INTERNET STUDIES LAB

HIGHER SCHOOL OF ECONOMICS
NATIONAL RESEARCH UNIVERSITY

Social Space of Online Networked Communities: Mapping AIDS-relevant Groups in «VK» SNS

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Research premises and subject

Social structure of online community

Structure exploration helps understand functioning and nature of online HIV/AIDS-relevant communities and factors that shape it.

Main forms of online interaction:

(1) Community participation (membership, posting, commenting, liking)
(2) Friendship relations

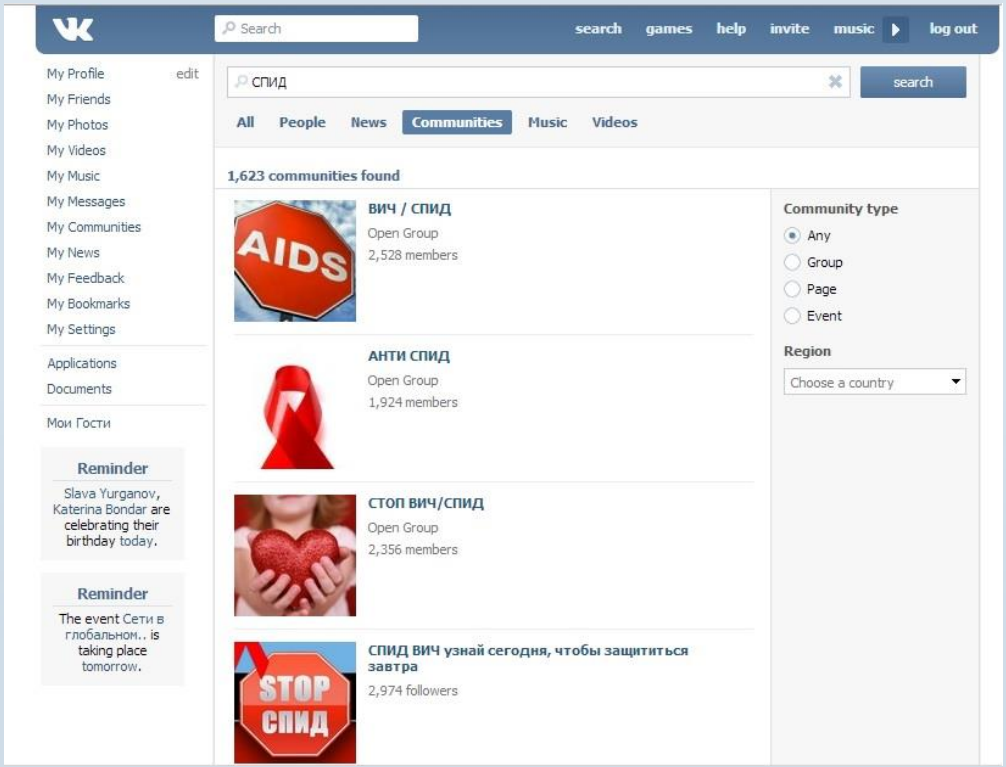
The online social structure can be represented by **friendship network maps** of community participants enriched by data on their **participation activity**. These maps tell us a story about community functioning and its participants behavior.

Research goals

(1) To compare community structures and identify typical patterns

(2) To identify what kinds of community these typical structures are associated with in terms of group's mission and topic.

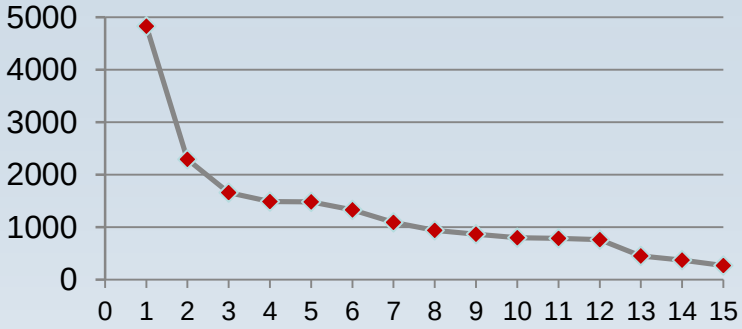
Online groups in “VK” SNS



Population - all online self-nominated groups in “VK” SNS relevant to HIV/AIDS subject (i.e. group pages with reference to HIV/AIDS in title)

