

Structural Analysis of Social Hypertext for Finding Sense of Community

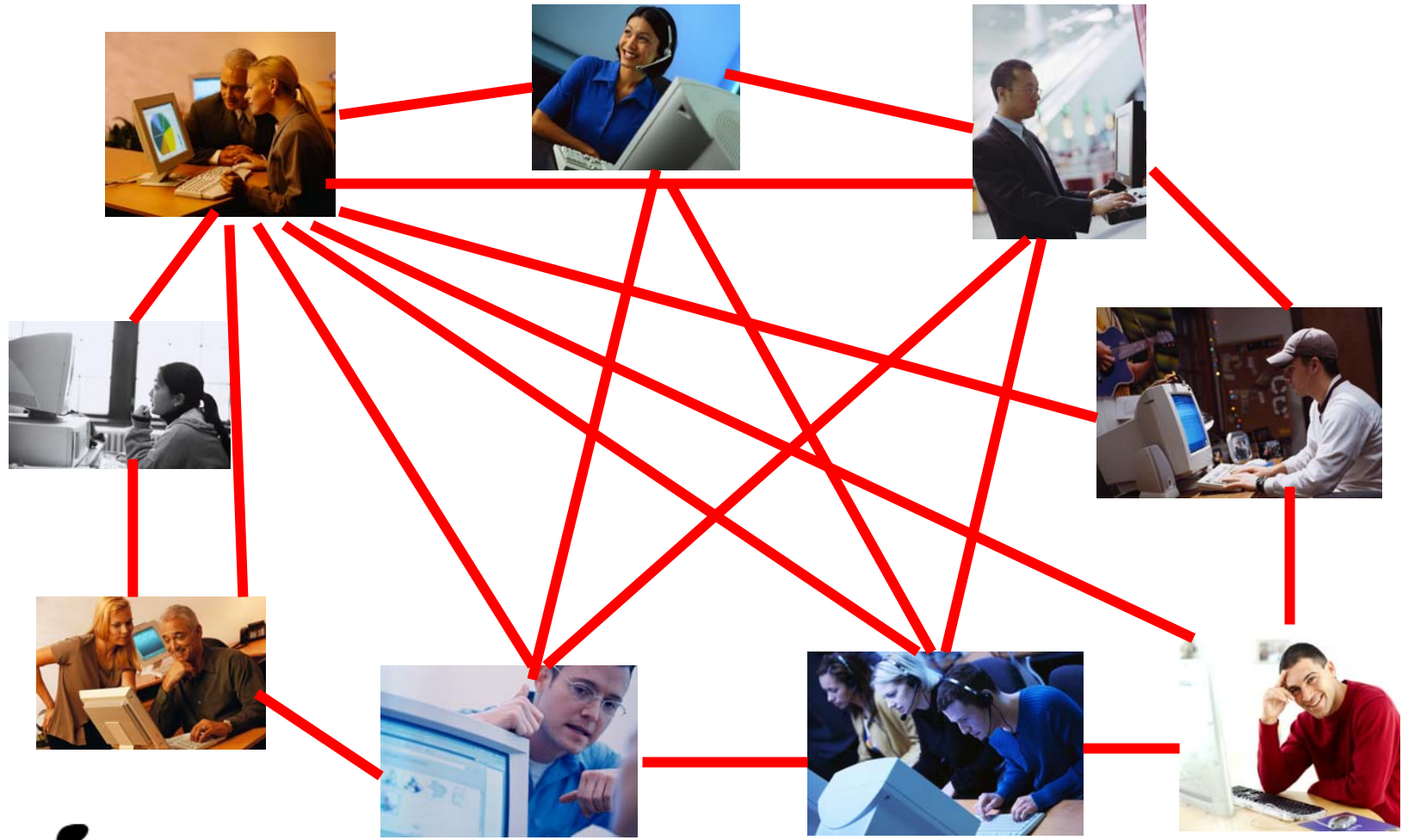
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November 2, 2007

