

Retweeting: A Study of Message-Forwarding in Twitter

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Overview

- Background
- Information searching/retrieval
- Introduction to retweeting
- Preliminary findings
- Current and future work

Motivation

- Provide users with wanted, yet unrequested, information
- Decentralised nature of propagation through retweets
- Demonstrates the introduction of information from without a user's social neighbourhood
- Similar nature to 'gossiping' in MANETs

Recognition

- Linked to RECOGNITION project
- Heuristics that determine someone's decision
- Used as a basis for information relevance judgment
 - Epistemic search
 - Hedonic search

Epistemic search – “search information just to satisfy their desire for knowledge” [1]



Article Discussion

Read Edit View history

Search



Milan Cathedral

From Wikipedia, the free encyclopedia

Coordinates: 45°27'51"N 9°11'29"E

Milan Cathedral (Italian: **Duomo di Milano**; Milanese: **Domm de Milan**) is the cathedral church of **Milan** in **Lombardy**, northern **Italy**. Dedicated to Santa Maria Nascente (Saint Mary Nascent), it is the seat of the **Archbishop of Milan**, currently **Cardinal Angelo Scola**.

The Gothic cathedral took nearly six centuries to complete. It is the fourth largest cathedral in the world^[1] and by far the largest in Italy.^{[2][3]} (**St. Peter's Basilica** in Rome, though considerably larger, is not a cathedral.)

Contents [hide]

- 1 History
 - 1.1 The beginning
 - 1.2 Charles Borromeo
 - 1.3 17th century
 - 1.4 Completion
- 2 Architecture and art
 - 2.1 Aesthetic Judgments
 - 2.2 Main monuments and sights
- 3 In literature



Duomo di Milano from the Square.

Basic information

Location	Milan, Italy
Geographic coordinates	45°27'51"N 9°11'29"E
Affiliation	Roman Catholic

[1] **Yunjie Xu**, *Relevance Judgment in Epistemic and Hedonic Information Searches*, Journal of the American Society for Information Science and Technology, 2007.

Princess Beatrice's hat offered own TV series

06-05-11

THE hat worn by Princess Beatrice at the Royal Wedding has been offered its own chat show.

The Philip Treacy creation became a hit with online communities due to its self-deprecating nature and will now sign a television contract thought to be worth millions.

A spokesman said: "Princess Beatrice's hat fronting a talk show is just what the nation needs during these tough times. It's strange looking but talented, like Susan Boyle if she was a hat."

But the TV deal has been condemned by Princess Beatrice's sister Eugenie who also wore a hat at the wedding.

A friend of Eugenie's said: "If you'd told her last week that Bea's hat would be offered a prime-time talk show she'd have eaten her own hat which at least looks like a hat."



The Duchess of York is offering people the

Hedonic search –

"search information for fun or affective stimulation" [1]

Searching Specifically

- Become a large part of Internet use
- User needs to know *what* to search for (know it exists)
 - People
 - Techniques
 - Ideas
 - Information
- Clearly-defined utility to user

Affective Stimulation

- Affective ‘relevance’ or ‘stimulation’
- Information that has some *effect* on a user
- Result of a hedonic search
- Hard to define utility for user:
 - Topicality
 - Novelty



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30 April 2011 Last updated at 00:01

454

William and Kate's World Wide Wedding



By **Iain Mackenzie**
Technology reporter, BBC News

The marriage of Prince William and Kate Middleton was an event for the internet age.

Great traditions of state were celebrated by the modern institutions of the web.

Facebook, Twitter, Google and YouTube were all given over to the royal wedding.

And, like the streets around Westminster Abbey, cyberspace was buzzing with talk of the big day.

Leading the online celebrations was the British monarchy's own [royal wedding website](#).

Royal tweets

Throughout the ceremony, @ClarenceHouse tweeted updates:

"The Archbishop of Canterbury begins the solemnization of the marriage #rw2011"

"The Fanfare plays! Congratulations to The Duke and The Duchess of Cambridge! You can use our hashtag #rw2011 to send a message #royalwedding"



Google's "doodle" featured a carriage progressing from Westminster Abbey to a fairytale castle

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X Search

giraffes can't dance
giraffes giraffes
giraffes facts
giraffes like cake
giraffes habitat

About 13,500,000 results (0.09 seconds)

[Go to Google.com](#) [Advanced search](#)



What's happening?

Timeline @Mentions Retweets ▾ Searches ▾ Lists ▾

 **diegostream** Diego Pizzocaro
@voxmjw Just realized that the iTunes equalizer is disabled...
2 minutes ago

 **Gawker** Gawker  by jackcullenuk
It Takes a Village Person to Change Music Copyright Law
gawker.com/5831652/
1 hour ago

 **voxmjw** Matt Williams
@diegostream Could be! This is why OS X needs a system-wide equaliser...
5 minutes ago

 **DaveHillLovesIt**  /
3 free boxes of Krispy Cremes!
7 minutes ago

 **chrisssjamesss** chris.
I've decided that I cannot smile.
7 minutes ago

Your Tweets **576**

14 Aug : I just ousted [@jbciv](#) as the mayor of Tesco Ex...

Following **94**



Followers **114**



Who to follow · [refresh](#) · [view all](#)

 **Nico1o** Nicolò Festa · [Follow](#)
Followed by @MatgoStyles and others.

 **davidguetta** David Guetta  · [Follow](#)
Followed by @StephBailey_ and others.

Trends: Worldwide · [change](#)

#LiesIveToldMyParents

#OnlyRealJamaicans

#overthesummer

HAPPY BIRTHDAY INDONESIA

THANKS BIG TIME RUSH

Pierre de Fermat

Everybody Hates Chris

PKK

Goodnight Twitter



Stephen Fry

@stephenfry [view full profile →](#)

London



British Actor, Writer, Lord of Dance, Prince of Swimwear & Blogger

<http://www.stephenfry.com/>

8,419

Tweets

52,652

Following

2,555,024

Followers

42,150

Listed

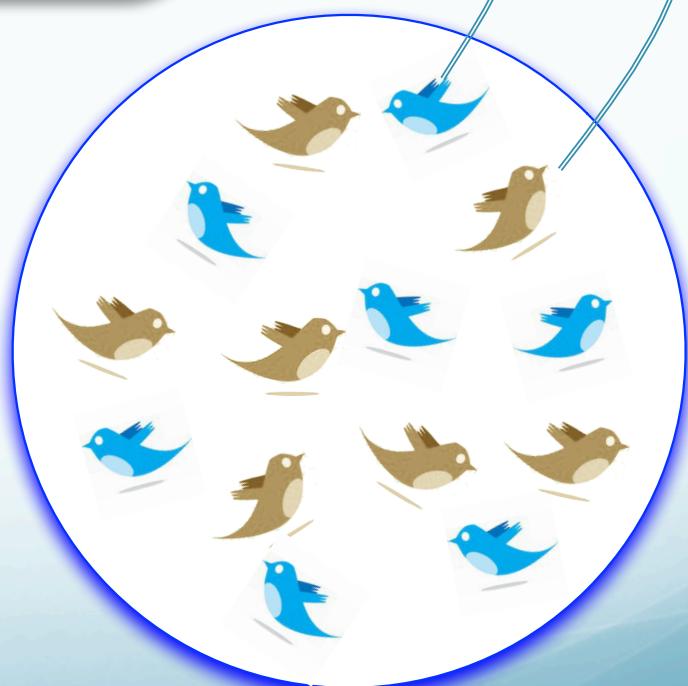


Number of interesting tweets

Chance of finding them!