Total = 987 groups
Filtered = 57 groups
Sample = 15 groups

Number of participants



Qualitative classification

1. HIV-activists groups (most popular type, uniting users who are against the AIDS spread)
2. HIV-positive dating groups
3. Support groups
4. Online projections of offline-realm organizations (medicine AIDS centers, foundations, etc)
5. AIDS-dissident movement groups (those who think HIV does not exist) / particular case of activists

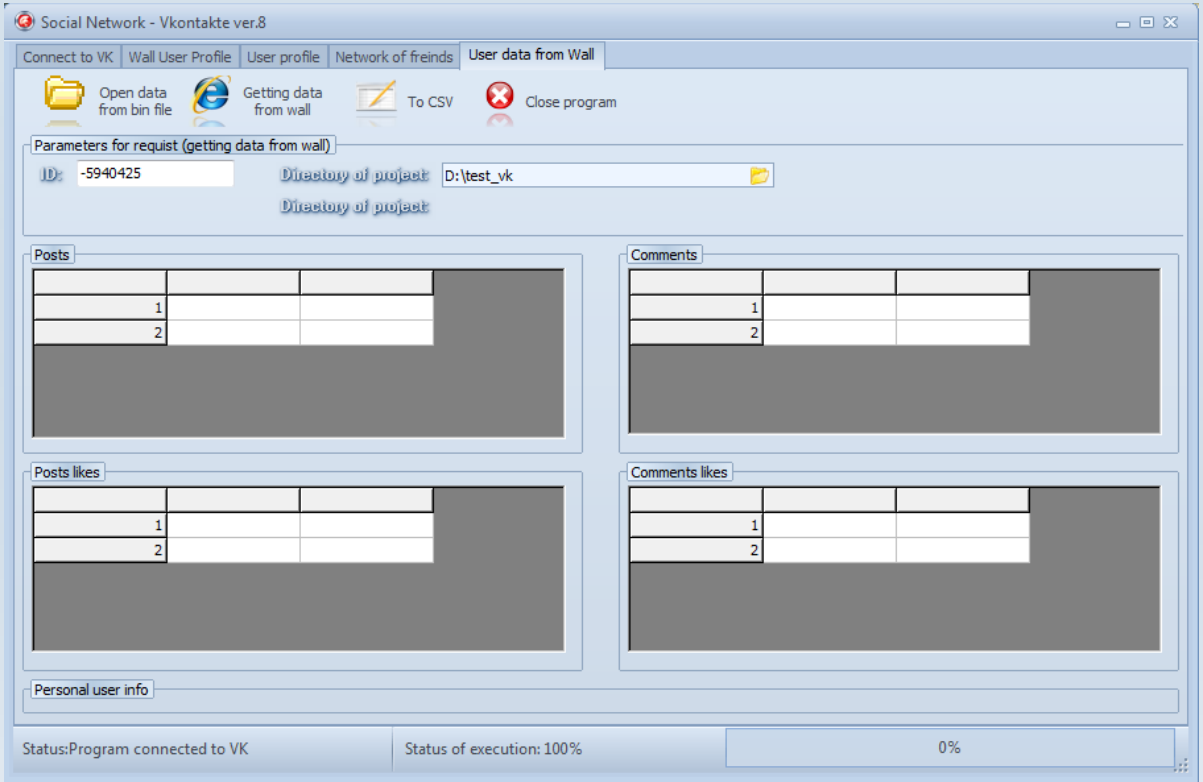
Data collection

Community = group's members + wall contributors

(1) Meta-data (gender, age, geographical location, etc.)

(2) Data on friendship relations (networks)

(3) Data on communicative activity from group's "walls" (posts, likes, comments)



Software:

VKminer

(Lab's soft)

I. Tight Crowd

Passive group member

Liker

Content contriubtor

Size - number of posted messages

I. Tight Crowd: summary

1. Single huge highly cohesive core
2. An average ratio of isolates (≈50%)
3. Participation forms and communication activity are not related to network composition
   (approx. same shares of content contributors, likers and passive members are located both inside core & outside core)

Relation between friendship centrality and communicative activity				
	Posts + comments	Received likes	Received comments	Likes
Degree centrality	.230**	.201**	.123**	**.251****
Betweenness centrality	.150**	.144**	.075	.179**
Page Rank	.217**	.195**	.115**	.250**

