



## Creating and Comparing Meta-Network Groups with Twitter Data (or any networks with derived data)

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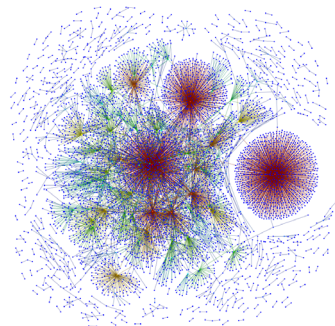
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Social and Organizational Systems  
<http://www.casos.cs.cmu.edu/>



## Social Media Network Centrality Quiz

Assume you have an  
Agent x Agent  
**retweeted-by** network:



June 2017

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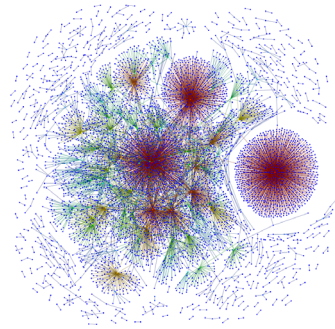
## Social Media Network Centrality Quiz

If network is **binarized**:

1. What does it mean to have highest out-degree centrality?
2. In-degree centrality?
3. Total-degree centrality?

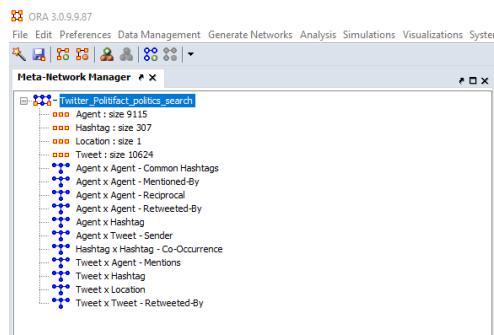
If network is **weighted**:

1. What does it mean to have highest out-degree centrality?



## Creating Meta-Networks from Groups

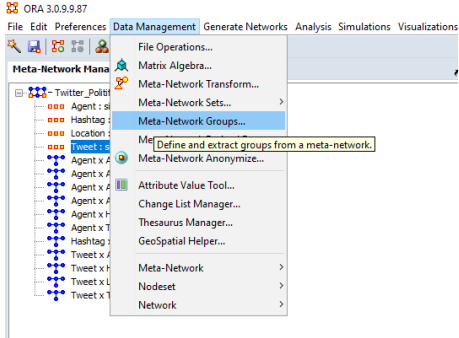
- Drag and drop to load in "Twitter\_Politifact\_politics\_search.1528444945560.anonymized"
- Twitter data collected based on keywords from Politifact articles



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## Creating Meta-Networks from Groups

- Let's say we want to see how different the Twitter report is if we remove retweets.
- Several ways to do this, but we are going to now use groups:



ORA 3.0.9.9.87  
File Edit Preferences Data Management Generate Networks Analysis Simulations Visualizations

Meta-Network Groups...

Meta-Network Groups...

Define and extract groups from a meta-network.

Meta-Network Anonymize...

Attribute Value Tool...

Change List Manager...

Thesaurus Manager...

GeoSpatial Helper...

Meta-Network

Nodaset

Network

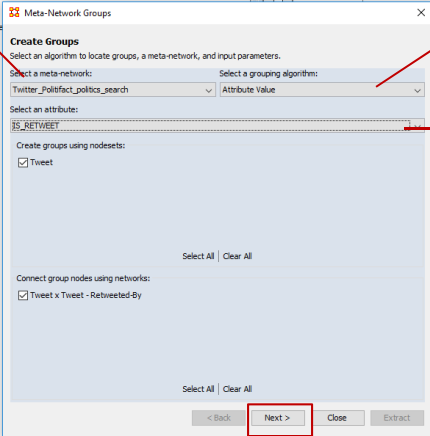
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## Creating Meta-Networks from Groups

- Select meta-network to use to make others
- Select what type of aspect to use to group
- Select attribute you want to group on
- Click Next



Meta-Network Groups

Create Groups

Select an algorithm to locate groups, a meta-network, and input parameters.

Select a meta-network: Twitter\_polifact\_politics\_search

Select a grouping algorithm: Attribute Value

Select an attribute: IS\_RETWEET

Create groups using nodesets:

Tweet

Select All | Clear All

Connect group nodes using networks:

Tweet x Tweet - Retweeted-By

Select All | Clear All

< Back Next > Close Extract

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# Creating Meta-Networks from Groups

1. Select meta-network subset you want to extract
2. Click Next
3. Select related networks you want to extract.
4. Click Next

Label	Nodes	Link Count	Link Sum	Dens	Number of groups
1	6853	0	0	0	
<Blank>	3771	0	0	0	

Number of groups:  
Isolates: 0  
Dyads: 0  
Triads: 0  
Larger: 2

Larger size groups:  
Count: 2  
Min: 3771  
Max: 6853  
Average: 5312  
Std.dev: 1541

Groups listed: 2

1 / 2 Selected, 2 / 2 Visible

Next >

Extra Nodes

Select adjacent networks to include with the extracted groups. A link from an adjacent network is included if it connects to a group node.

These adjacent nodes and links are not included in the reported group size and density statistics.

Agent x Tweet - Sender  
 Tweet x Agent - Mentions  
 Tweet x Hashtag  
 Tweet x Location

Select All | Clear All

Extract

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# Creating Meta-Networks from Groups

Meta-network subset is added to manager

Notice that only networks that contain Tweets are created (this is because we grouped on a Tweet attribute)

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# Recalculating Derived Data

If you want to recalculate derived networks off of the subset meta network:

1. **Meta-Network Derived Data**

2. **Select subset meta-network**

3. **Select Twitter format**

4. **We want to compute**

5. **Choose which derived networks you want**

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# Recalculating Derived Data

Additional networks added!

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# Comparing Networks

- Run Twitter Report on two meta-networks:
  - Analysis: Generate Report: Social Media: Twitter
  - Select both meta networks



# Comparing Networks

- Report outputs

## Analysis of Hashtags

This section analyzes the hashtags within tweets.

[Return to previous page](#)

### Measure List

[Hashtags that occur in the most tweets \(in-degree centrality\) \[Tweet's Hashtag\]](#)

[Hashtags co-occurring highest degree centrality in hashtag co-occurrence network \[Hashtag's Hashtag\\_Co-Occurrence\]](#)

### Twitter\_Politifact\_politics\_search Hashtags that occur in the most tweets (in-degree centrality)

The most popular hashtags used in tweets.

If the node of interest has a higher than normal value (greater than 1 standard deviation(s) above the mean) the row is colored red. The row is green if the node is within 1 standard deviation of the mean value (less than one standard deviation(s) below the mean).

Superlatives: [Twitter's Hashtag](#)

Show (25) entries

Rank	Hashtag	Value	Uncolored	Most common tweeters	Most co
1	Mexico	0.022	236	C2064598733007 (2) A2064598733007 (2) J2064598733011 (2) Q2064598733011 (2) W2064598733011 (2)	
2	TIMEPOY	0.017	177	T2064597278073 (2) M2064597000000 (2) M2064598182111 (2) C2064598182000 (2) C2064597789997 (2)	
3	Trump	0.011	119	S2064601111111 (2) T2064598182111 (2) J2064598182111 (2) R2064598733011 (2) W2064597791004 (2)	
4	TrumpRussia	0.011	115	S2064601111111 (2) T2064601111111 (2) L2064601111111 (2) W2064598182111 (2) W2064597791004 (2)	

You can see more

Notice that ORA is letting you know what might be special to look at



# Thanks!