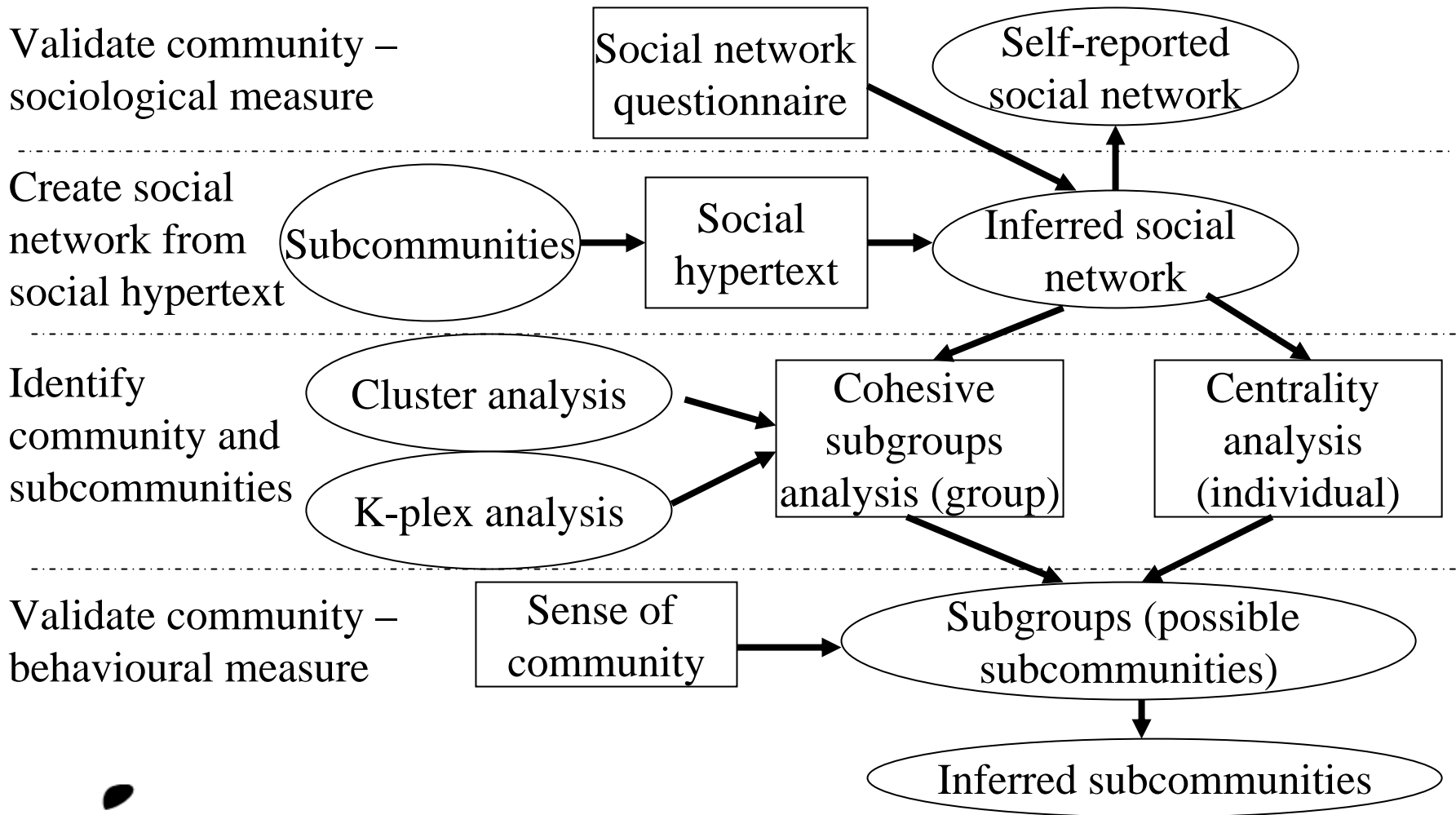
Online communities form social networks



Research questions

- Who are the leaders and connectors in the community?
- How can active subgroups be recognized?
- How to identify members within the active subgroups?

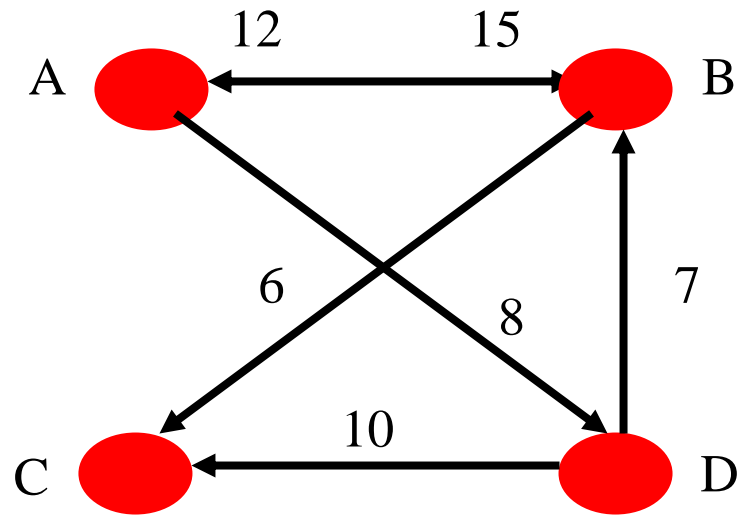
Research framework



Identifying active subgroups

- Characterized by high connectivity and high cohesion
- *Cohesive subgroups* = collection of *k-plexes*
- *Subcommunities* = overlapping cohesive subgroups