N = 942

**- Pearson correlation is significant at the 0.01 level (2-sides)

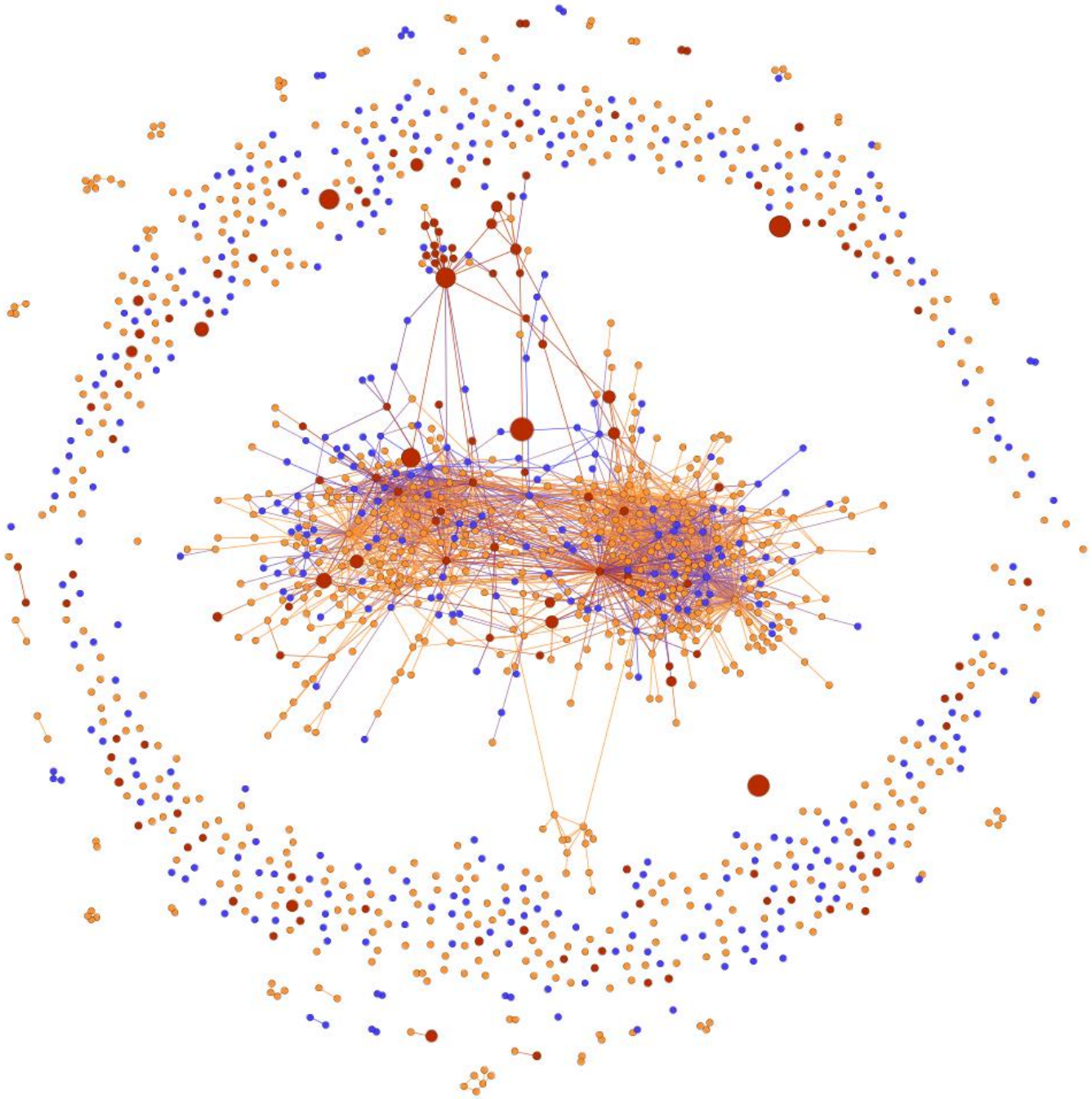
I. Tight Crowd: summary

4. The share of ties between clusters is 30% and higher.

"Tight crowd" community structure is associated with:
HIV-positive dating groups

Additional property:
Domination of heterogeneous ties in gender
≈ 70-80% male-female friendships (the only exception is dating group for HIV+ gays)

