

Fragile Online Relationship: A First Look at Unfollow Dynamics in Twitter

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Building and breaking up a relationship

- Two basic processes in social network evolution
- But we don't talk about breakup

Friends You Are To Break Up Soon



Your Dad

“Dark side of the force”

??

Lack of relationship breakup data

- Many records of relationship establishment
 - Sending and accepting a friend request
 - Writing a paper together for the first time
 - Making a call for the first time
- Breaking up a relationship
 - Hard to define and capture

A proxy for relationship breakup

- Disappearance of e-mail exchange

*“Alice & Bob had exchanged e-mails frequently.
At some point they didn’t do any more.”*

But they were doing instant messaging.

A proxy is **not** always accurate!

Unfollow in Twitter

- Intentional action to break a relationship
- No need for an approval
- No notification to the unfollowed



Research questions

- RQ1: What are the characteristics of unfollow?
- RQ2: Why do people unfollow?

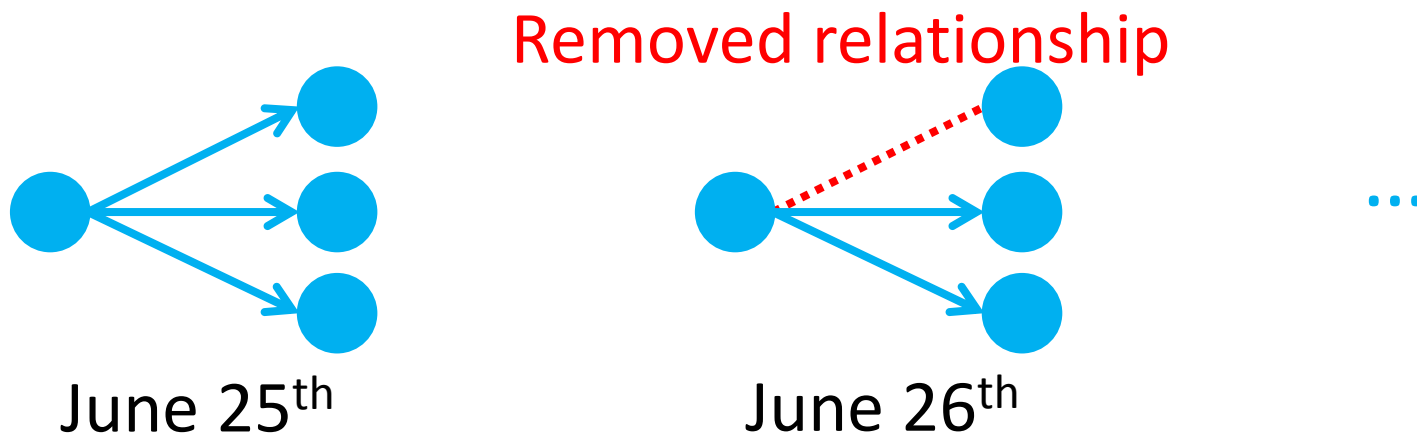
Identify a group with common culture

- Not feasible to crawl the entire Twittersphere
- Collecting 1.2M Korean-speaking users identified by Korean in tweets, bio, location, or name



Obtaining unfollow records

- Collect daily snapshots of follow networks
 - G(I): June 25th to July 15th, 2010
 - G(II): August 2nd to August 31st, 2010
- Compare two consecutive follow networks and detect removed relationships



Korean follow network grew fast

- Increasing # of users
 - G(I): 718,077 \rightarrow 870,057 +7,599/day
 - G(II): 956,261 \rightarrow 1,203,196 +8,515/day
- Increasing (high) reciprocity
 - G(I): 56 \rightarrow 58%
 - G(II): 61 \rightarrow 62%
- Increasing avg. # of followees
 - 59.7 \rightarrow 75.7

Research questions

- **RQ1: What are the characteristics of unfollow?**
- RQ2: Why do people unfollow?

