

# Data - Flickr

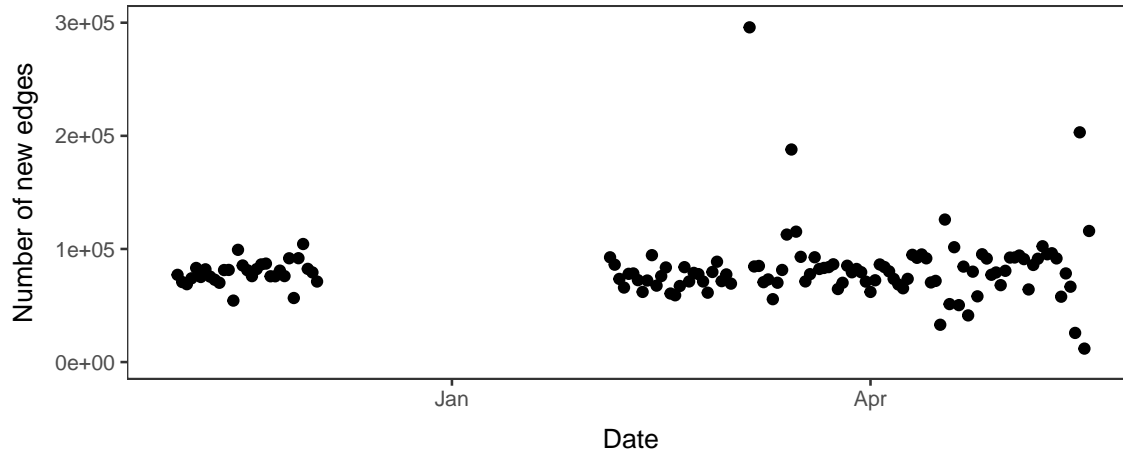
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- Source: <http://socialnetworks.mpi-sws.org/data-wosn2008.html>
- Paper: <https://people.mpi-sws.org/~amislove/publications/Growth-WOSN.pdf>

Read data

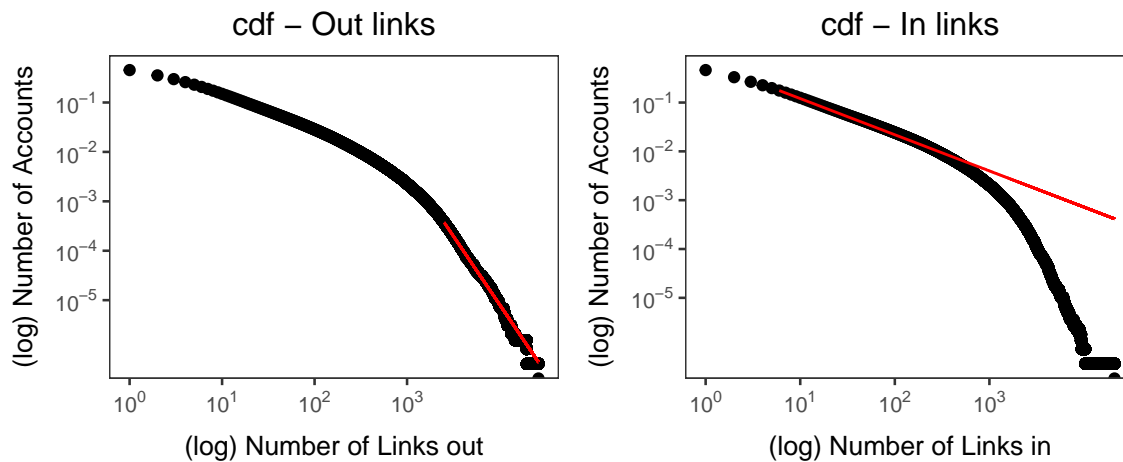
- total number of nodes: 2302925
- total number of edges: 33140018
- avg in-degree 14.3904026
- avg out-degree 14.3904026
- **why are they the same?**
  - about 60% of edges are reciprocated, so not 100%..
  - $\delta$  in/out seems reasonable in the extremes (natural limit to out, except for scammers)
  - overflow issue?

Number of connections by day



In/out degree

```
## [1] "plfit: alpha=3.771 xmin=2516"  
## [1] "plfit: alpha=1.741 xmin=6"
```



## Jackson R

- Fitted  $r^* = 0.337$
- Fitted  $r = \frac{r^*}{1+r^*} = 0.252$

## Model results on 2016-11-05

```
##
## =====
##                                     y
##          (1)          (2)          (3)          (4)          (5)          (6)
## -----
## log In-Degree    1.131***    1.149***                0.715***    0.536***    1.149***
##                  (0.006)    (0.007)                (0.009)    (0.010)    (0.007)
##
## Has degree      -1.250***    -0.580***                -0.631***    -1.745***    -0.580***
##                  (0.130)    (0.202)                (0.190)    (0.234)    (0.202)
##
## Reciprocal                8.419***    8.347***    8.197***    7.903***    8.419***
##                        (0.220)    (0.220)    (0.240)    (0.244)    (0.220)
##
## Is FoF                6.125***    3.955***
##                        (0.045)    (0.050)
##
## 2 Hops                                6.290***
##                                (0.190)
##
## 3 Hops                                2.851***
##                                (0.185)
##
## 4 Hops                                0.583***
##                                (0.189)
##
## 5 Hops                                -0.585***
##                                (0.218)
##
## 6+ Hops                                -1.122***
##                                (0.266)
##
## -----
## Observations      20,001      20,001      20,001      20,001      20,001      20,001
## Log Likelihood -21,374.280 -16,448.820 -14,685.410 -10,728.850 -9,789.883 -16,448.820
## =====
## Note:                                     *p<0.1; **p<0.05; ***p<0.01
## [1] "Train accuracy & 0.6817 & 0.7543 & 0.7378 & 0.8389 & 0.8444 & 0.7541  \\"
## [1] "Test accuracy  & 0.6935 & 0.7575 & 0.7215 & 0.853 & 0.855 & 0.758  \\"

```

## Model results on 2007-03-01

```
##
## =====
##                                     y
##          (1)          (2)          (3)          (4)          (5)          (6)
## -----
## log In-Degree    1.020***    1.044***                0.672***    0.446***    1.044***
##                  (0.005)    (0.006)                (0.008)    (0.009)    (0.006)
##
## Has degree      -0.799***    -0.160                -0.231    -1.435***    -0.160
##                  (0.121)    (0.189)                (0.183)    (0.225)    (0.189)
##
## Reciprocal                9.242***    9.232***    9.509***    9.331***    9.242***
##                  (0.312)    (0.314)    (0.335)    (0.345)    (0.312)
##
## Is FoF                6.009***    4.122***
##                  (0.043)    (0.047)
##
## 2 Hops                                6.794***
##                                (0.176)
##
## 3 Hops                                3.228***
##                                (0.171)
##
## 4 Hops                                1.043***
##                                (0.172)
##
## 5 Hops                                -0.167
##                                (0.190)
##
## 6+ Hops                                -0.974***
##                                (0.229)
## -----
## Observations      20,000      20,000      20,000      20,000      20,000      20,000
## Log Likelihood -25,810.570 -20,034.650 -17,002.700 -12,737.400 -11,403.230 -20,034.650
## =====
## Note:                                     *p<0.1; **p<0.05; ***p<0.01
## [1] "Train accuracy & 0.6125 & 0.6982 & 0.712 & 0.8142 & 0.8209 & 0.6986  \\"
## [1] "Test accuracy  & 0.618 & 0.7075 & 0.725 & 0.821 & 0.826 & 0.707  \\"

```