II. Bipolar Crowd



Passive group member

Liker

Content contriubtor

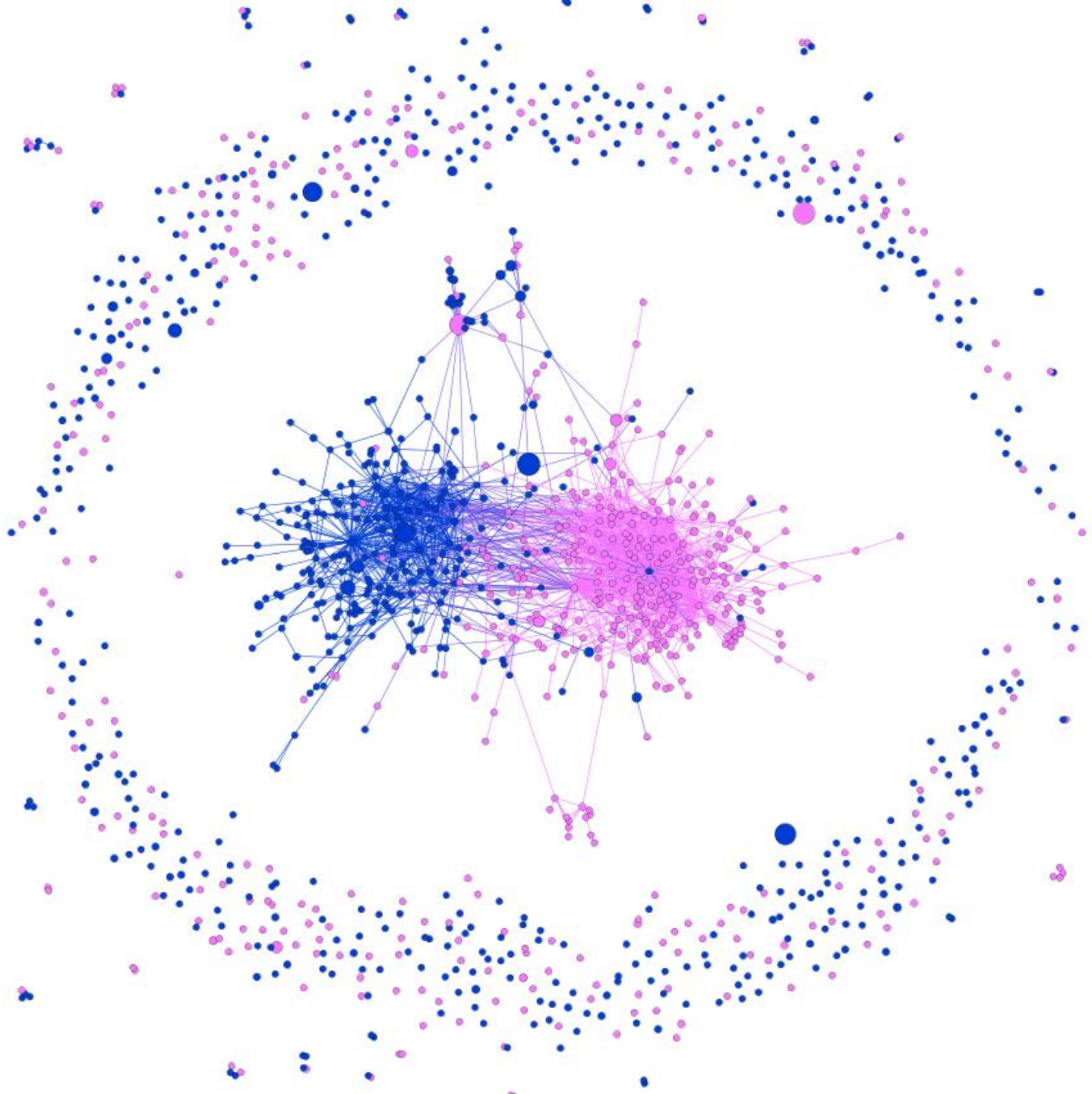
Size - number of posted messages

II. Bipolar Crowd: summary

1. Two big dense cores with little connection in between.
2. The share of ties between clusters is less than 20%.

Bipolar crowd structure corresponds to **HIV-positive dating group** and it is unique deviation among dating groups.

Why do dating groups so much differ from each other?