Example of k-plex, $k=2$



K-plex analysis

For $k=2$ to maximum k where k
plexes are found

{

For size = $2k-1$ to max size where
 k -plexes are found

{

Find k -plexes

}

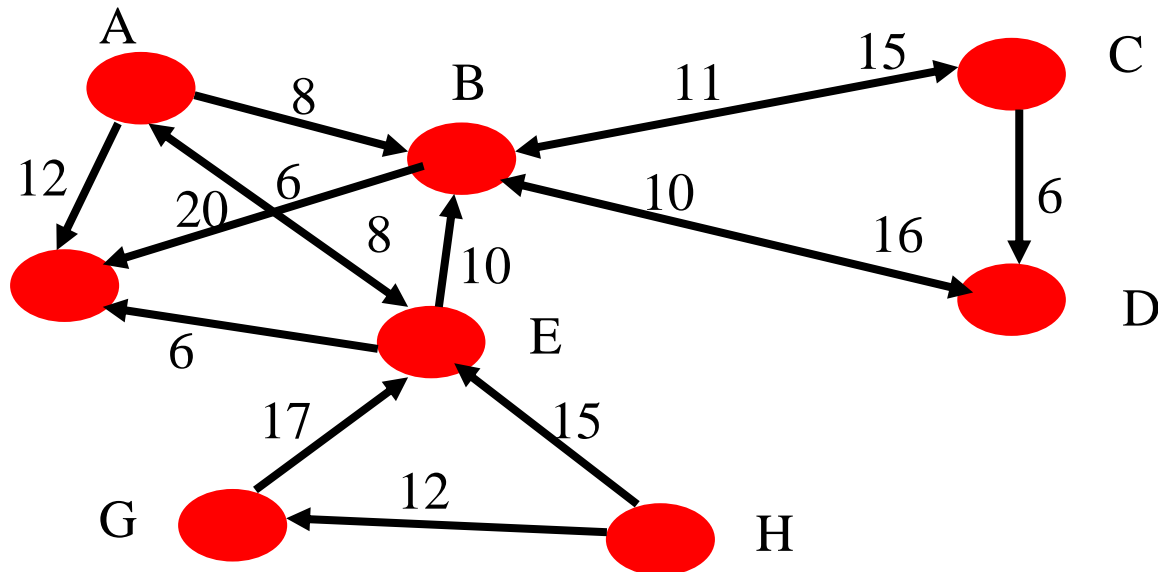
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Cluster analysis

- Create co-membership matrix
- Find similar nodes in network and group them into cluster
- Use weighted average hierarchical clustering

Network centrality

- Degree centrality
- Betweenness centrality
- Closeness centrality



Validating subgroups

- Ask people in the network about their perceptions of community
 - Sense of community
 - Social network questionnaire
- Compare with subgroup
- Do subgroup members have higher sense of community?

Sense of community (McMillan and Chavis, 1986)

SOC scale	Description
Membership	Belonging to, and identification with the group
Influence	Having influence on, and being influenced by, the community
Reinforcement of needs	Support from others, people's needs being met
Shared emotional connection	Having relationship and shared connection with others

Social network questionnaire

- Indicate whether you directly know each person
 - None, have met, somewhat close, very close
- Create self-reported social network

TorCamp group

TorCamp Google group



Discussions

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★ [CONTRACT: Windows Domain Administrator](#)

Hey Everyone. Sorry for the multiple job posts today. We are looking for a Windows Domain Administrator for a couple month contract. You'd be placed on site at one of our clients. So if you or anyone you know is interested please ask them to contact me. Again, Sorry for the spamming. Bryce

By **Bryce Johnson** - 3:47pm - [1 new of 1 message](#)

★ [\[Fwd: Can you recommend someone for this job: Toolbar Developer \(MSIE\) at Mahalo.com, Inc.\]](#)

Company: Mahalo.com, Inc. Job Title: Toolbar Developer (MSIE) Description: Mahalo Toolbar Developer for Internet Explorer Mahalo is looking for a developer to build multiple Mahalo IE Toolbar technologies. You should be familiar with desktop application programming under Windows 2000, XP and Vista, as well as MS Internet... [more >](#)

By **Ray Slakinski** - 1:55pm - [1 new of 1 message](#)

★ [CONTRACT: ColdFusion Developers](#)

Hey Everyone We have an immediate need for multiple Coldfusion Developer Contractors at Navantis. If you are interested or know anyone that may be can you please give them my contact information Thanks

By **Bryce Johnson** - 1:51pm - [1 new of 1 message](#)

★ [Krispy needs some help](#)

Hi all, I'm looking to move and I'm very irritated with all the online renters sites. Toronto is a big city, why is it so hard to find a decent apartment? I've tried myhood.ca, viewit.ca, renters.ca, toronto.kijiji.ca, google, pro2go.com, craigs list (terrible ui) and various property management companies sites.... [more >](#)

By **Kristan Uccello** - Sep 5 - [3 new of 3 messages](#)