Irrelevant tweet

Relevant tweet





Neil Patrick Harris

@ActuallyNPH [view full profile →](#)

Hollywoodland

I act some. Dig variety acts, Pixar, puppets, theme parks and great meals. <http://twitter.com/ActuallyNPH>

466

Tweets

41

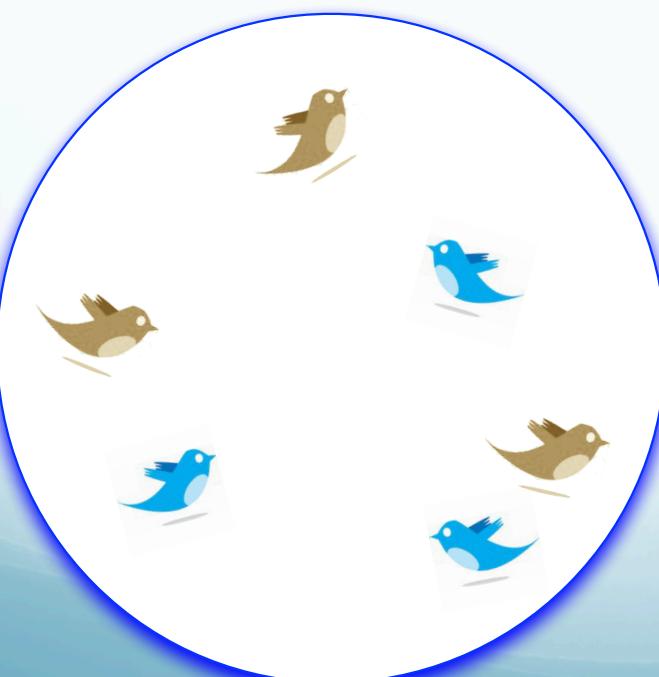
Following

1,423,980

Followers

39,044

Listed



Chance of finding interesting tweets

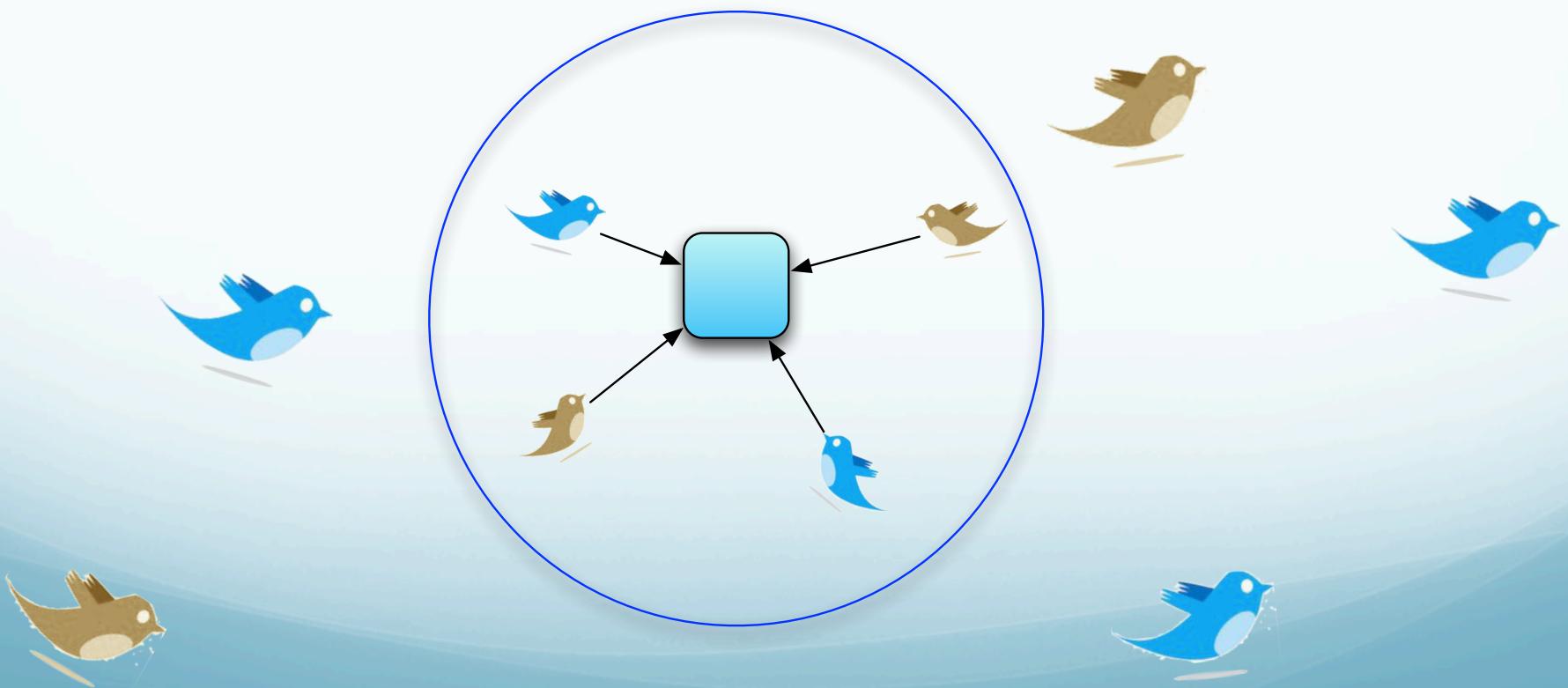
Number of interesting tweets



Bubbles

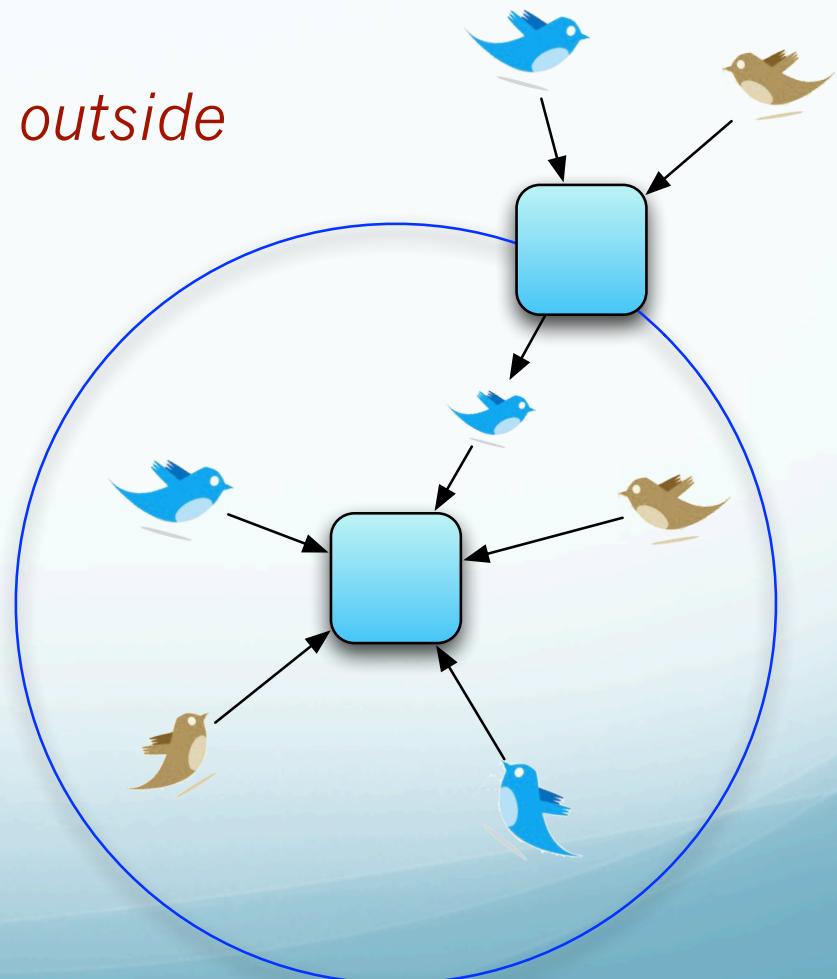


- Similar to Google's search 'filter bubbles'

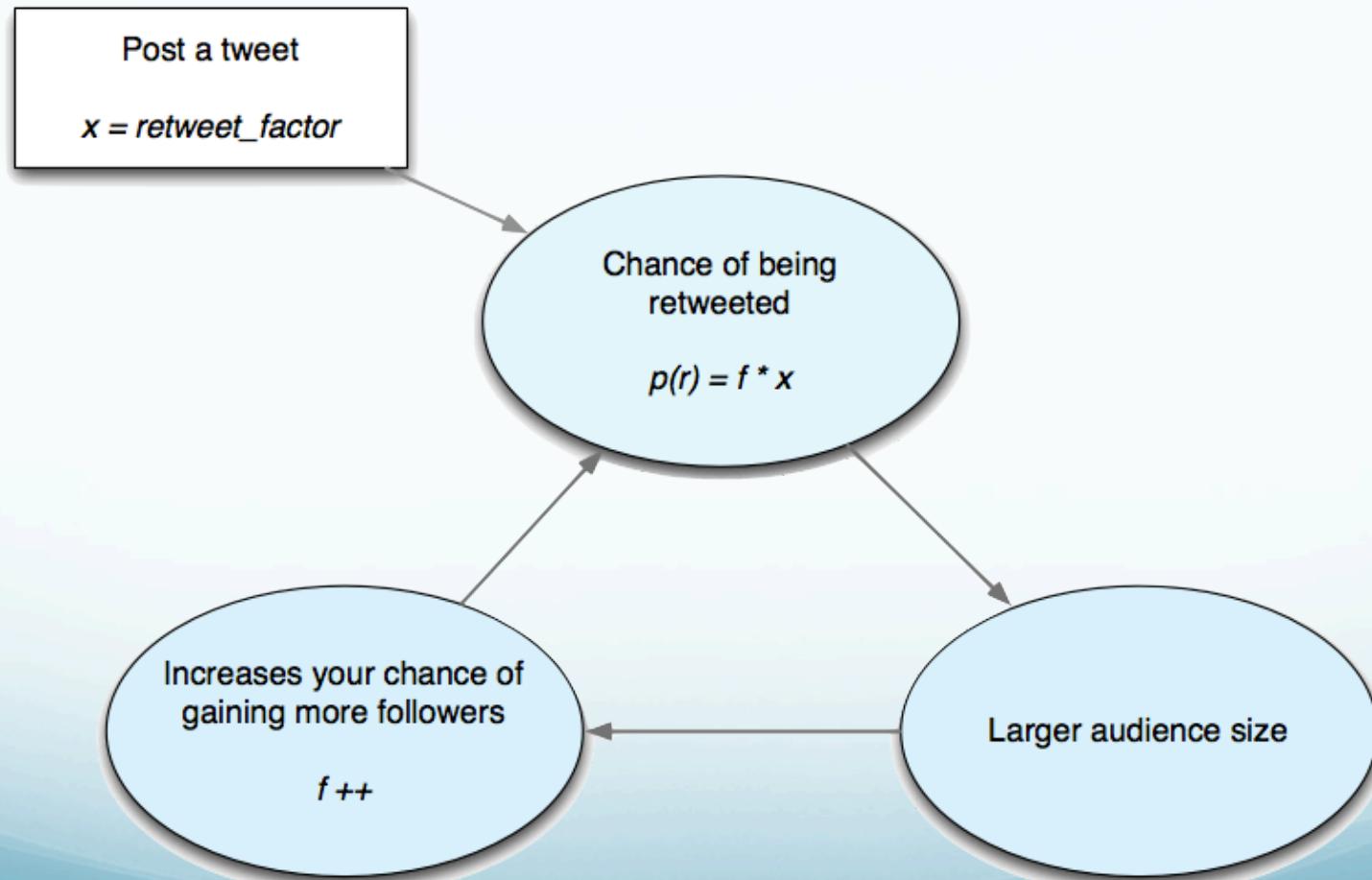


Retweeting

- Brings information in from *outside* the bubble
- Friends become *filters* of information
- Higher chance of interest

