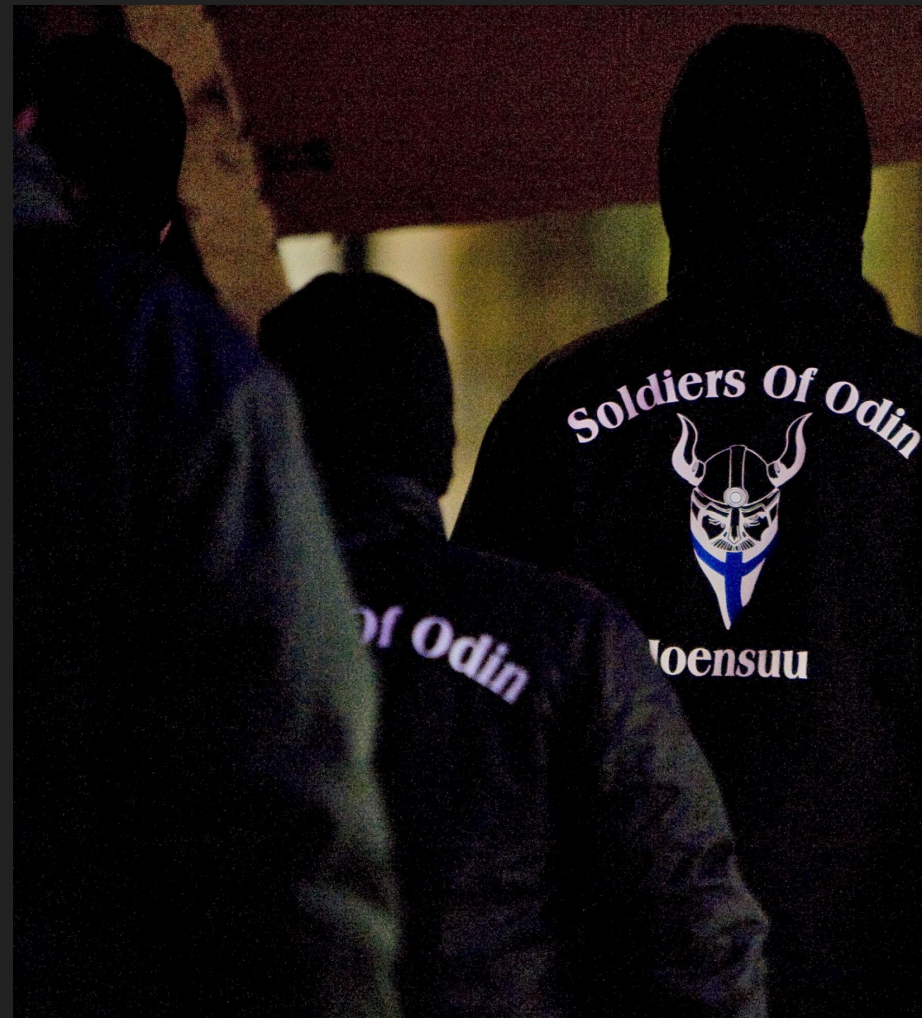
2. Mapping and periodising the emergence of **Soldiers of Odin** pages on Facebook

Soldiers of Odin

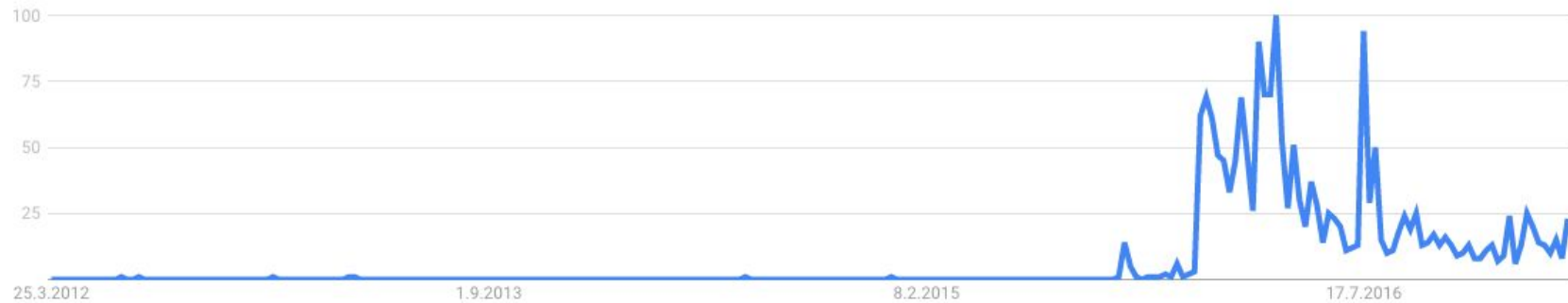
- Went viral in early 2016
- Became a brand that many groups of people adopted worldwide
- Almost 200 Facebook pages for and against
- How to track the spread of SOO as a social movement, not just a media phenomenon?
- Tracking the contagion of the brand → what metrics are relevant?