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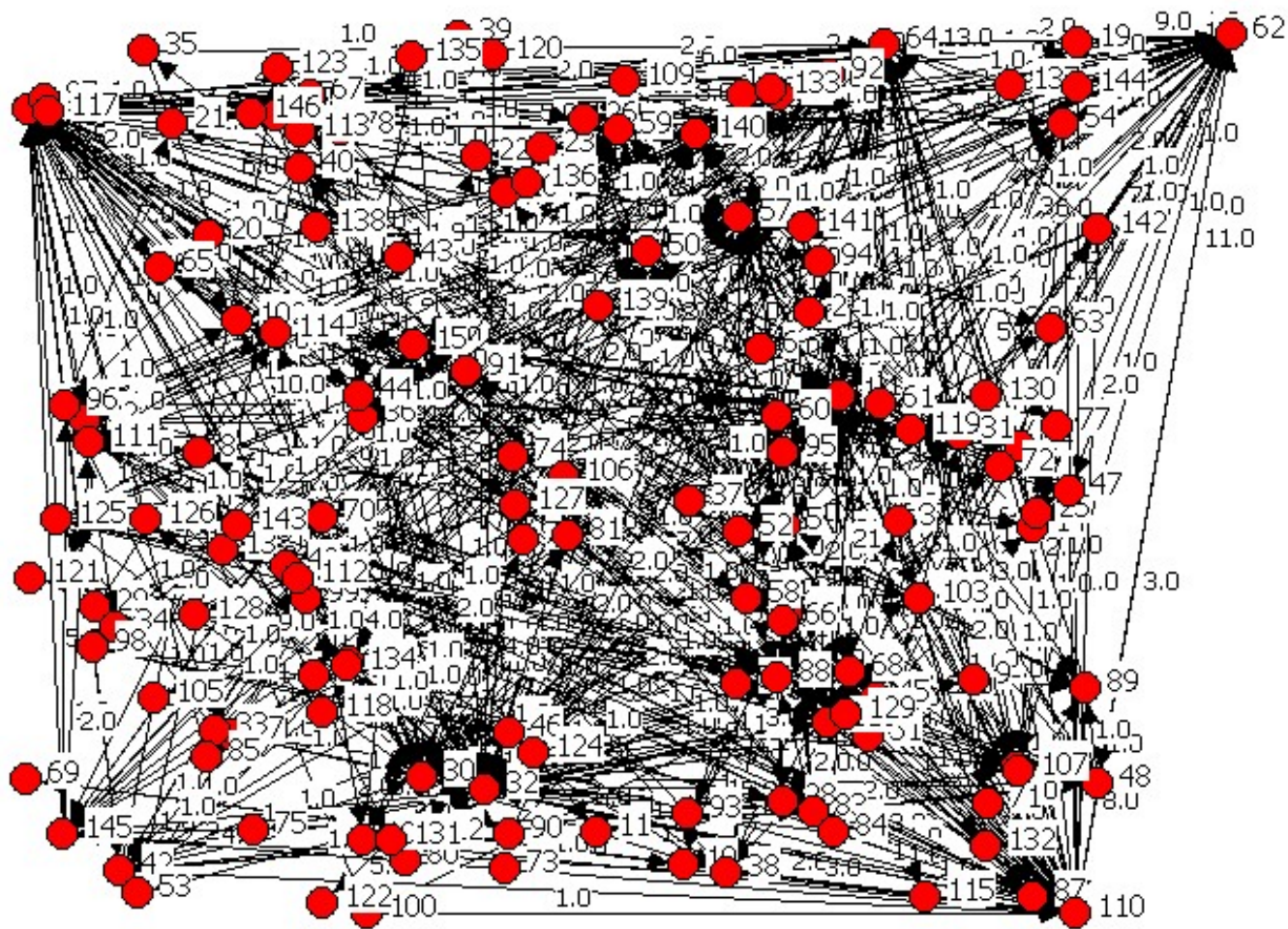
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