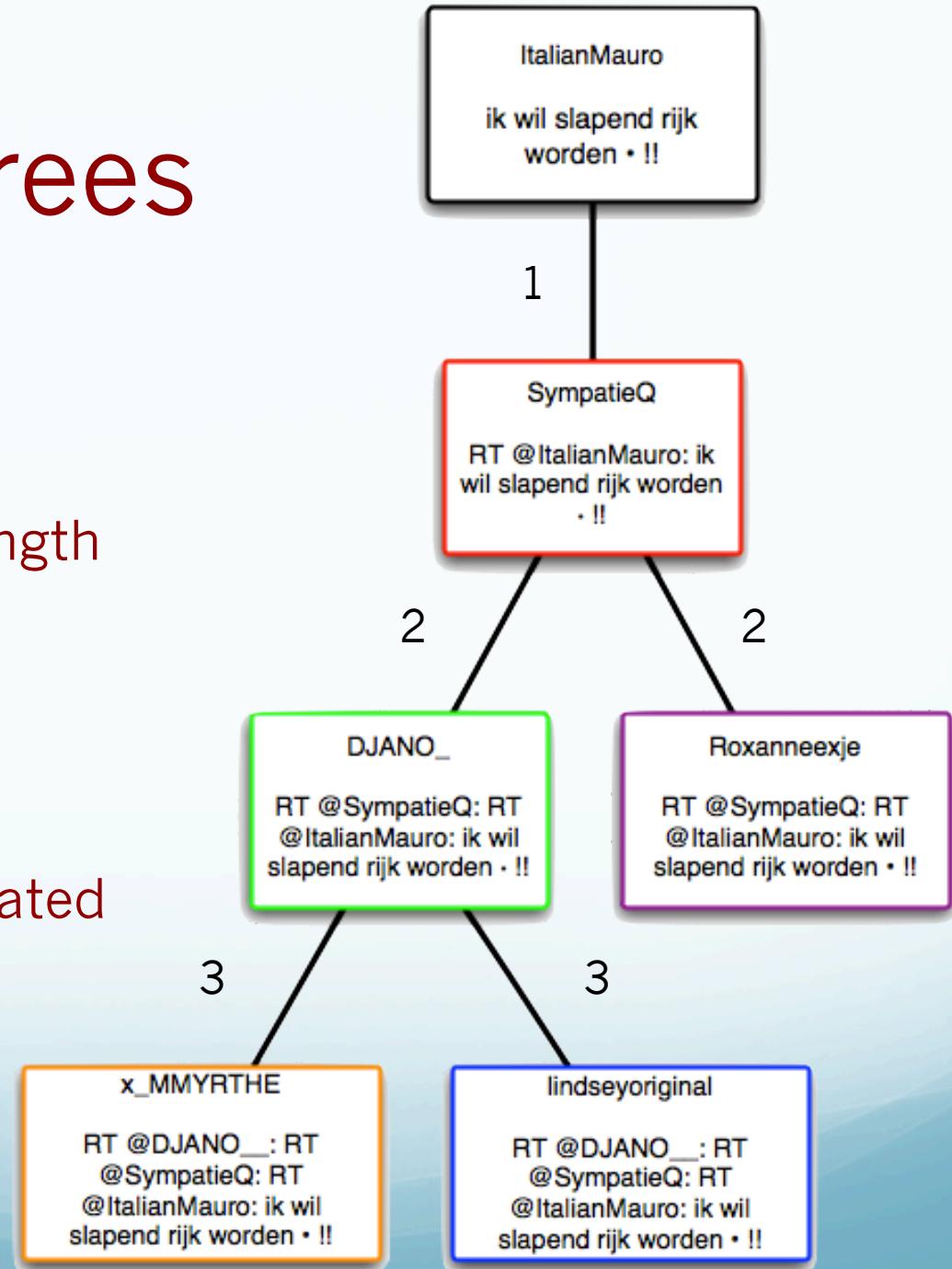


Retweeting



Retweet Trees

- Attributes:
 - Maximum path-length
 - Size
- Illustrates:
 - ‘Distance’ propagated
 - Spread

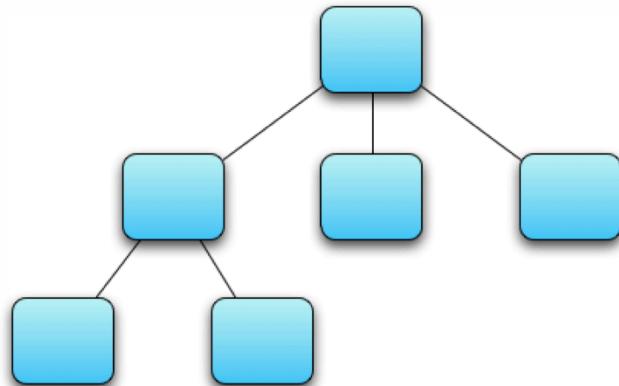
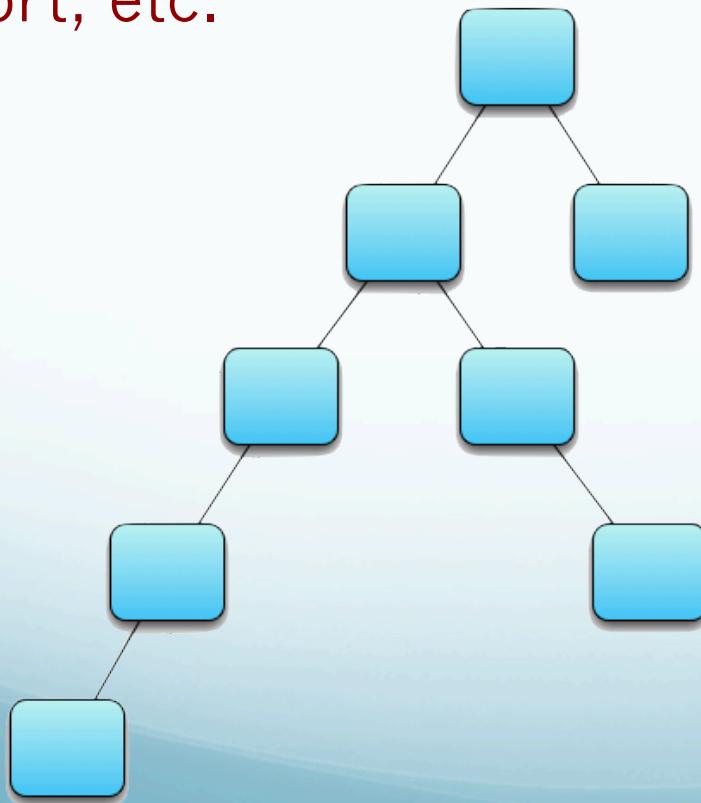


Experiments

- Interested in:
 - Propagation of information spread
 - ‘depth’ as well as ‘width’
 - Number of users reached
- Data:
 - Collected between 26th January & 24th May
 - Total of 4,400 retweet groups (~26,000 tweets)
- Preliminary results!
 - Small dataset revealed some interesting trends