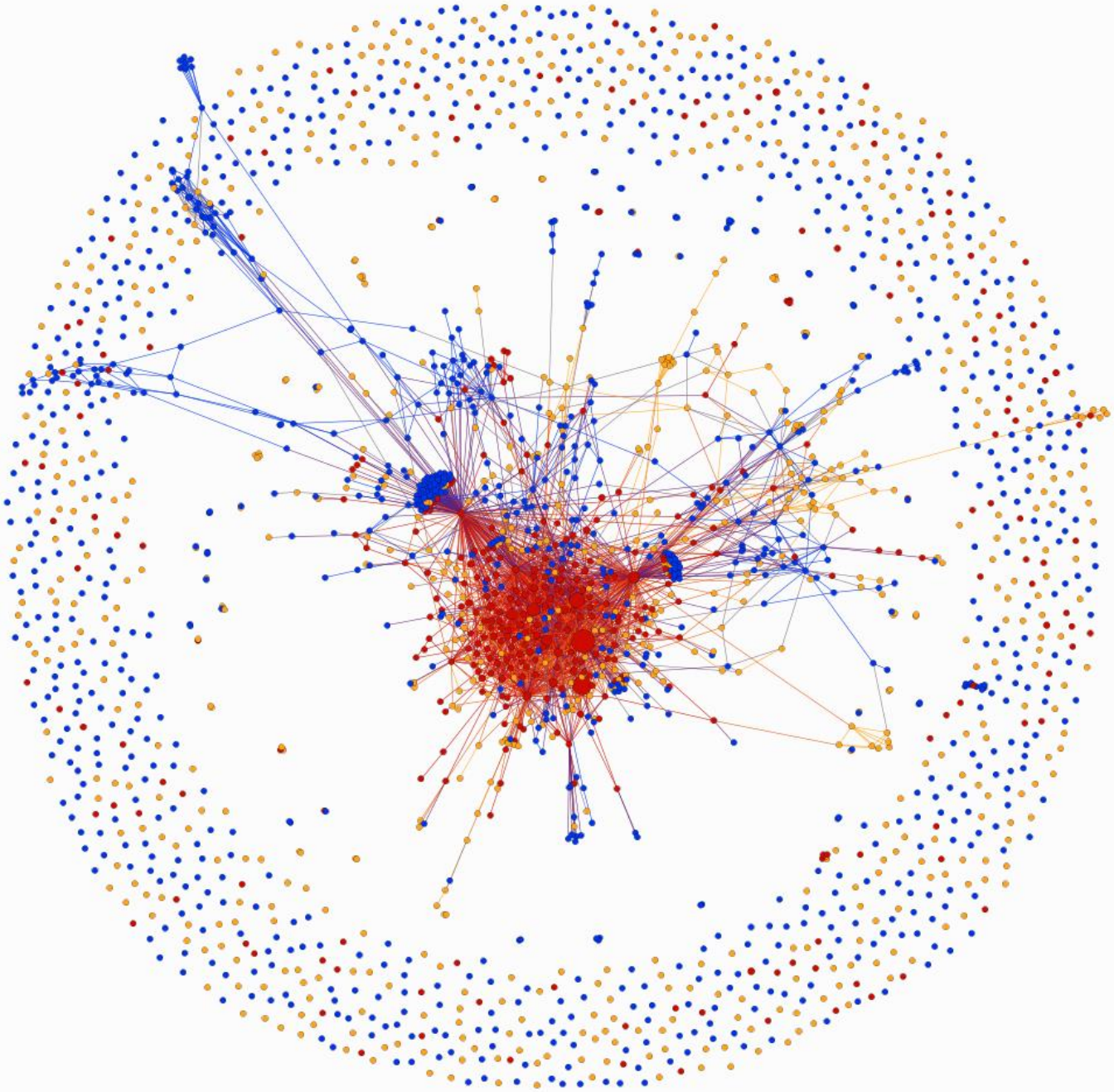


II. Bipolar Crowd

Female

Male

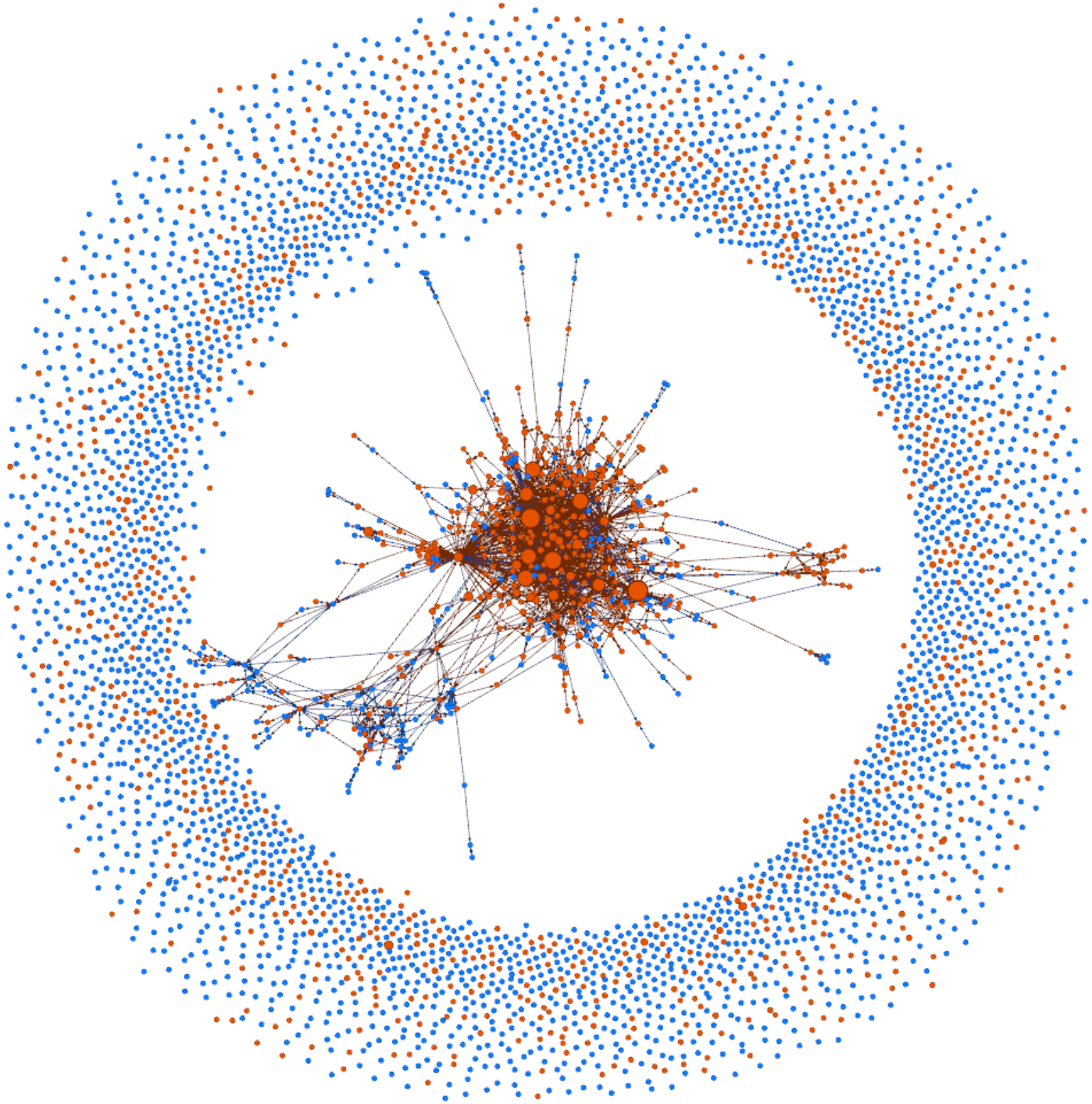
Size - number of posted messages



III. Stratified Structure

- Passive group member
- Liker
- Content contriubtor

Size - number of posted messages



III. Stratified Structure

Liker

Content contriubtor

Size - number of posted messages

III. Stratified structure: summary

1. Huge highly cohesive single core
2. An average ratio of isolates (50% and higher)
3. Participation behavior corresponds to network composition and communicative activity strongly correlate to friendship centrality