People unfollow frequently

- 43% of active users unfollow at least once during 51 days
- Average number of unfollows per person
 - 15.4 in G(I)
 - 16.1 in G(II)

Factors that correlate w/ unfollow

- Reciprocity of relationships
- Duration of a relationship
- Followee's informativeness
- Overlap of relationships

One-way relationships are fragile

One-way



$P(\text{broken}) = 0.1228$



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“Emotional closeness”

Reciprocal

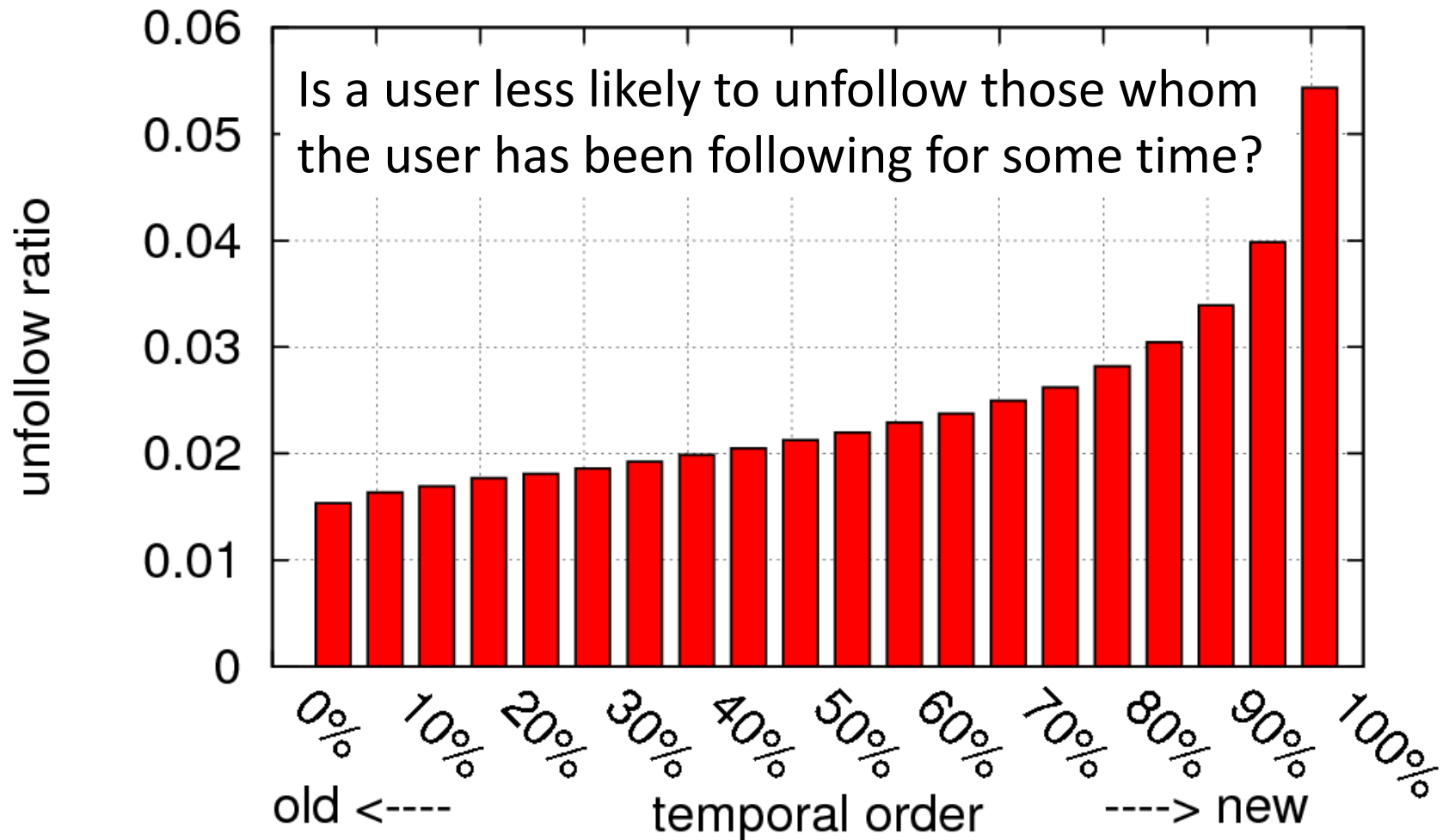


$P(\text{broken}) = 0.0529$



$P(\text{remaining will be broken} | \text{one is broken})$
 $= 0.2345$

Newer relationships are more fragile



Informativeness of users



Next year's rebuttals will be limited to 140 characters, counting spaces.

