

Understanding Online Community Formation of Medical Marijuana Users Using Social Network Analysis

Peter Baumgartner (MSA 2014)

IAA Alum Talk - Oct 11, 2016

<https://pmbaumgartner.github.io/iaa-alum-talk/>

Professional Background



A thought experiment...

FOR	Peter Baumgartner	DATE	10-11-16													
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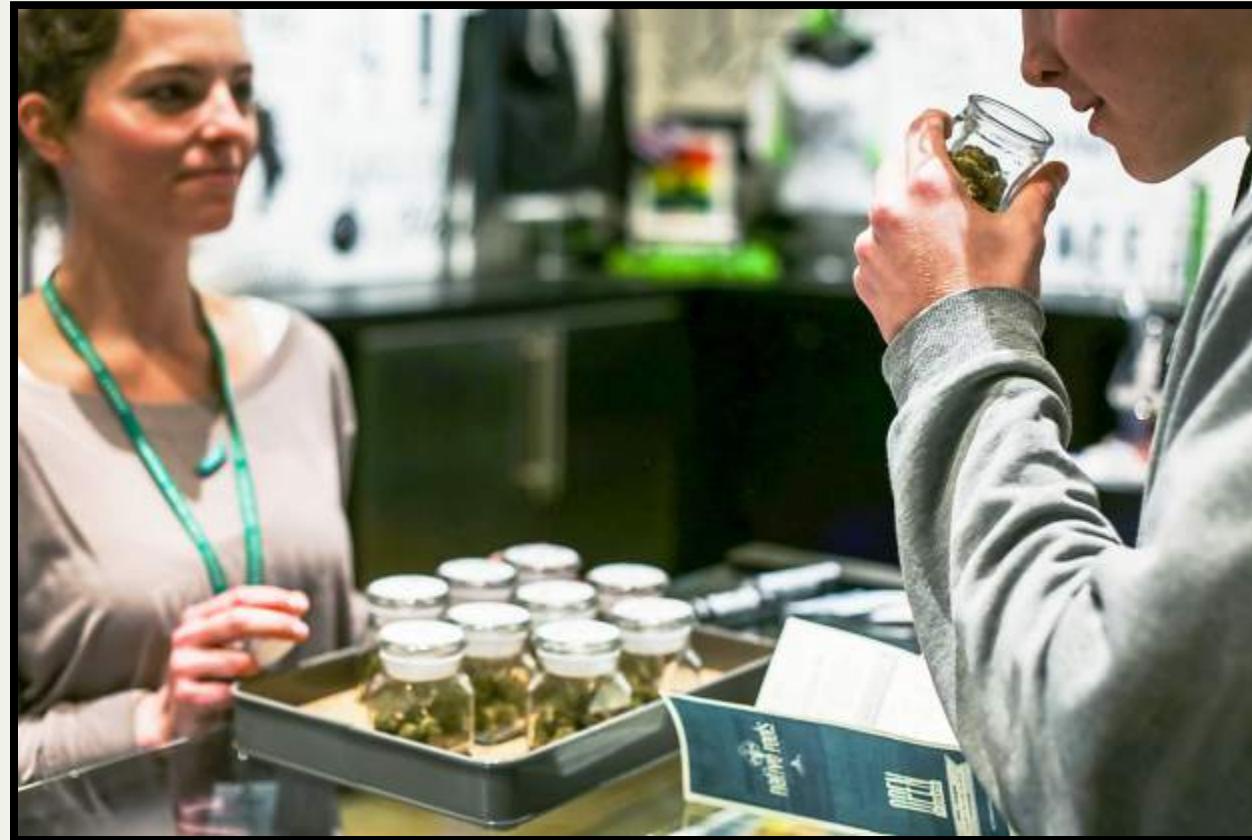








Budtenders: Becoming Health Care Providers



Dispensaries on Social Media

 **SPARC**
@SPARCcannabis

 NOW AVAILABLE Precision dose pens by
[@hmbldt!](#) Stop by at 3pm and sample the first
complete solution in cannabis.