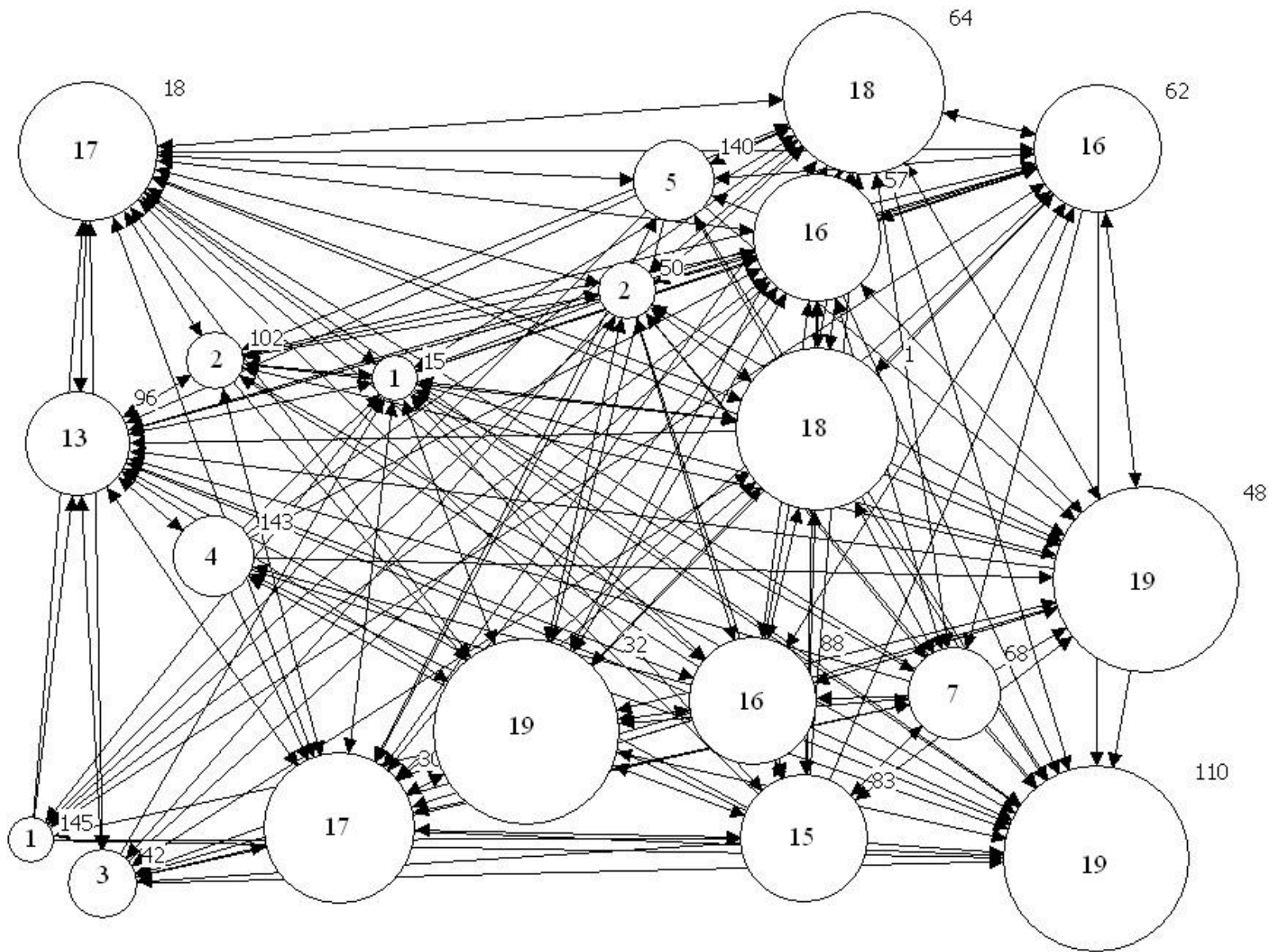
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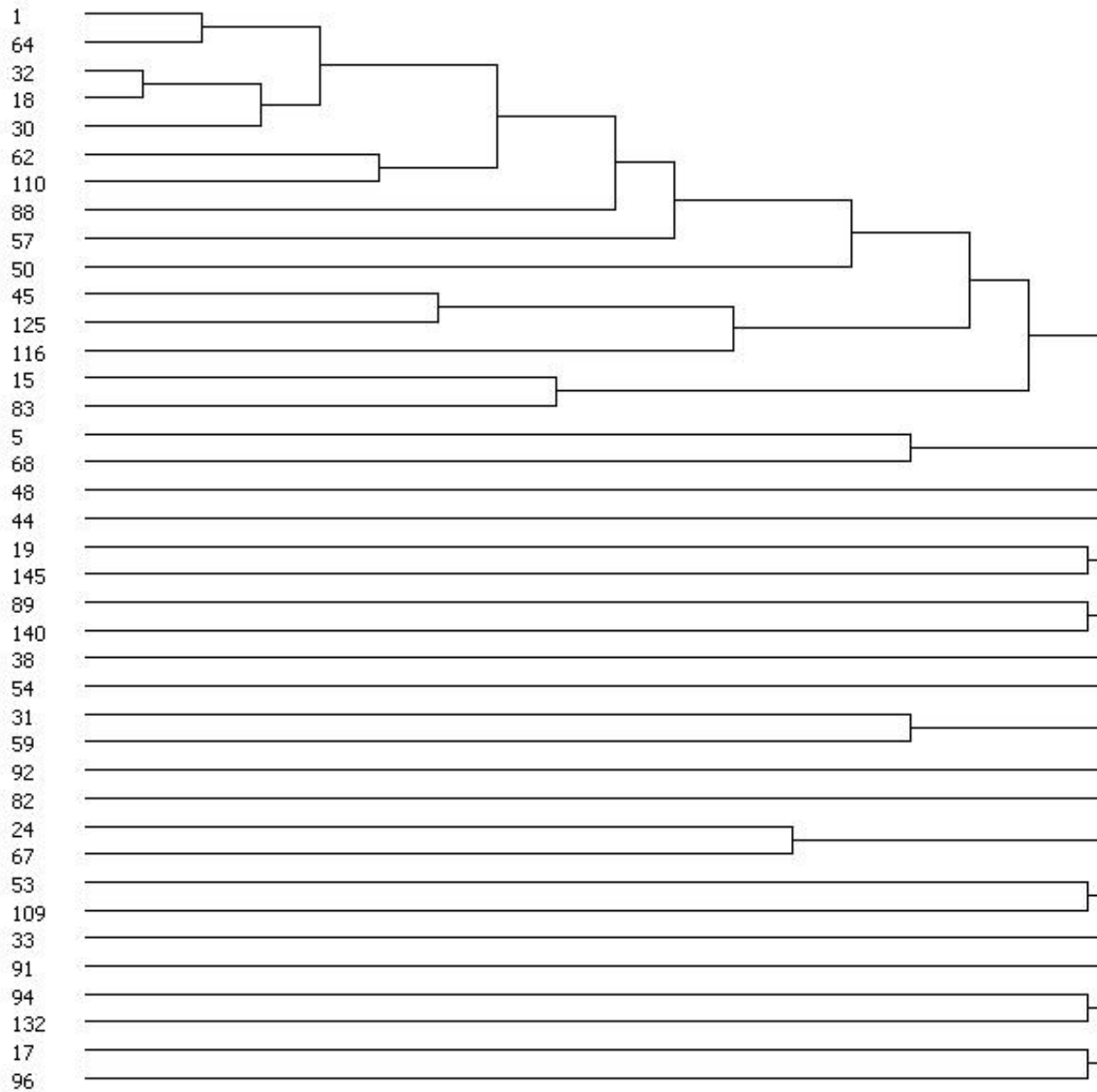
[Coworking](#)