19 Nov via TweetDeck



Favorite



Retweet

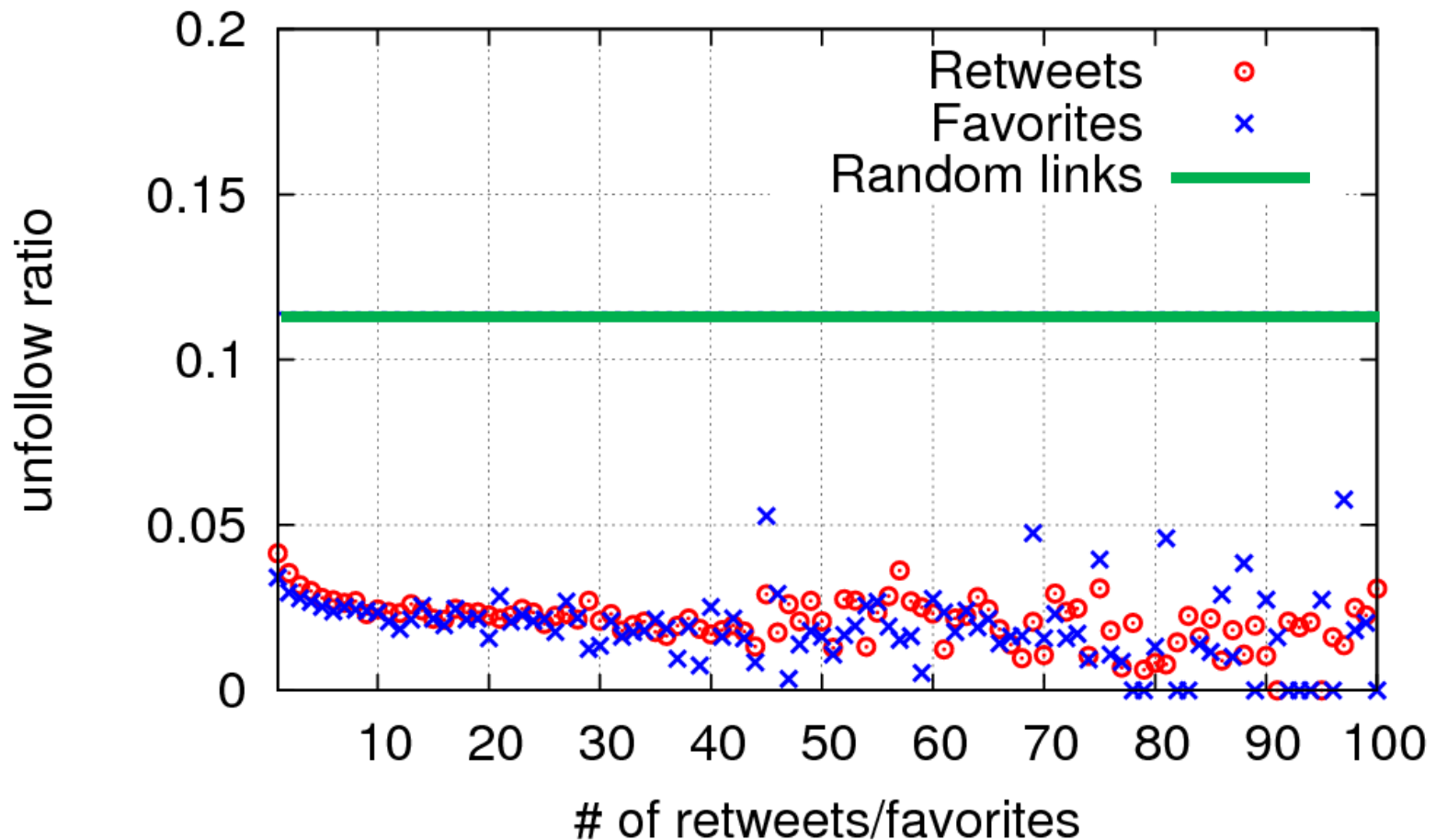


Reply

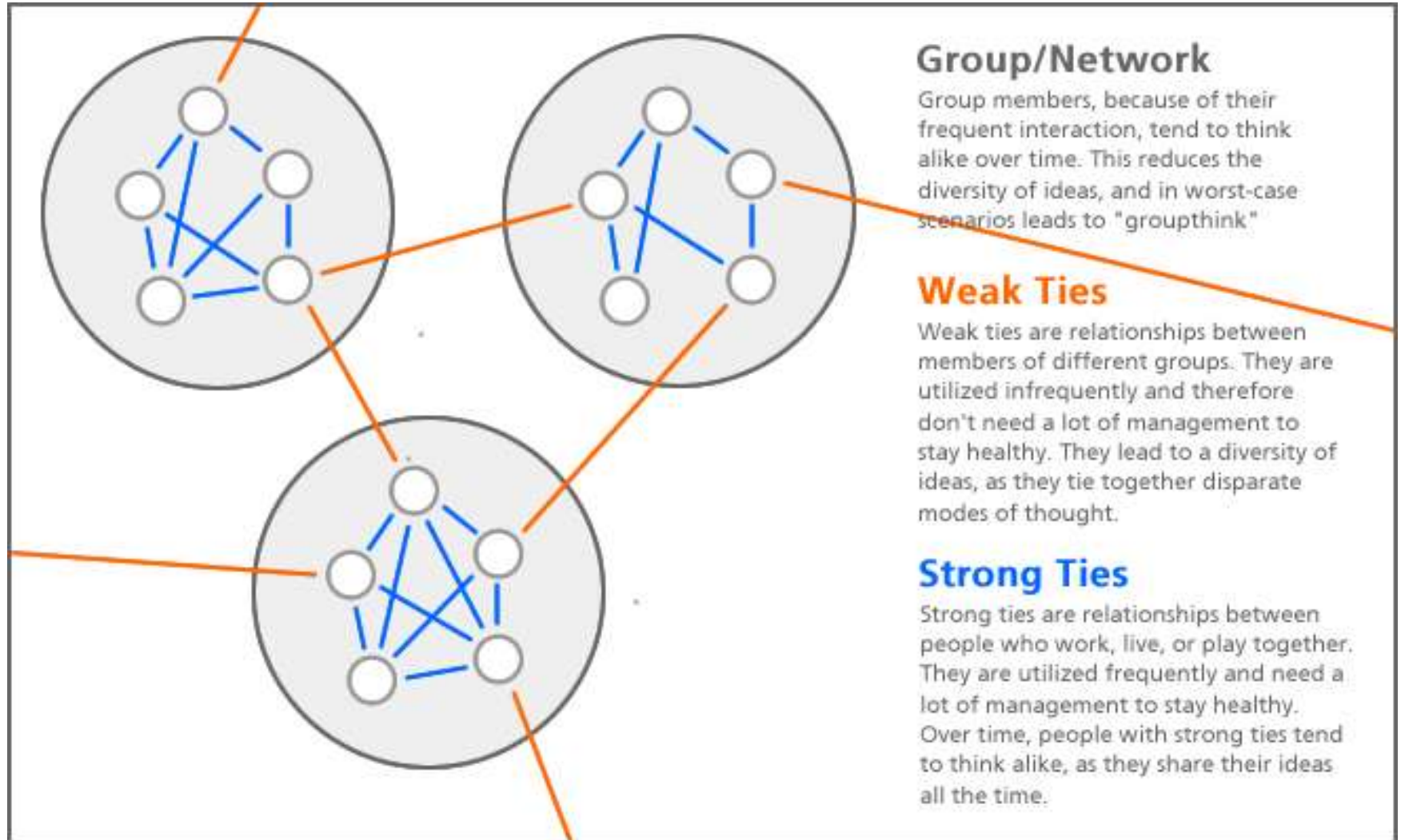
Retweeted by JochenHuber and 15 others