Programming with R and Facebook

- Library **rFacebook**:
 1. Bad documentation, very few tutorials
 2. Easy to use library – no pagination issues
- On the other hand: blackboxes the process and the data when scraping large amounts
- No data on when group of pages started
- Pages always open → Easy to get all posts and then selecting the first



Hakumäärät ajan mittaan ?



Kiinnostus alueittain ?

Alue ▾



| | | | |
|---|--------|-----|------------------------|
| 1 | Suomi | 100 | <div><div></div></div> |
| 2 | Ruotsi | 54 | <div><div></div></div> |
| 3 | Kanada | 7 | <div><div></div></div> |

Source

Console ~/Documents/R/facebook_R/ ↗

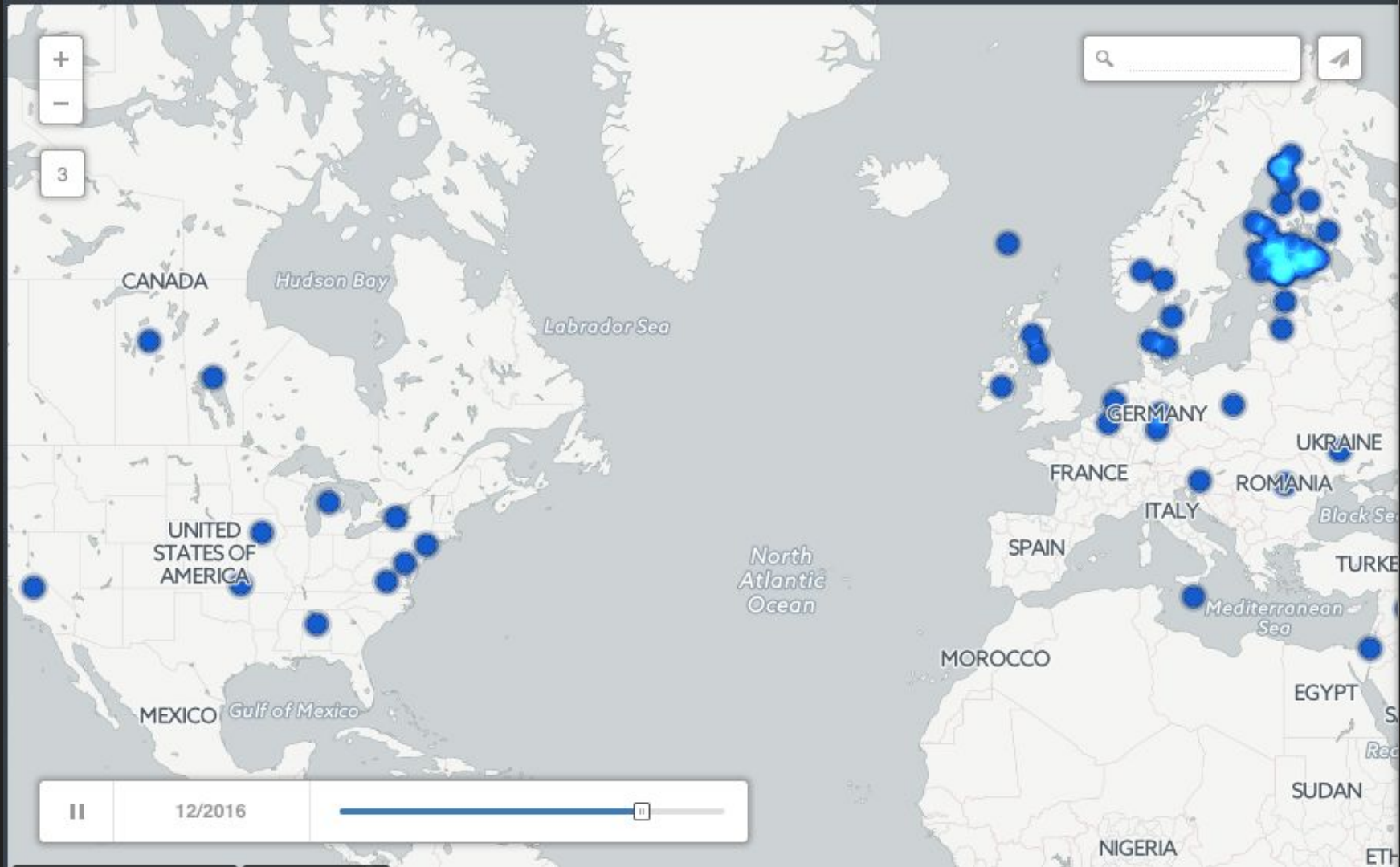
[1] 1535890053369400

> firstPosts

| | i | name | created_time | total_likes |
|----|------------------|--|--------------------------|-------------|
| 1 | 1178838978802741 | Soldiers of Odin | 2016-05-17T11:46:36+0000 | 28332 |
| 2 | 1535890053369400 | Soldiers Of Odin Finland ry | 2015-12-08T21:32:19+0000 | 382891 |
| 3 | 462524773956890 | - | - | 0 |
| 4 | 764143103690324 | Soldiers of Odin Canada | 2016-01-15T04:18:31+0000 | 26573 |
| 5 | 453258141551388 | Soldiers Of Odin USA | 2016-06-11T16:29:29+0000 | 885 |
| 6 | 1744065139163036 | Feminister mot soldiers of odin i Göteborg | 2016-04-07T18:04:10+0000 | 1151 |
| 7 | 1048860741826205 | Soldiers of Odin USA | 2016-05-01T22:31:07+0000 | 38579 |
| 8 | 1606659599647030 | Soldiers Of Odin looking at things | 2016-06-16T05:55:14+0000 | 2453 |
| 9 | 1646778432253873 | Fuck Soldiers Of Odin Tampere | 2016-01-15T12:56:32+0000 | 108 |
| 10 | 260414337714873 | Soldiers of Odin France | 2017-02-06T12:19:07+0000 | 20 |
| 11 | 1148275008537216 | Soldiers of Odin - British Columbia | 2016-03-03T05:42:02+0000 | 3393 |
| 12 | 388162771573834 | Soldiers Of Odin USA | 2016-10-27T06:00:19+0000 | 979 |