Tweet Propagation

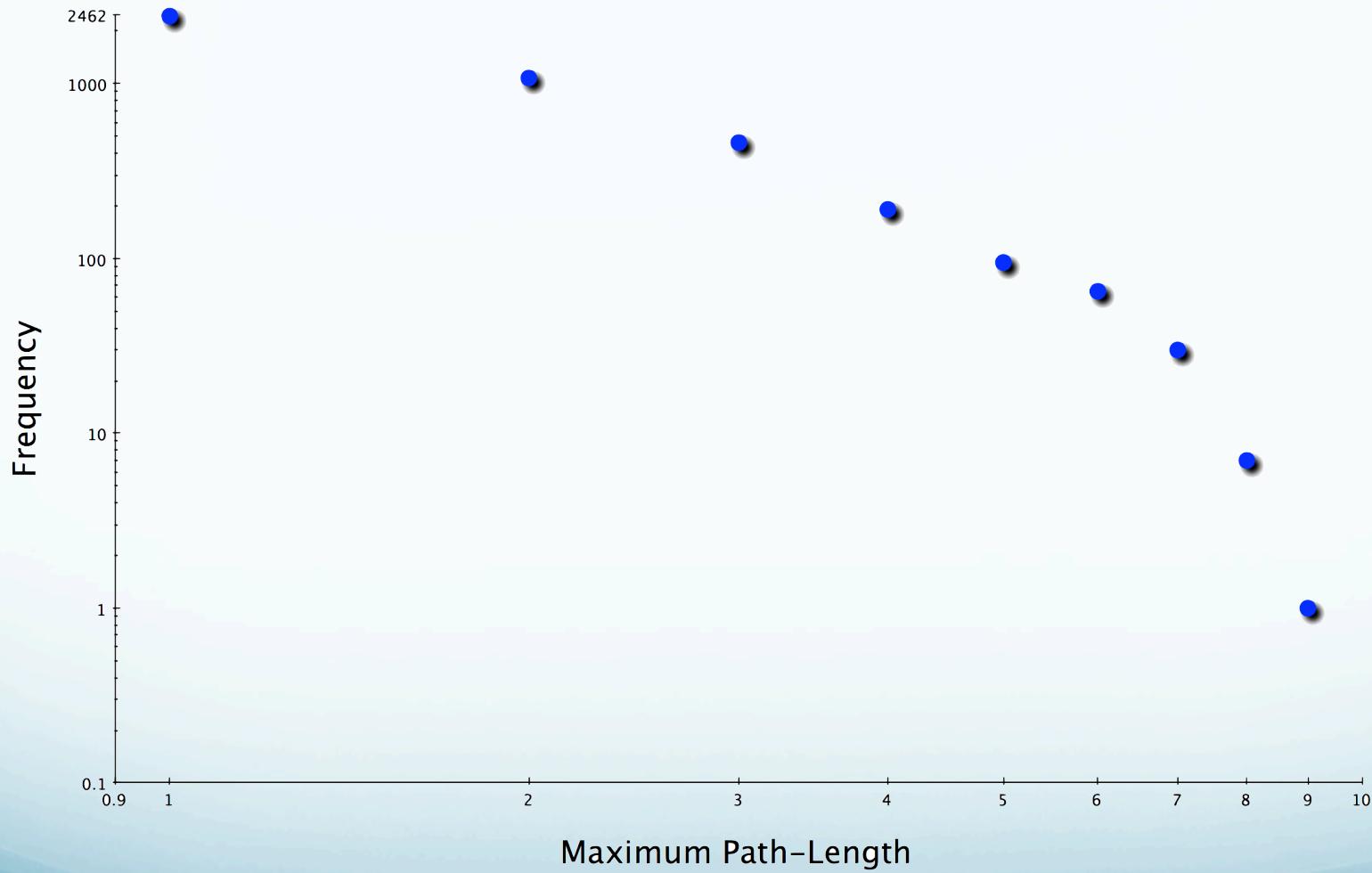
Long & thin, wide &
short, etc.