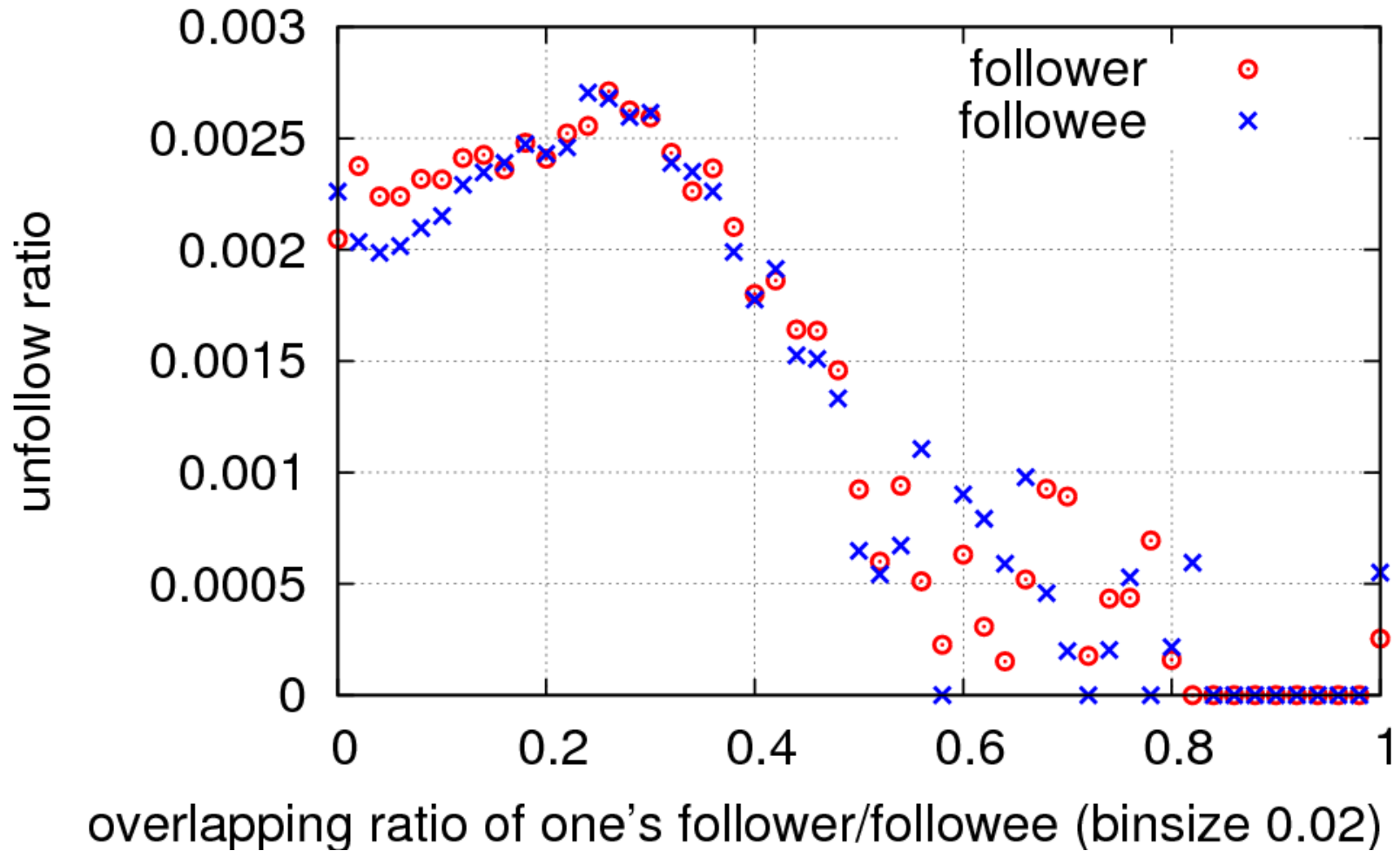
Non-informative relationships are fragile



Strong ties & weak ties



Weak ties are fragile



No interaction \neq breakup

- 85.6% of relationships do not involve any single reply, mention, or retweet
 - 96.3% involve 3 or fewer
- People just subscribe to others' tweets **passively**