RETWEETS LIKES
2 **2**

12:58 PM - 30 Sep 2016

📍 SoMa, San Francisco

  2  2 

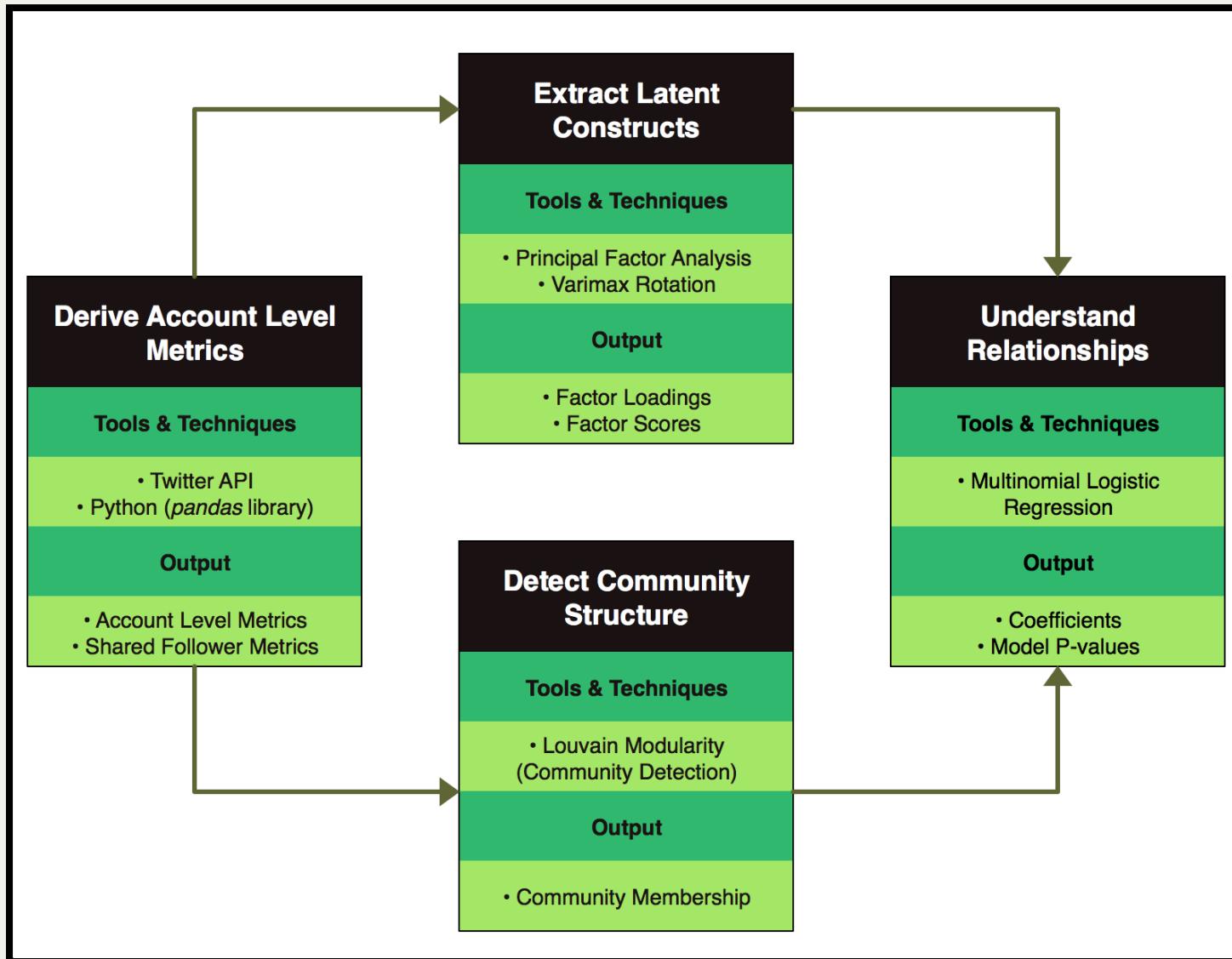
Research Question:

How do dispensaries use Twitter to engage with medical cannabis patients and their larger follower base?

Hypothesis:

Communities of users form around dispensaries dependent upon how the dispensaries themselves use Twitter.

