

Challenge: Accounting for Automated Social Actors (ASAs)

CCC Workshop on Foundations of Social Computing

June 2015

David W. McDonald
Human Centered Design & Engineering (HCDE)
University of Washington

Syrian Social Botnet (SSB)

- Collected the retweet connections forward and backward in time.
- Identified 130 accounts comprising a social botnet, that we call the Syrian Social Botnet
- All accounts were suspended by the Twitter on the same date and time around 6:30 AM UTC, November 20, 2012

Three Questions about the SSB

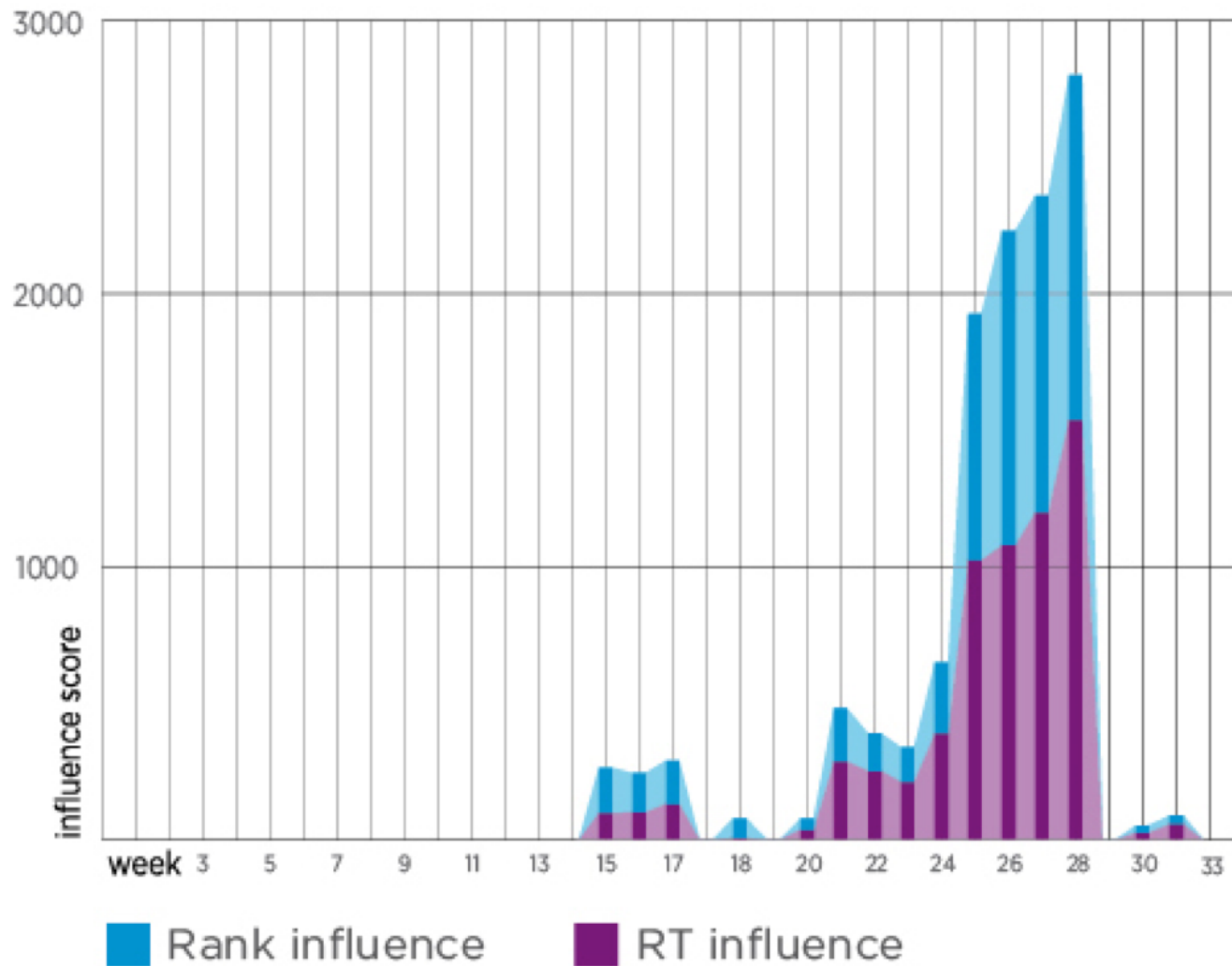
Tracing social and collaborative activities of 130 user accounts through 35 weeks