On average

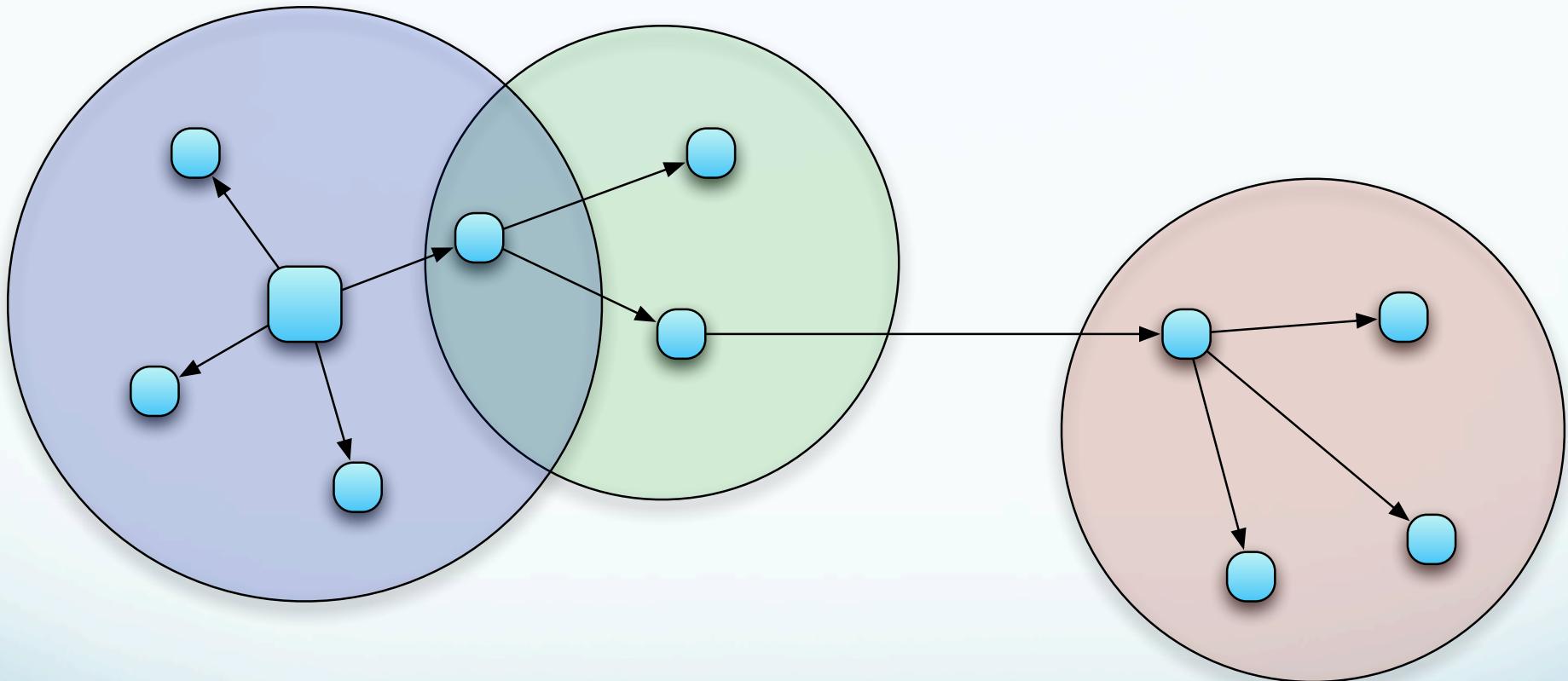
- Depth = 2
- Size = 6

Tweet Propagation



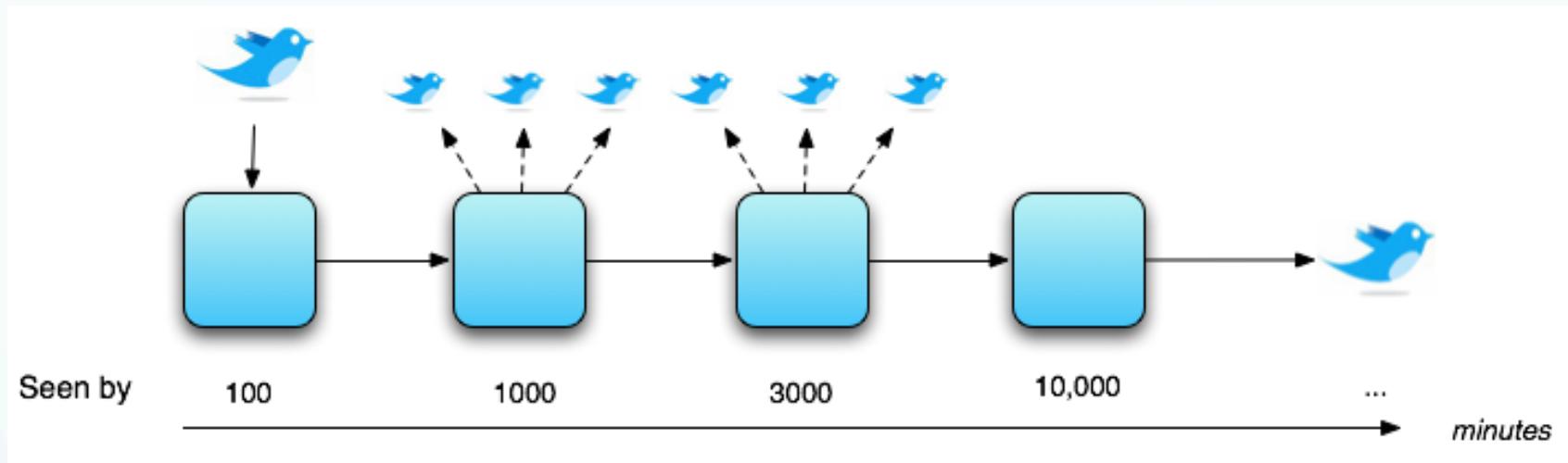
Log-log frequency of maximum path-lengths of retweet groups