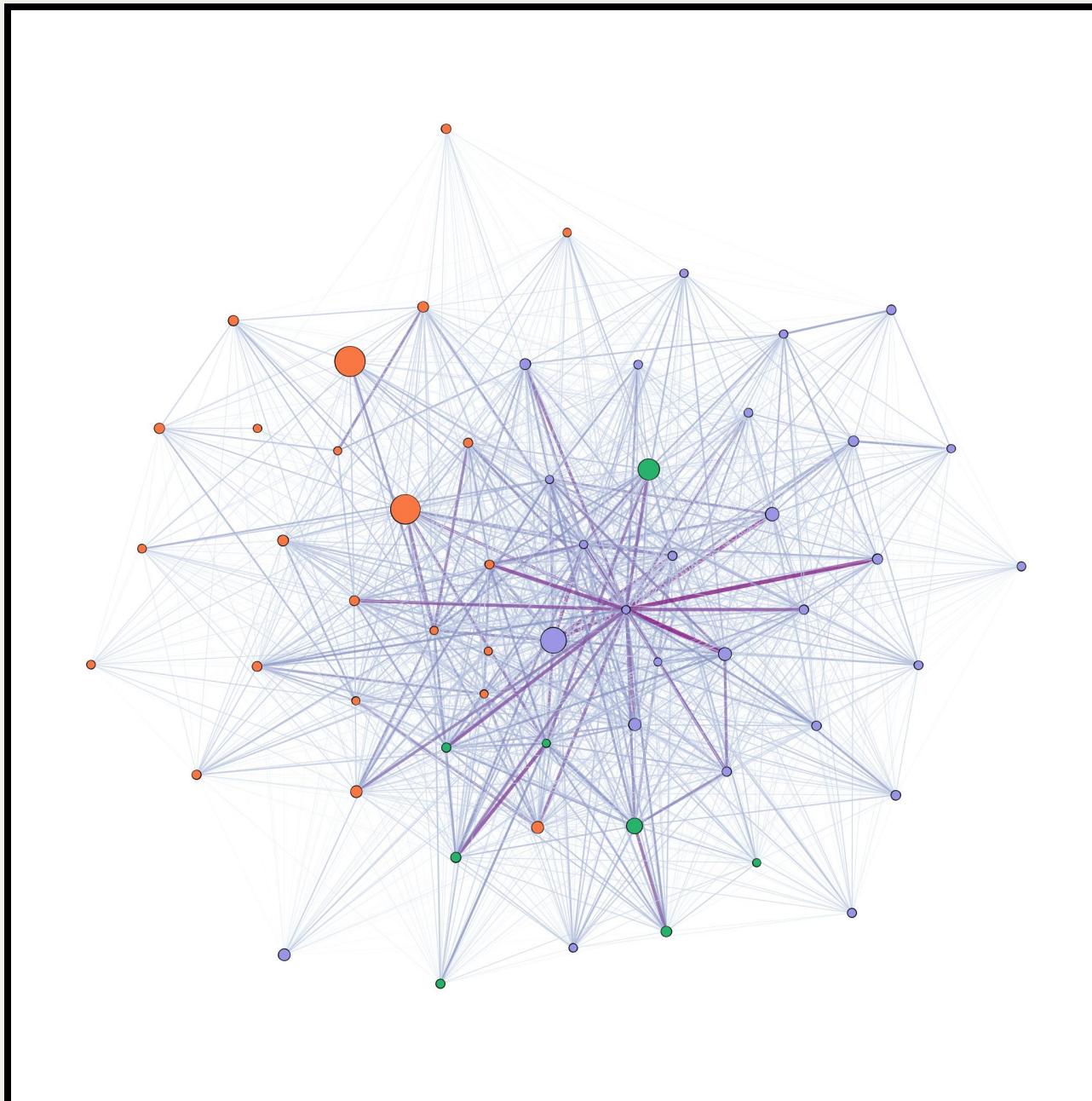
Analytic Plan



Factor Analysis

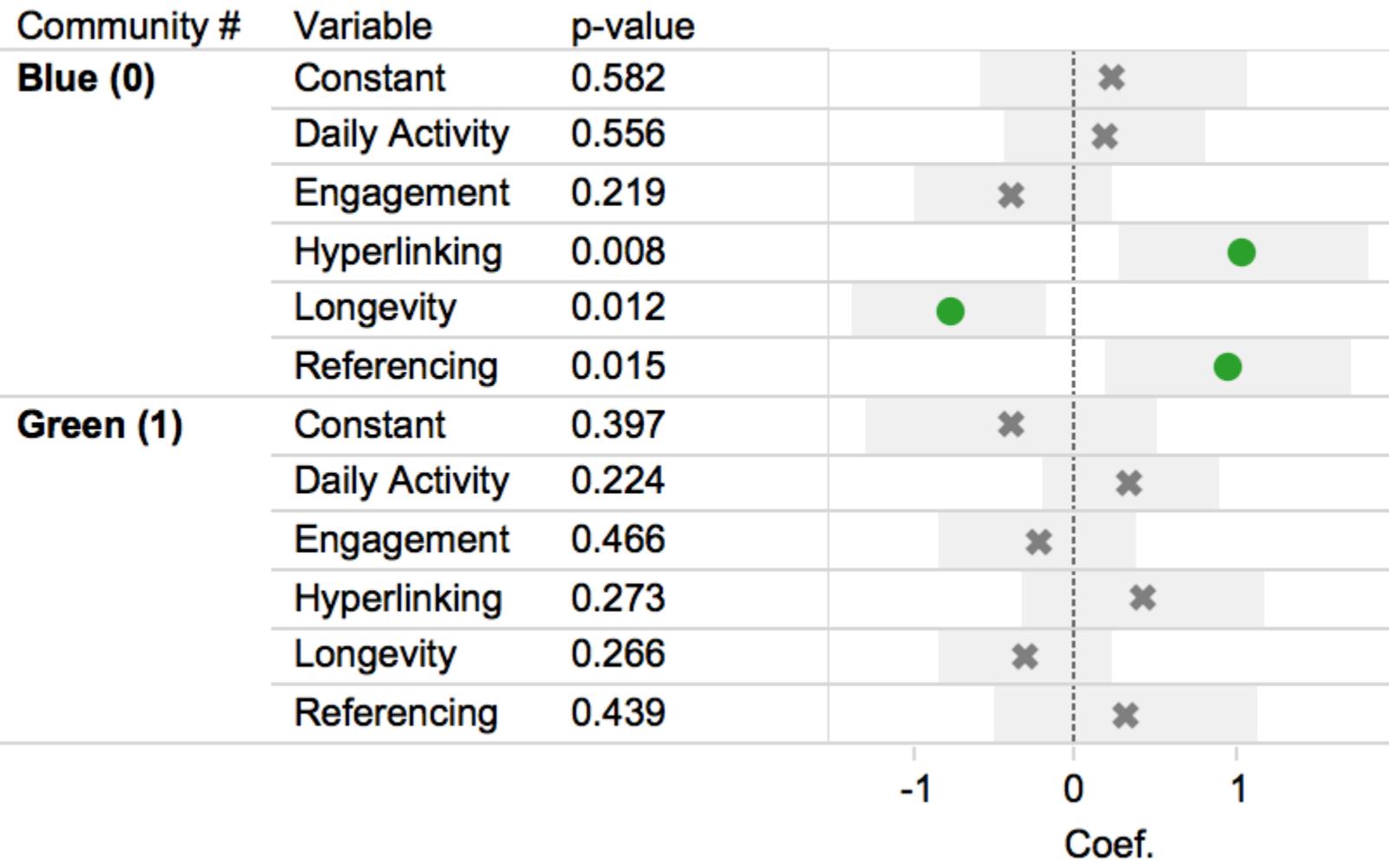
Metrics	Daily activity	Longevity	Engagement	Referencing	Hyperlinks
Account Age					
Total Days Tweeting		0.66			
Percent Days Tweeting					
Tweets Collected		0.54			
Max Tweets Per Day					
Average Tweets Per Day	0.64				
MAD Tweets Per Day	0.59				
Percent Tweets with Media			0.62		
Percent Tweets with #				0.54	
Percent Tweets with @		0.66			
Percent Tweets with RT			0.66		
Percent Tweets with Hyperlink					0.8

Los Angeles Dispensaries Network



Multinomial Logistic Regression

Model Coefficients & Significance



Conclusion

There is *some* evidence that dispensary behavior on Twitter can predict community formation.

Also...

In San Fransisco the model had significant predictors to distinguish between all 3 communities.

Can we better understand the communities and users that make these communities?





Original Approach (1-hop)

"Hey Twitter, can you give me the user IDs of people who follow these accounts?"