Q1. How it grows over time

Q2. How the content of tweets by the social botnet differ from those of regular users in the same dataset

Q3. How the social botnet may have influenced the relevant discussions

Content Categories	Botnet	Arabic	English
News	538 (52.6%)	359 (35.0%)	376 (37.6%)
Other	325 (31.8%)	29 (2.8%)	39 (3.9%)
Opinion	127 (12.4%)	465 (45.3%)	258 (25.8%)
Spam/Phishing	13 (1.3%)	10 (1.0%)	249 (24.9%)
Testimonial	0 (0.0%)	54 (5.3%)	14 (1.4%)
Conversation	1 (0.1%)	23 (2.2%)	20 (2.0%)
Breaking News	4 (0.4%)	47 (4.6%)	18 (1.8%)
Mobilization of Resistance/Support	3 (0.3%)	9 (0.9%)	7 (0.7%)
Mobilization for Assistance	1 (0.1%)	4 (0.4%)	2 (0.2%)
Solicitation for Information	1 (0.1%)	4 (0.4%)	1 (0.1%)
Information Provisioning	2 (0.2%)	19 (1.9%)	12 (1.2%)
Pop Culture	7 (0.7%)	3 (0.3%)	4 (0.4%)
Total Tweets Coded	1022	1026	1000
Uncodable (removed from analysis)	26	11	207



181 botnet tweets made it in to the weekly top 100 RT

What is an Automated Social Actor (ASA)?

- An ASA is software designed to act in ways that are similar to how a person might act in a social space.
 - Also a “Social Bot” or “Social Botnet”
- Conversational Bot – a bot that is texting or attempting to interact in a social way – possibly trying to pass the Turing test.
- Aggregator Bot – a bot that mines information from one source (web, Twitter, Facebook, Reddit) and *re*-presents it as novel on another social computing platform
- Collaborator Bot – task specific bot completes tasks for the user – clean up, information organizing

Why Should We Care?

Automated Social Actors have influence on social computing systems (for better or worse):

1. Our approach to data collection (i.e., what behaviors should be collected)
2. Our understanding of the social dynamics (i.e., which social interactions “count” in an analysis)
3. ASAs have motives and behaviors that are embedded in the code by the builders. These motives and behaviors may not be aligned with well known (accepted) behavioral theory.
4. Incentivizing an ASA is not the same as a person. Are there models for bot baiting?
5. How we think about the design of future social computing systems

What Makes this “hard”?

- In general, ASA (bot) detection is tricky:
 - Dynamic participation – the ASA accounts and behavior changes over time – perhaps unpredictably
 - Graph theoretic (social network) approaches catch legitimate users in the network (“friend” or retweet the wrong account)
 - Linguistic models do not internationalize well
- Some ASAs are sanctioned by the platform (legitimate bots).
- ASAs may or may not follow game theoretic predictions
- What happens when ASA behavior is integrated with humans (human-in-the-loop)? Do we count that as bot behavior or human behavior?

Questions & Discussion

- Acknowledgements
 - Norah Abokhodair
 - Daisy Yoo
- Reference
 - Abokhodair, Yoo, & McDonald (2015) Dissecting a Social Botnet Growth, Content and Influence in Twitter. Proceedings of the 18th ACM Conference Companion on Computer Supported Cooperative Work & Social Computing.