| 13 | 181299642251648 | Soldiers of Odin Iowa | 2016-03-15T21:43:56+0000 | 174 |
| 14 | 909741579133811 | Soldiers of Odin Finland | 2016-01-31T19:58:19+0000 | 27 |
| 15 | 529913023839655 | Soldiers of Odin Michigan | 2016-02-24T03:04:09+0000 | 604 |
| 16 | 1792933510921285 | Soldiers Of Odin USA | 2016-09-18T02:18:17+0000 | 556266 |
| 17 | 1119941698054695 | Soldiers Of Odin Cairns, Australia | 2016-10-22T17:16:01+0000 | 94 |
| 18 | 1683809821873347 | Soldiers of Odin Malta | 2016-04-23T18:17:05+0000 | 7804 |
| 19 | 175041812863982 | Soldiers of Odin Denmark | 2016-02-05T16:56:21+0000 | 797 |
| 20 | 1066662153409917 | Soldiers of Odin Brasil | 2016-08-02T13:19:31+0000 | 412 |
| 21 | 143556619408789 | Soldiers Of Odin Germany Gaming | 2016-07-23T11:10:53+0000 | 24 |
| 22 | 601989639957755 | Soldiers Of Odin Adelaide, Australia | 2016-03-27T07:41:07+0000 | 2319 |
| 23 | 243093886022269 | Soldiers Of Odin Helsinki | 2016-01-27T19:53:21+0000 | 6127 |
| 24 | 396200130714850 | Soldiers Of Odin Vancouver BC | 2017-01-14T01:58:56+0000 | 165 |
| 25 | 1602329926745382 | Soldiers of Odin Mikkeli | 2016-05-23T06:49:52+0000 | 749 |
| 26 | 675566512582534 | Soldiers of Odin Syria | 2016-03-28T02:16:16+0000 | 28 |
| 27 | 253641528422698 | Soldiers Of Odin Kotka | 2017-02-24T14:03:43+0000 | 66 |
| 28 | 249999041998561 | Soldiers Of Odin Australia. Main Page & Melbourne Division | 2016-02-27T21:46:40+0000 | 137666 |
| 29 | 993820820700088 | Soldiers of Odin | 2016-03-09T15:25:35+0000 | 58 |
| 30 | 1872766769625266 | Soldiers of Odin Saskatchewan | 2017-01-30T18:34:38+0000 | 102 |
| 31 | 1169582553149724 | Soldiers of Odin Red Deer | 2016-12-28T19:51:29+0000 | 95 |
| 32 | 344899675857548 | Soldiers of Odin Melbourne | 2016-10-10T23:35:32+0000 | 21 |