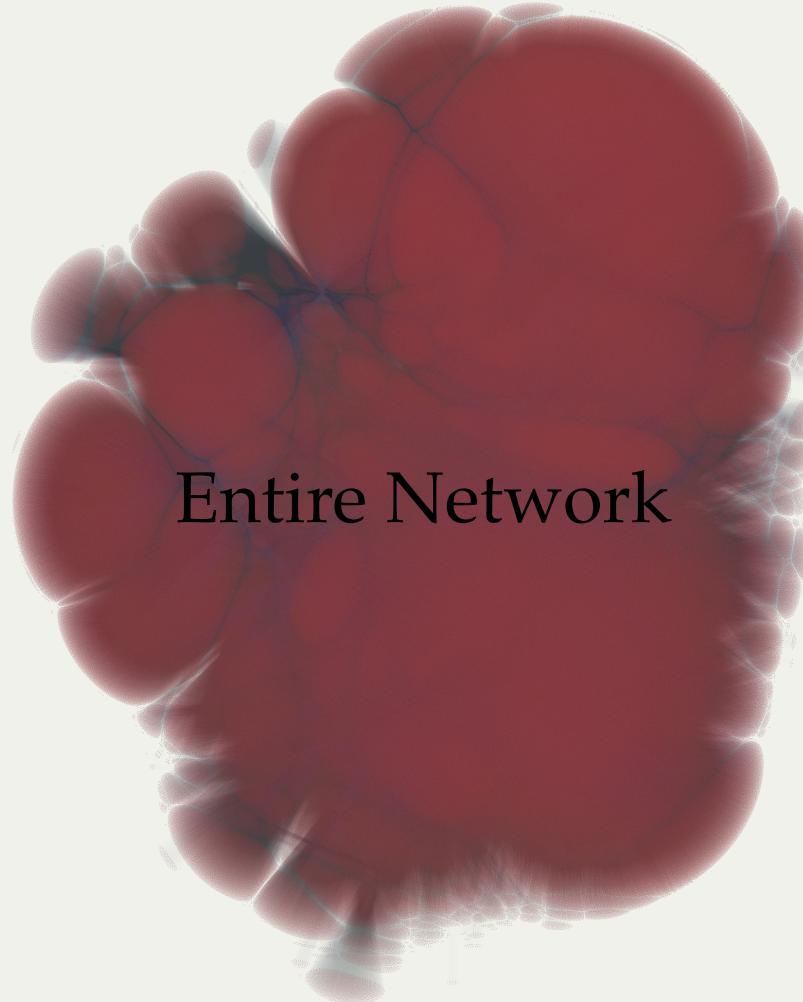


New Approach (2-hop)

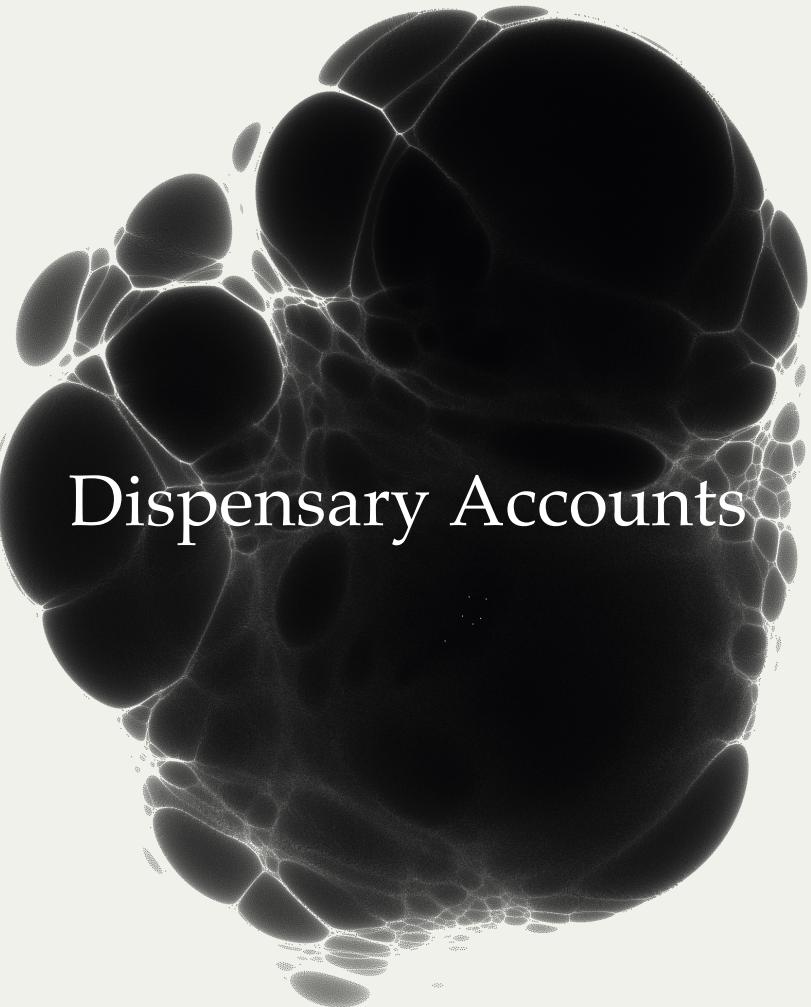
Original Approach

Then...

Can you give me the user IDs of all the people who follow those followers?