Coworking is cafe-like community/collaboration space

TorCamp Google group social network







SOC with acquaintances and network centrality

- Membership and emotional connection (SOC) strongly correlated with number of acquaintances
- Degree and closeness centrality correlated with membership

Leaders in TorCamp

- Part of 17 or more 3-plexes seem to have higher sense of community
- 17 3-plexes: 18, 30
- 18 3-plexes: 64, 1
- 19 3-plexes: 110, 48, 32

YouTube vaccination videos

Akha Forced Vaccinations



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Akha women are made to take the tetan... [\(more\)](#)

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URL <http://www.youtube.com/watch?v=-dutK67AwS>

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03:33

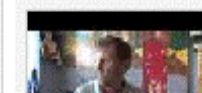
From: [BXTWINKLE](#)
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From: [charlenesachoi](#)
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03:42

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[akhazauh](#) (3 months ago)

[\(Reply\)](#)

The women often miscarry after these vaccinations. We have documented it many times, this program administered by WHO Bangkok and now in Afghanistan too, its population control.

[unhappylaura](#) (3 months ago)

0  

[\(Reply\)](#)

i wanted to see the shot be given and shits hurt thats why people dont get them id rather get sick then basically have someting shoved in my skin and then after that i have to pay for it

[gearzone2611](#) (3 months ago)

0  

[\(Reply\)](#)

Talk about government policy eh! I love the video guys! keep it up! No vaccine no ID card? Are they trying to enslaves these poor people?

[sorrellindustries](#) (6 months ago)