| B | C | D | E | F | G | H | I | J | K | L | M |
|------------------|--------------------|---------------|-------------|-------------------|-------------|------------|-------------|----------------------|------------|------------|-------------|
| i | name | Country | City | Address | Long | Lat | Pro or con? | created_time | datetime | CARTOdatet | total_likes |
| 1.53589E+15 | Soldiers Of Odin | Finland | | Finland | 25.748151 | 61.92411 | Pro | 2015-12-08T21:30:00Z | 2015-12-08 | 20151208 | 382891 |
| 1650841351864875 | Soldiers Of Odin | Finland | Lappenranta | Finland, Lappenr | 28.1896628 | 61.0549929 | Pro | 2016-01-14T14:15:00Z | 2016-01-14 | 20160114 | 746 |
| 764143103690324 | Soldiers of Odin | Canada | | Canada, | -106.346771 | 56.130366 | Pro | 2016-01-15T04:12:00Z | 2016-01-15 | 20160115 | 26288 |
| 1646778432253873 | Fuck Soldiers Of | Finland | Tampere | Finland, Tampere | 23.7609535 | 61.4977524 | Con | 2016-01-15T12:50:00Z | 2016-01-15 | 20160115 | 108 |
| 1673747936236721 | Soldiers of Odin | Finland | Rovaniemi | Finland, Rovanie | 25.7293905 | 66.5039478 | Pro | 2016-01-24T17:30:00Z | 2016-01-24 | 20160124 | 2 |
| 243093886022269 | Soldiers Of Odin | Finland | Helsinki | Finland, Helsinki | 24.938379 | 60.1698557 | Pro | 2016-01-27T19:50:00Z | 2016-01-27 | 20160127 | 6127 |
| 909741579133811 | Soldiers of Odin | Finland | | Finland, | 25.748151 | 61.92411 | Pro | 2016-01-31T19:50:00Z | 2016-01-31 | 20160131 | 27 |
| 504948386352413 | Soldiers Of Odin | Finland | | Finland, | 25.748151 | 61.92411 | Pro | 2016-01-31T20:00:00Z | 2016-01-31 | 20160131 | 23 |
| 1733143743583621 | Support Soldiers | Finland | Vihti | Finland, Vihti | 24.3256379 | 60.4165735 | Pro | 2016-01-31T19:50:00Z | 2016-01-31 | 20160131 | 0 |
| 175041812863982 | Soldiers of Odin | Denmark | | Denmark, | 9.501785 | 56.26392 | Pro | 2016-02-05T16:50:00Z | 2016-02-05 | 20160205 | 797 |
| 1666769470277291 | Support Soldiers | Finland | Hyvinkö | Finland, Hyvinkö | | | Pro | 2016-02-05T13:10:00Z | 2016-02-05 | 20160205 | 0 |
| 187223598303003 | Soldiers of Odin | United States | | United States, | -95.712891 | 37.09024 | Pro | 2016-02-06T07:10:00Z | 2016-02-06 | 20160206 | 366 |
| 1103301759689218 | Soldiers Of Odin | Finland | Tornio | Finland, Tornio | 24.1520236 | 65.847301 | Pro | 2016-02-06T14:50:00Z | 2016-02-06 | 20160206 | 1 |