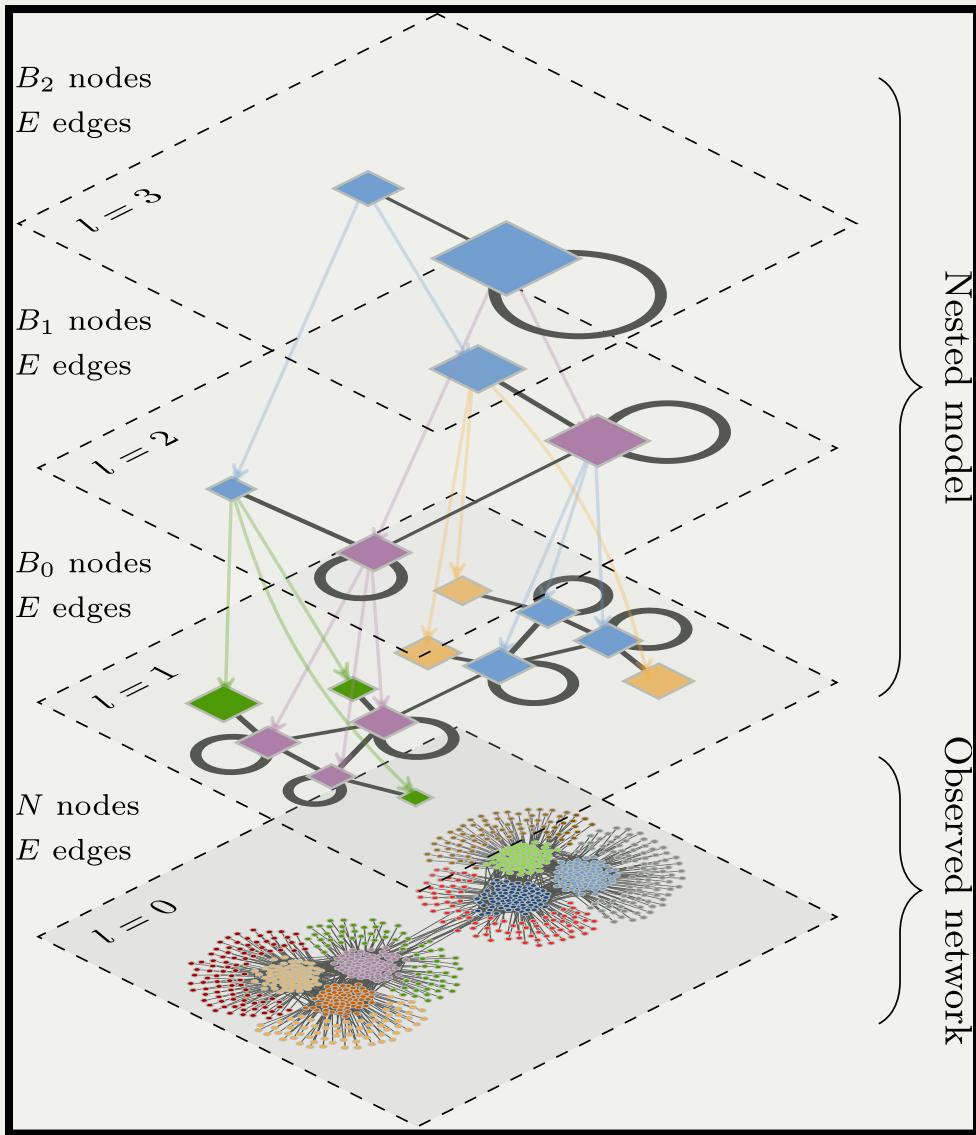
Entire Network



Dispensary Accounts

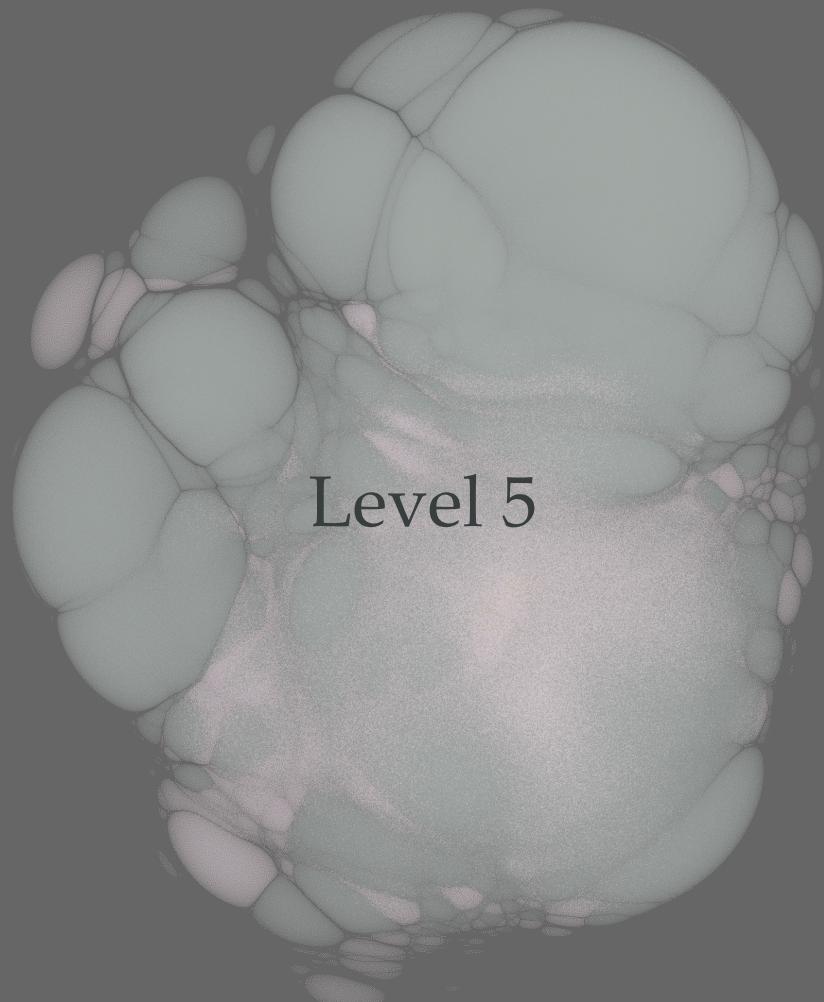


Mean Distance to Dispensary