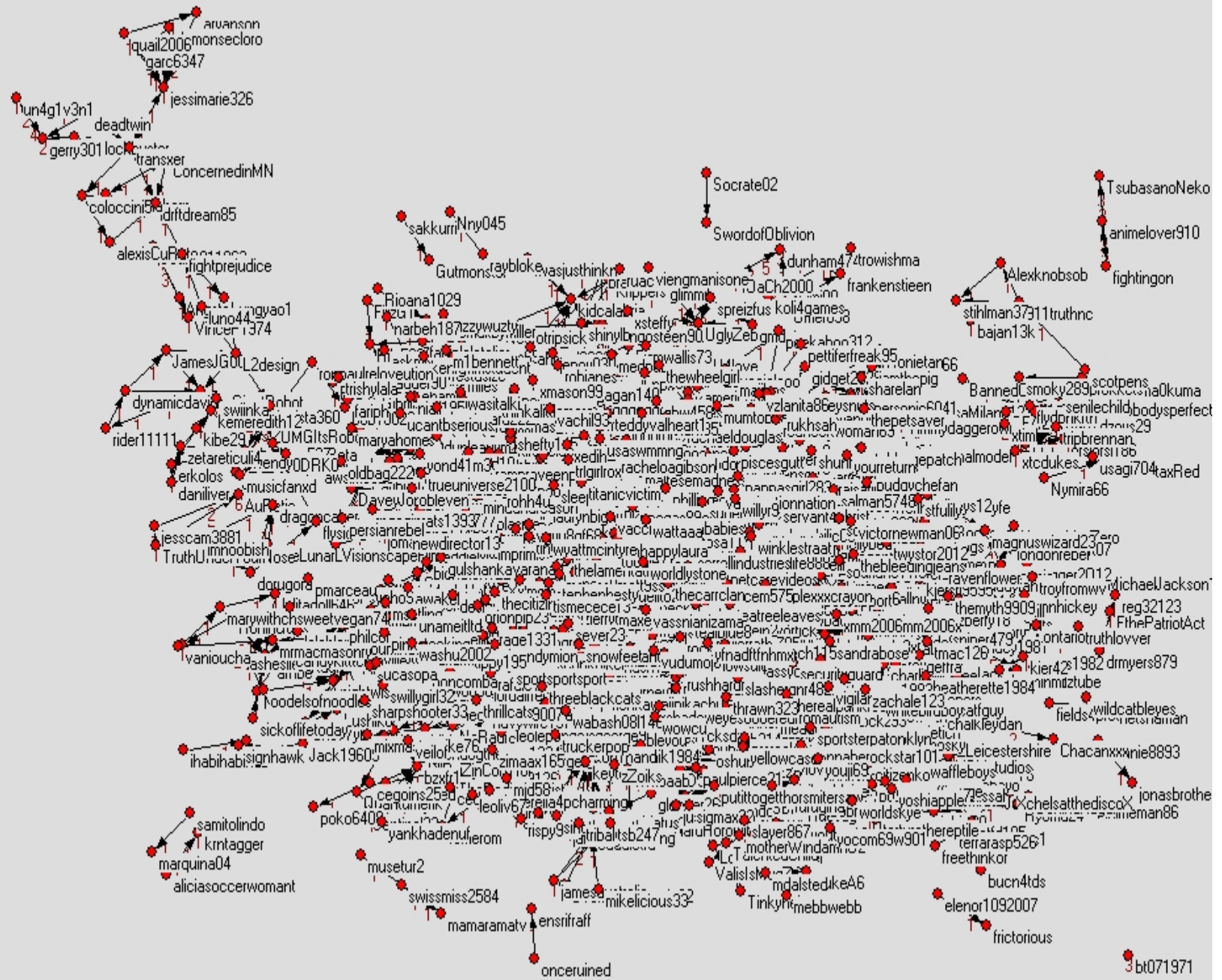
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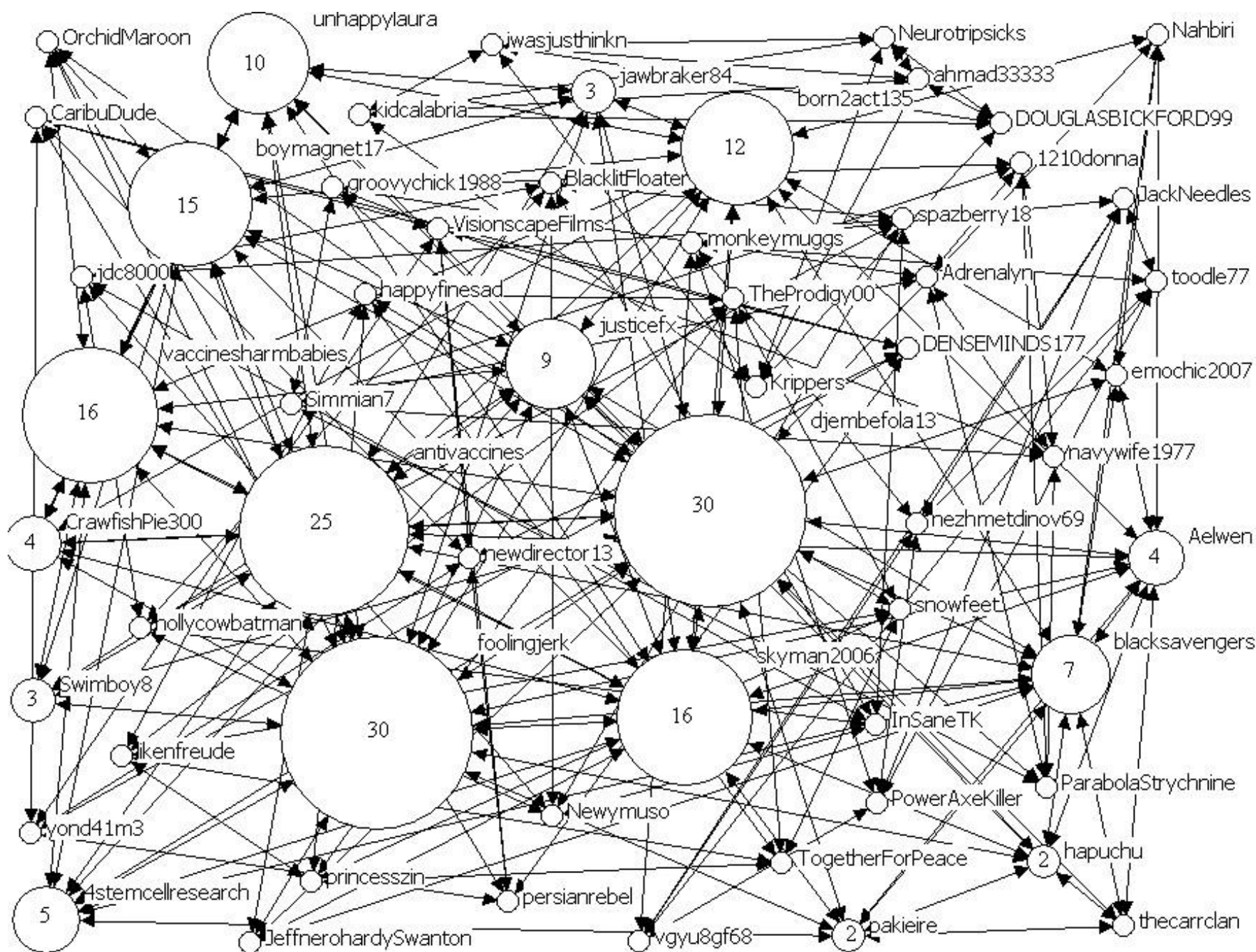
Glad you are there to help. Vaccines in the US cause Autism and other diseases from the Mercury and other poisons and heavy metals contained in the vaccines. Our pets are sick and dying young due to yearly vaccines. Do an herbal detox to flush out poisons and heavy metals.