| 1663490623903468 | Soldiers Of Odin | Finland | | Finland, | 25.748151 | 61.92411 | Pro | 2016-02-06T14:50:00Z | 2016-02-06 | 20160206 | 0 |
| 151103388593611 | Soldiers Of Odin | Finland | | Finland, | 25.748151 | 61.92411 | Pro | 2016-02-06T14:50:00Z | 2016-02-06 | 20160206 | 0 |
| 516858628476178 | Soldiers Of Odin | Finland | Joensuu | Finland, Joensuu | 29.7635719 | 62.6010155 | Pro | 2016-02-07T20:00:00Z | 2016-02-07 | 20160207 | 4695 |
| 181759702187333 | Soldiers Of Odin | Finland | Tampere | Finland, Tampere | 23.7609535 | 61.4977524 | Pro | 2016-02-13T14:50:00Z | 2016-02-13 | 20160213 | 8 |
| 1491900427782921 | Soldiers Of Odin | Finland | Kemi | Finland, Kemi | 24.5657427 | 65.7355679 | Pro | 2016-02-13T15:00:00Z | 2016-02-13 | 20160213 | 0 |
| 532064040301805 | Soldiers Of Odin | Finland | Pori | Finland, Pori | 21.7974178 | 61.4851393 | Pro | 2016-02-13T15:00:00Z | 2016-02-13 | 20160213 | 3 |
| 576408302507525 | Soldiers Of Odin | Finland | Kajaani | Finland, Kajaani | 27.7278497 | 64.2221775 | Pro | 2016-02-13T14:50:00Z | 2016-02-13 | 20160213 | 1 |
| 738913076210949 | Soldiers Of Odin | Finland | | Finland, | 25.748151 | 61.92411 | Pro | 2016-02-13T15:00:00Z | 2016-02-13 | 20160213 | 0 |
| 846118285485653 | Soldiers Of Odin | Finland | | Finland, | 25.748151 | 61.92411 | Pro | 2016-02-13T15:00:00Z | 2016-02-13 | 20160213 | 0 |
| 592062087607965 | Soldiers of odin f | Finland | | Finland, | 25.748151 | 61.92411 | Pro | 2016-02-13T14:50:00Z | 2016-02-13 | 20160213 | 5 |
| 756933314442634 | Soldiers Of Odin | Finland | Tampere | Finland, Tampere | 23.7609535 | 61.4977524 | Pro | 2016-02-13T14:50:00Z | 2016-02-13 | 20160213 | 0 |
| 1.76E+15 | Soldiers Of Odin | Finland | Kauniainen | Finland, Kauniain | 24.7288783 | 60.2117239 | Pro | 2016-02-13T15:00:00Z | 2016-02-13 | 20160213 | 0 |
| 1657107041210313 | Soldiers Of Odin | Finland | | Finland, | 25.748151 | 61.92411 | Pro | 2016-02-13T14:50:00Z | 2016-02-13 | 20160213 | 0 |
| 1680515083101562 | Support Soldiers | Finland | | Finland, | 25.748151 | 61.92411 | Pro | 2016-02-13T14:50:00Z | 2016-02-13 | 20160213 | 0 |



SOO FB pages: Tools

1. [R script](#) for searching and scraping Facebook pages
2. [R script](#) for finding first post of each page, plotting it as graph and saving as CSV
3. Google spreadsheets to clean and check data
4. Google Refine to geocode data with the Google Maps API
5. [CartoDB torque function](#) to map and visualize data