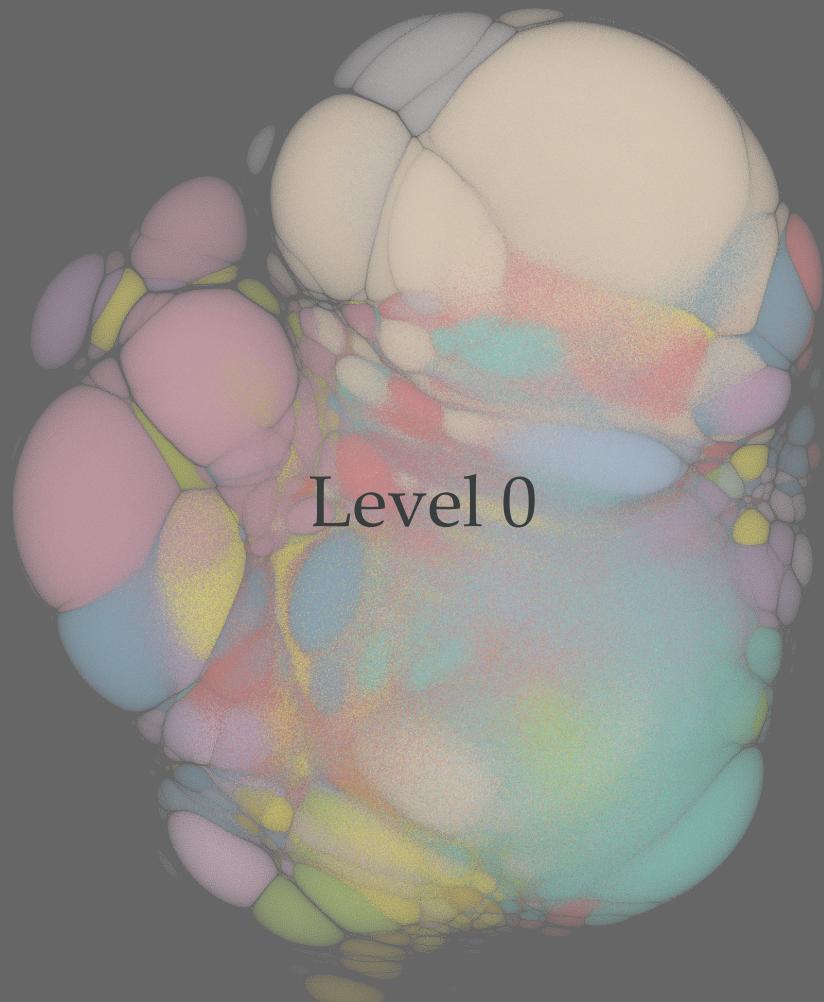


Level : Blocks

- level 0: 359
- level 1: 183
- level 2: 84
- level 3: 40
- level 4: 15
- level 5: 4
- level 6: 2
- level 7: 1