Tweet Propagation



The longer path-lengths allow ‘jumping’ between communities

Audience & Influence



Allows 1,000's of users to view the tweet within minutes

Audience & Influence

Audience = Total number of users who receive the tweet to their timeline

Audience size =

1220

320

120

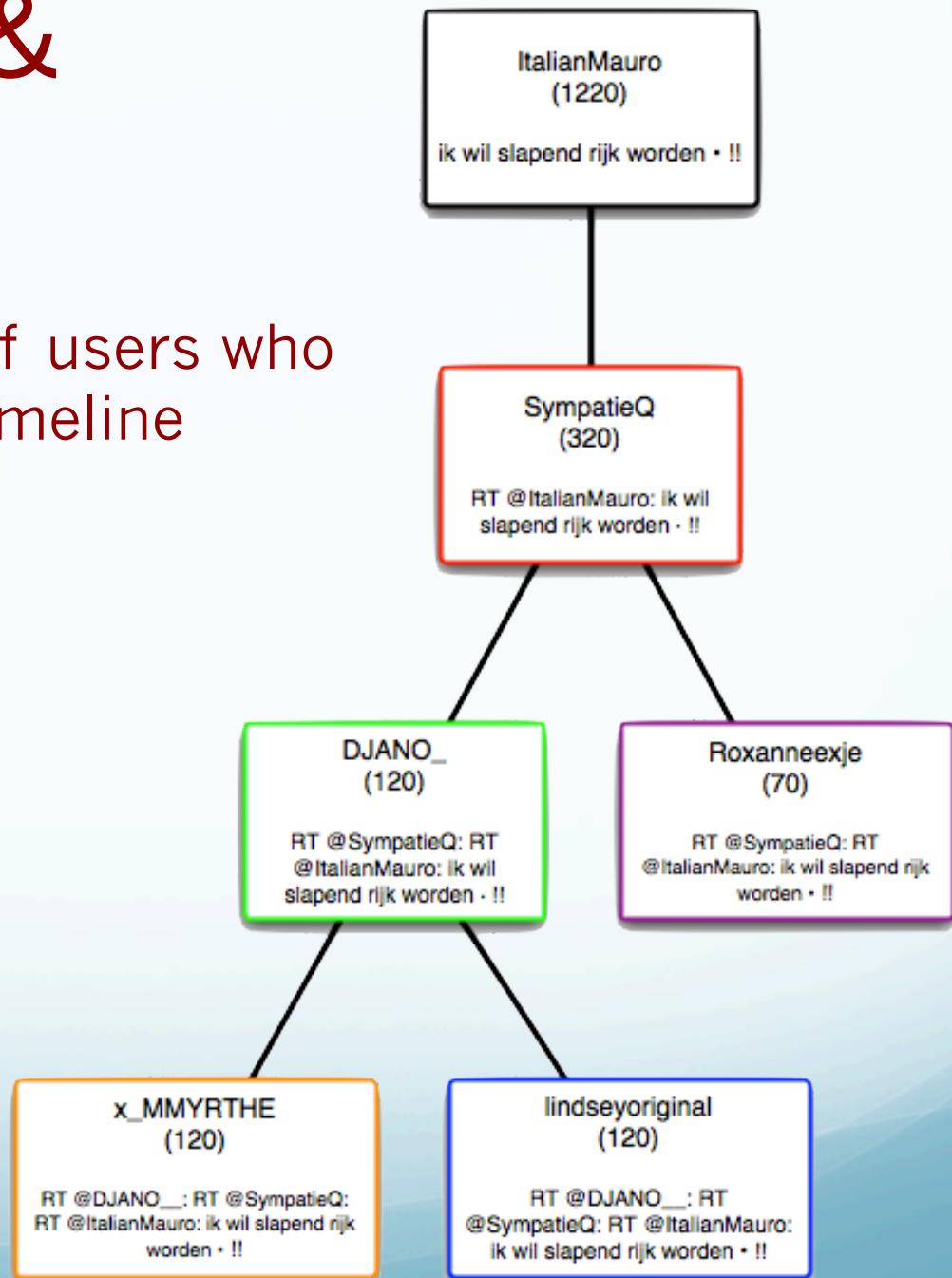
70

120

120

+

1970



... But overlap means duplicates

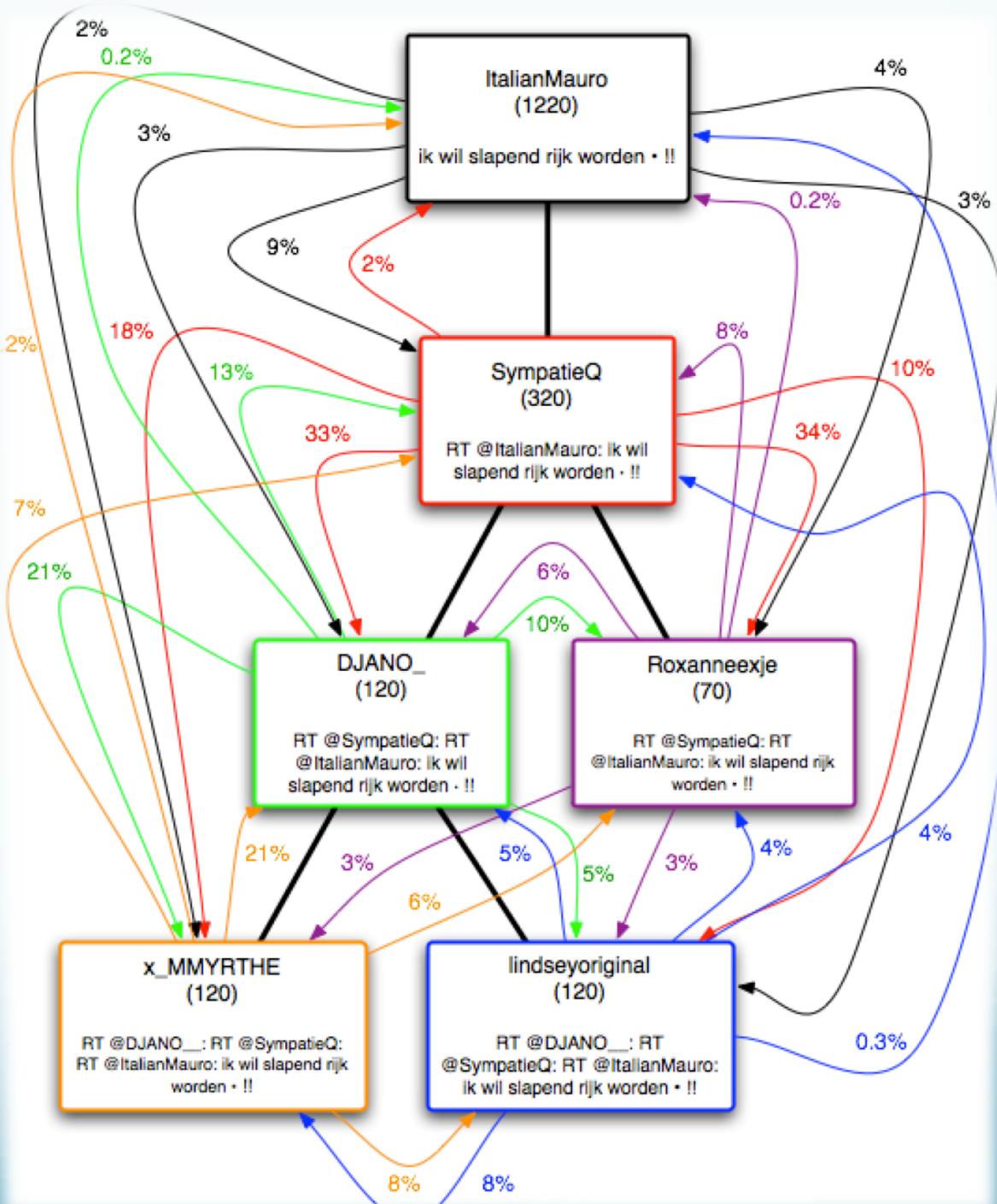
Audience size =

1970

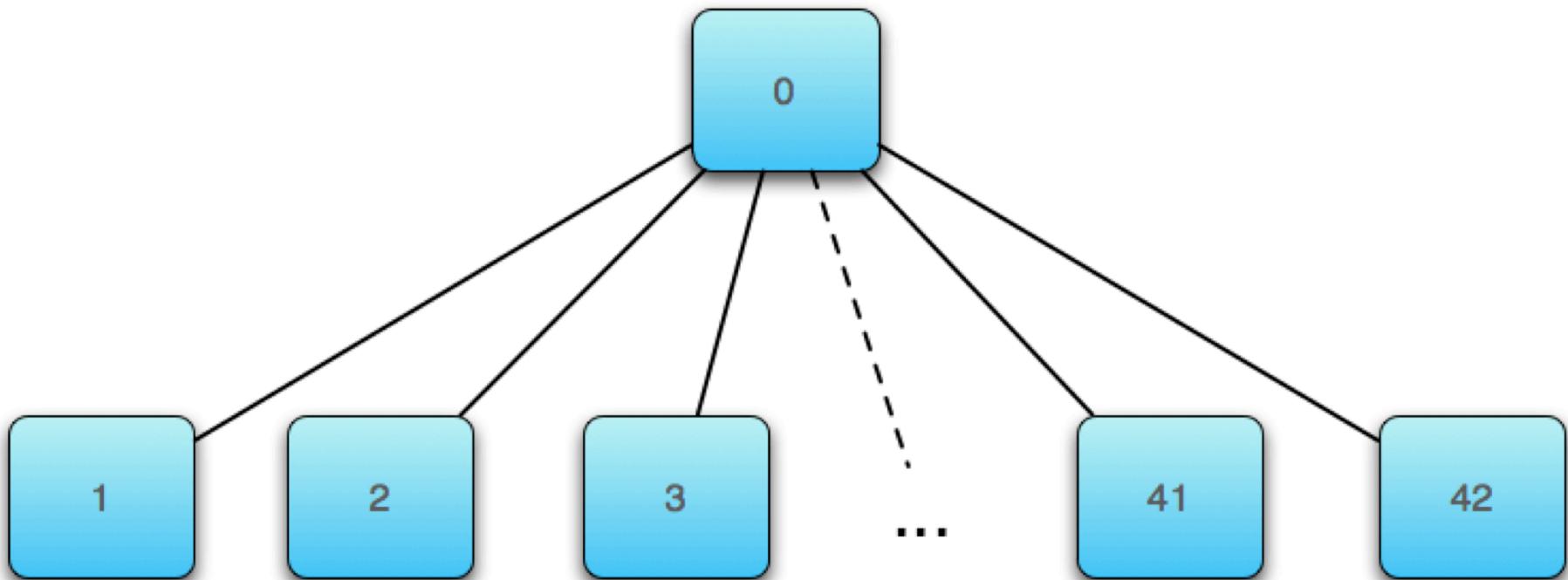