Research questions

- RQ1: What are the characteristics of unfollow?
- **RQ2: Why do people unfollow?**

22 online & face-to-face interviews

- Recruited by word-of-mouth
- Semi-structured
- Logging & camera recording



11 Male, 11 Female

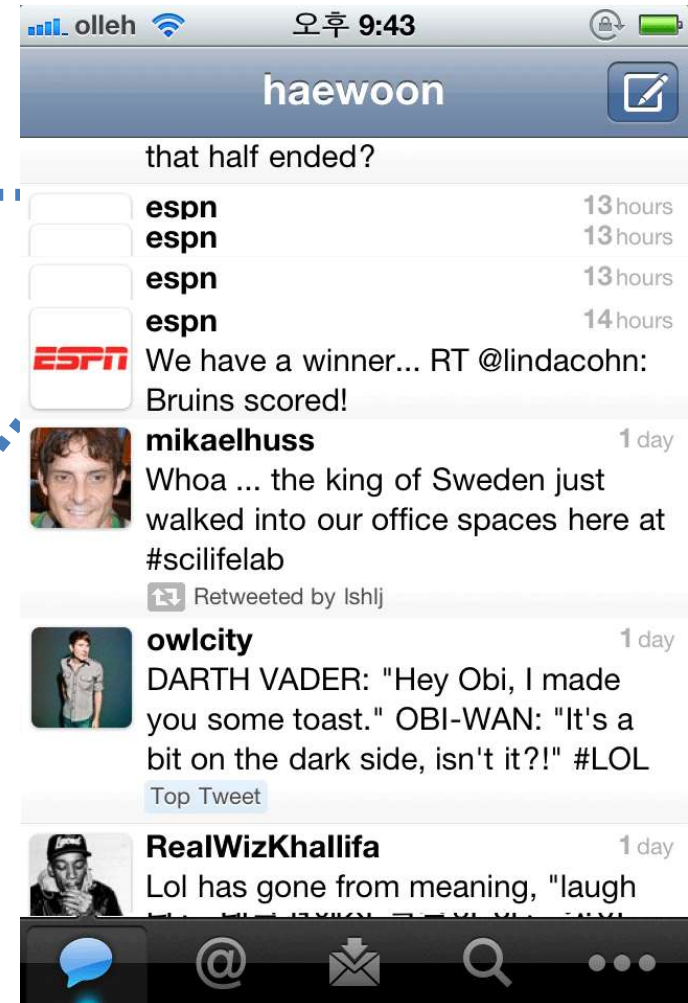
	Mean	Median	Min	Max	Std. dev.	Distribution
Age	27.3	27	22	36	3.7	
Favorites	80.7	1	0	851	199.0	
Followers	846.7	164.5	5	8,772	2,053.9	
Followings	600.4	144.5	5	7,103	1,562.7	
Tweets	3,325.8	583.5	5	30,639	7,220.5	
Registered days	449.2	471	14	766	179.1	

Top reasons in unfollow

1. Burst tweets
2. Tweets about uninteresting topics
3. Tweets about mundane details of daily life
 - Automatically generated tweets (4sq)
4. Tweets about political issues

Application: Practical uses

~~Burst tweets, automatically generated tweets, ...~~



Application: Theoretical models

- Existing models for growing networks deal with new relationship formation only
 - Preferential attachment model
 - Forest fire network model
- We add another dimension to network evolution models from the perspective of relationship breakup

Discussion

- Generalization of this work
 - One user group study
- Online relationship not equal to social friendship

Summary

- Unfollow is a clear sign of breaking a relationship
 - None of interaction is not a good indicator of breaking a relationship due to user's passivity in Twitter
- The first study of the unfollow behavior
 - Quantitative data analysis revealed its characteristics
 - Qualitative interviews found its motivation

What's happening?

Don't leave burst tweets about mundane details of daily life.
Especially, please don't post your every location move.

Then your followers will be with u forever.