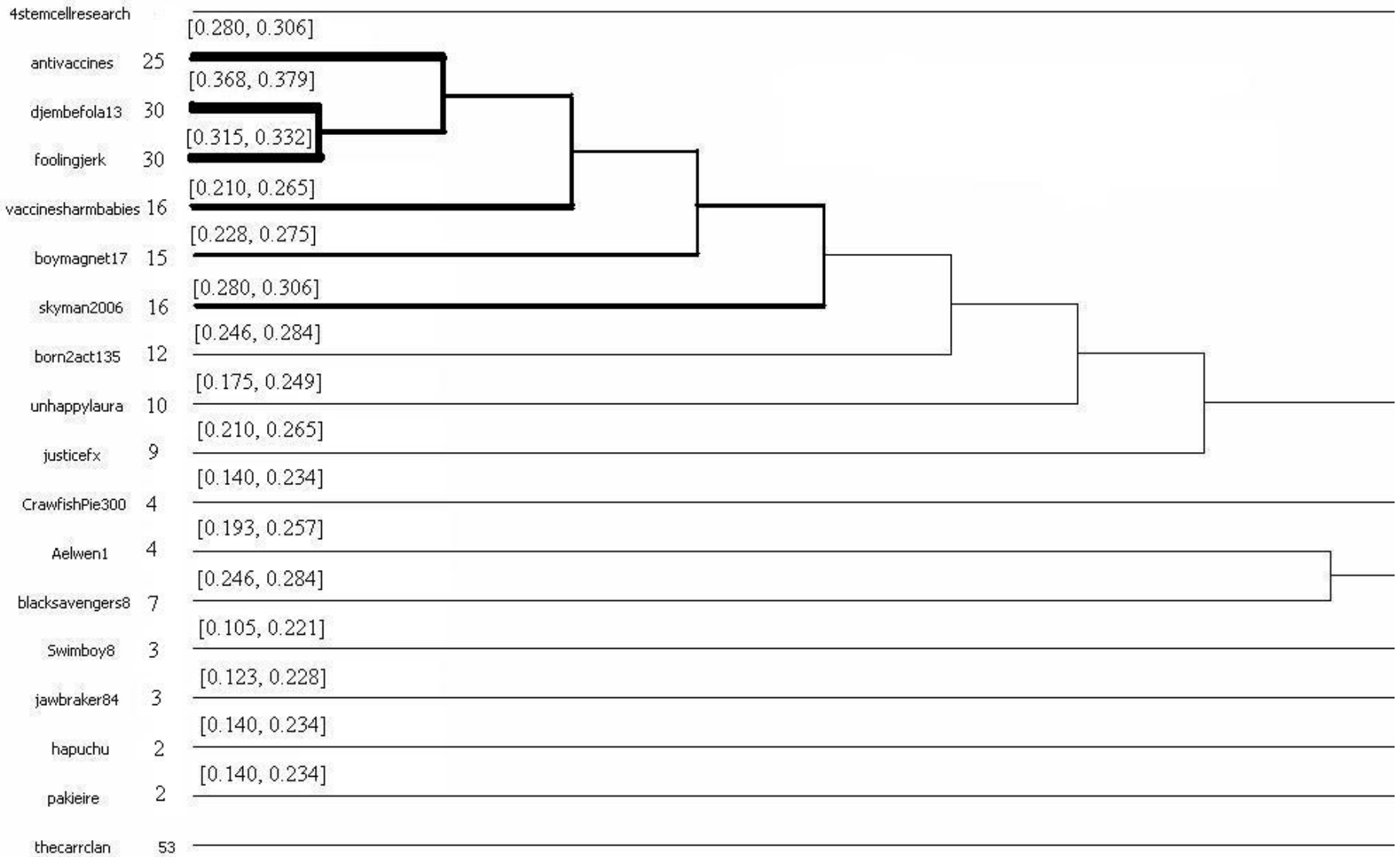
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Social network of videos tagged with “vaccination”



Subgroups and subcommunities in “vaccination” YouTube social network





Conclusions

- Presented method to identify and validate subgroups
- Identified subgroup and subcommunities in TorCamp and YouTube vaccination network
- Active subgroup members have higher sense of community
- Results could be used to identify leaders or experts

Acknowledgements



Bell University Laboratories