14.7% -

1681

Overhead = 289



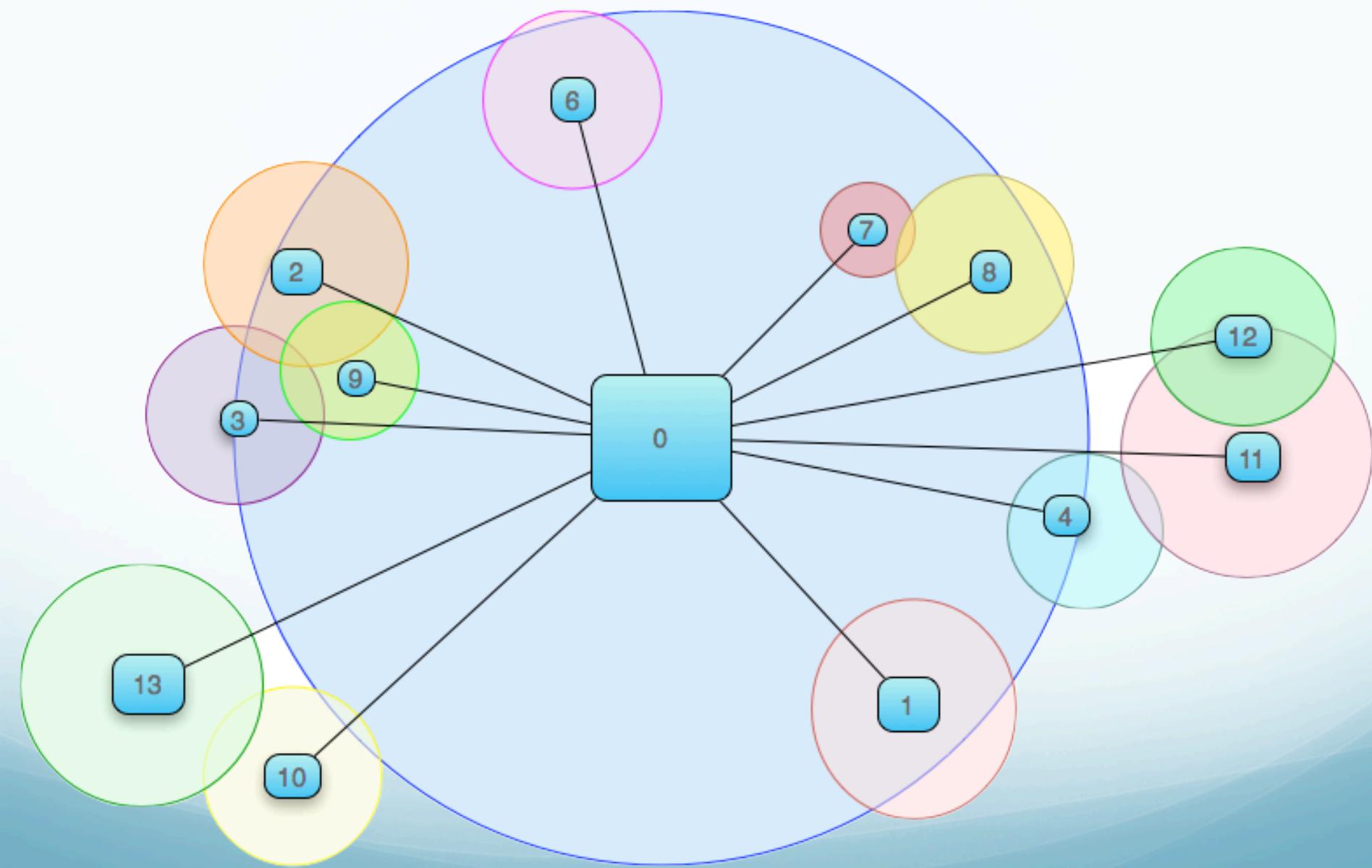
Audience Overhead



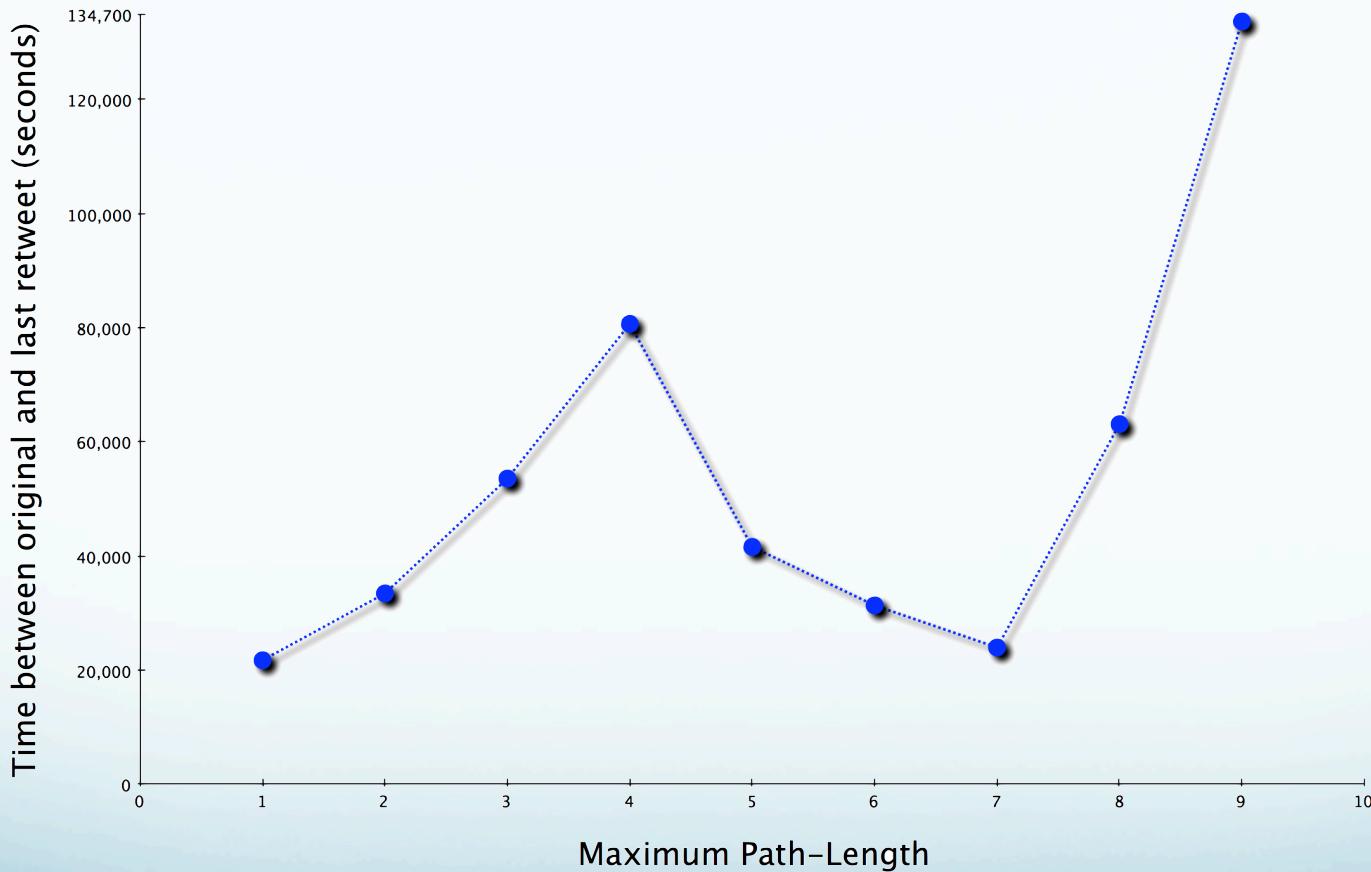
Audience = 7327

Overhead = 48868 (667%)

Conceptual follower graph for a ‘shallow’ retweet group



Propagation Speed



Does maximum path-length affect total propagation speed?

Currently & Future

- Reproduce results in artificial environment
- Development of a retweeting model
- High-level functionality:
 - A network of users is generated and connected
 - Each user has a quality threshold, T_u
 - Users tweet periodically
 - Each tweet has a quality, Q_t
 - When users check their timelines, chance of retweet
 - Retweet if $Q_t > T_u$

Currently & Future

- Update model:
 - More intelligent network connect:
 - Communities
 - Hubs, authorities, etc.
 - Base tweet threshold & quality on type of user:
 - Producers, consumers, etc.
- Use to predict information spread

Thank you!

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@flyingSparx