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Tweet

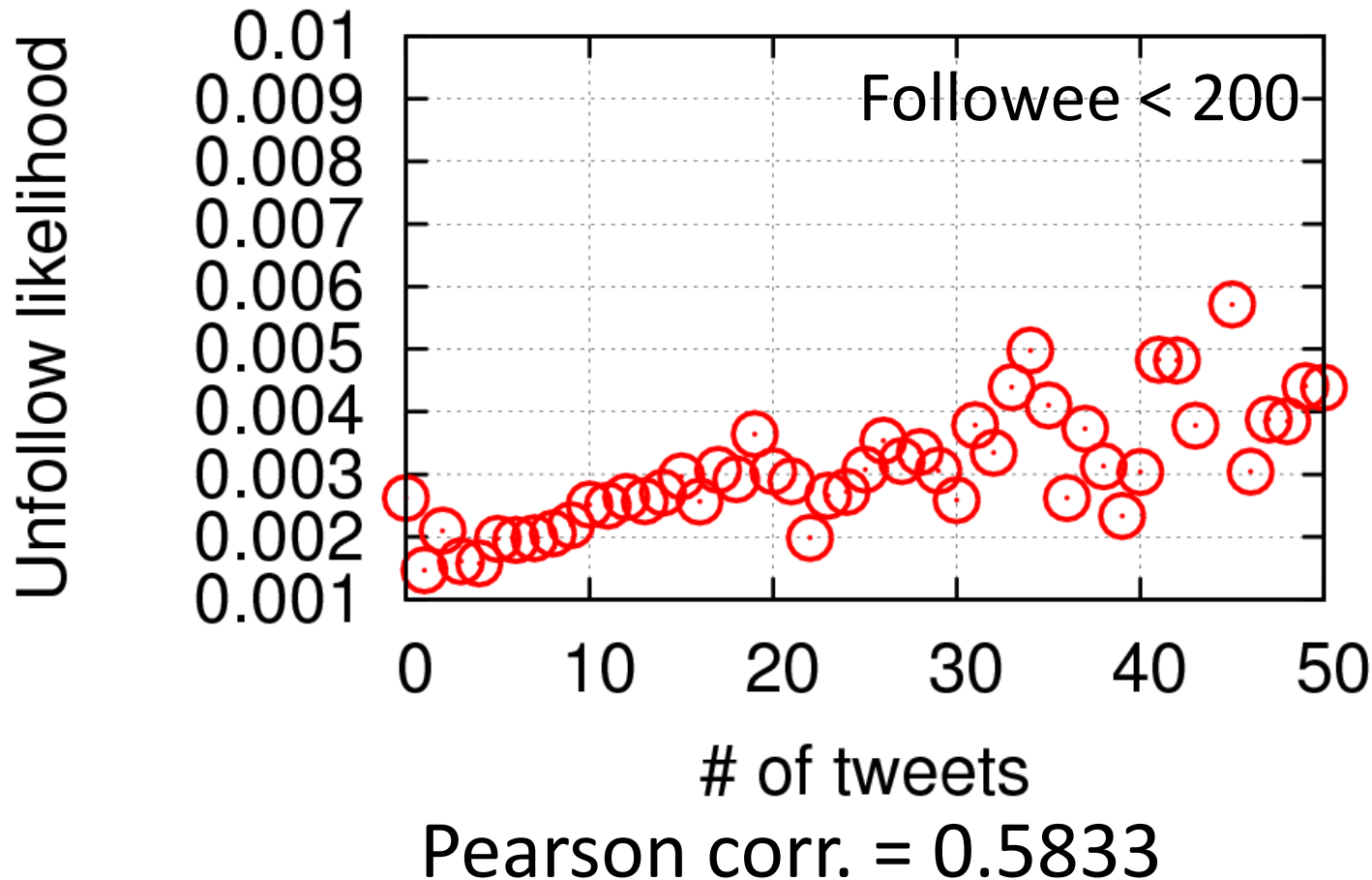
Backup slides

How to know the reciprocity of follows



Interviews confirmed by data

- Burst tweets are likely to lead unfollow



	recp	rOdr	rt	jFe
recp	1	-0.12195	0.02321	0.34654
rOdr	-0.12195	1	-0.00103	-0.01107
rt	0.02321	-0.00103	1	0.00353
jFe	0.34654	-0.01107	0.00353	1