Level 5



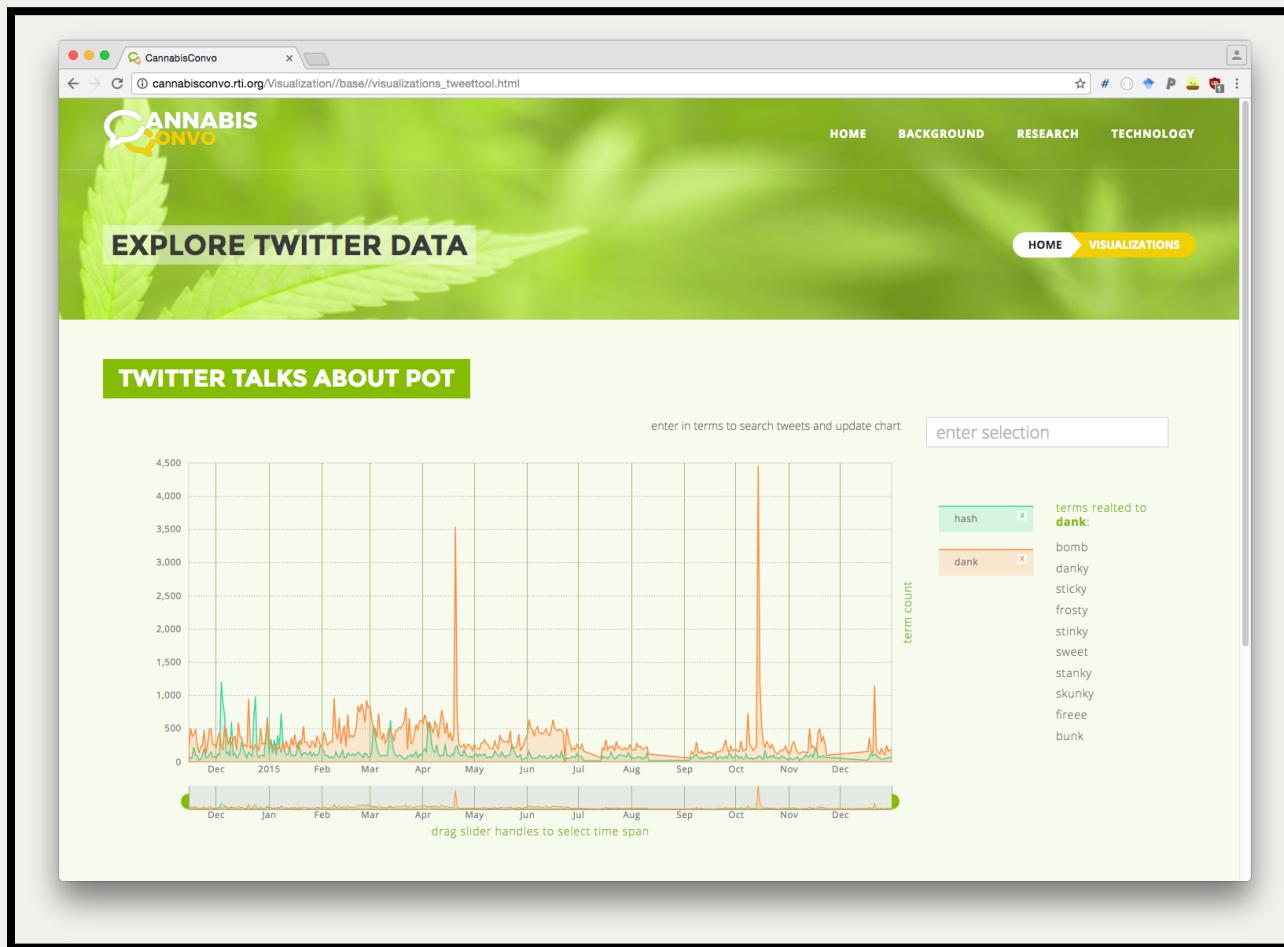
Level 0

What's Next?

- Analyze community / block membership of dispensaries
- Correlate community / block membership to twitter metadata
- Define dimensions of cyberbehavior that relate to community / block membership

Other RTI Cannabis Research

- Budtender Survey
- Cannabis Convo



Things to Check Out

- Python (`NetworkX`, `graph-tool`)
- Gephi (visualization / network analysis)
 - MongoDB
- *Connected: A Social Network Analysis Tutorial with NetworkX (YouTube)*

Q&A