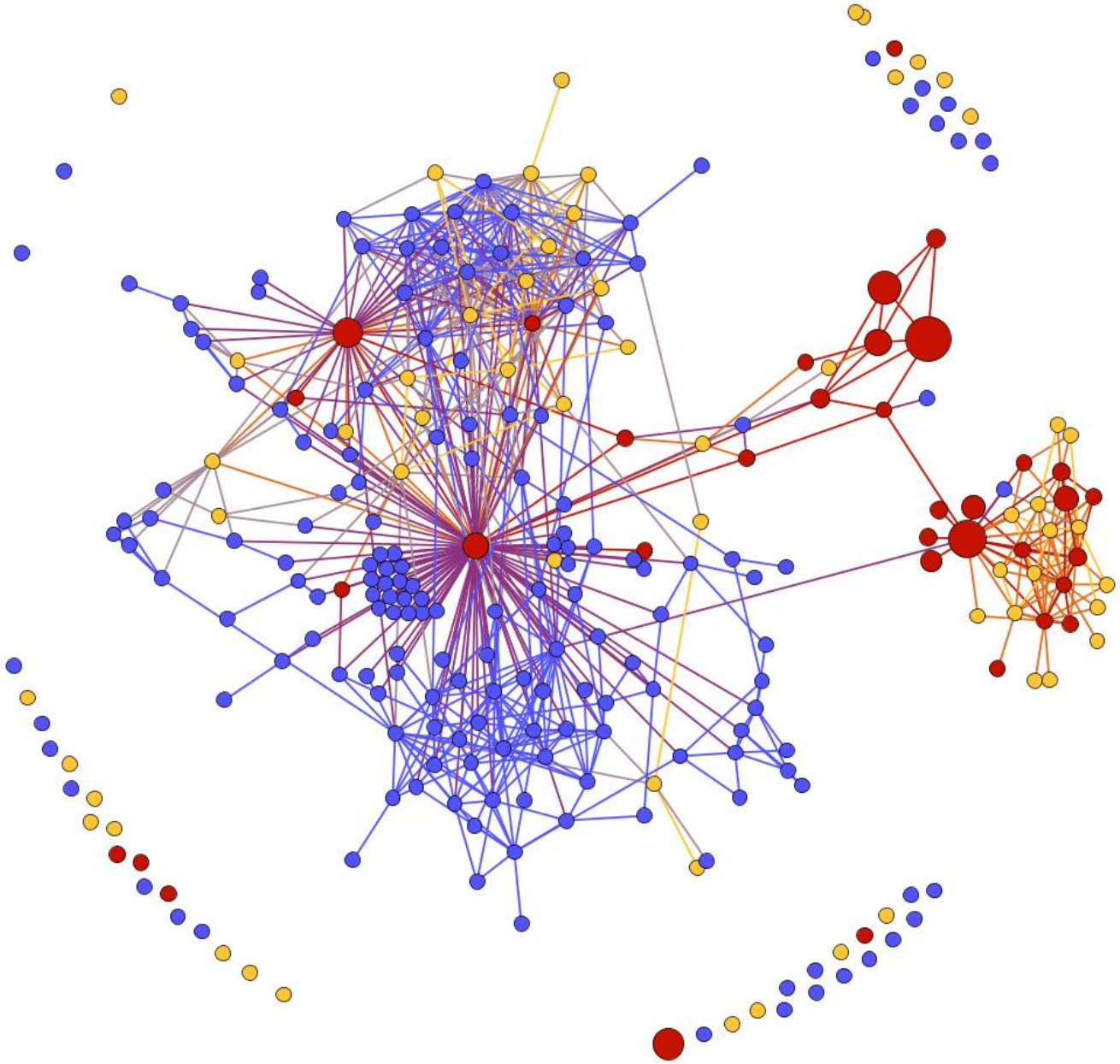
Relation between friendship centrality and communicative activity				
	Posts + comments	Received comments	Received likes	Likes
Degree centrality	0,592**	0,615**	**0,653****	0,369**
Betweenness centrality	0,375**	0,422**	0,445**	0,171**
Page Rank	0,544**	0,573**	0,602**	0,331**
N = 4828				
**- Pearson correlation is significant at the 0.01 level (2-sides)				

III. Stratified structure: summary

Structure are stratified in accordance to «core – periphery» pattern and user layers correspond both to intensity of communication and network centrality: (1) the majority of friendship ties are between wall contributors; (2) only few of them are between likers and passive members.
Network composition is affected by participation behavior - more active users become more central.

Stratified community structure is associated with:
HIV activists groups
AIDS-dissident movement groups

IV. Tight clusters



Passive group member

Liker

Content contriubtor

Size - number of posted messages

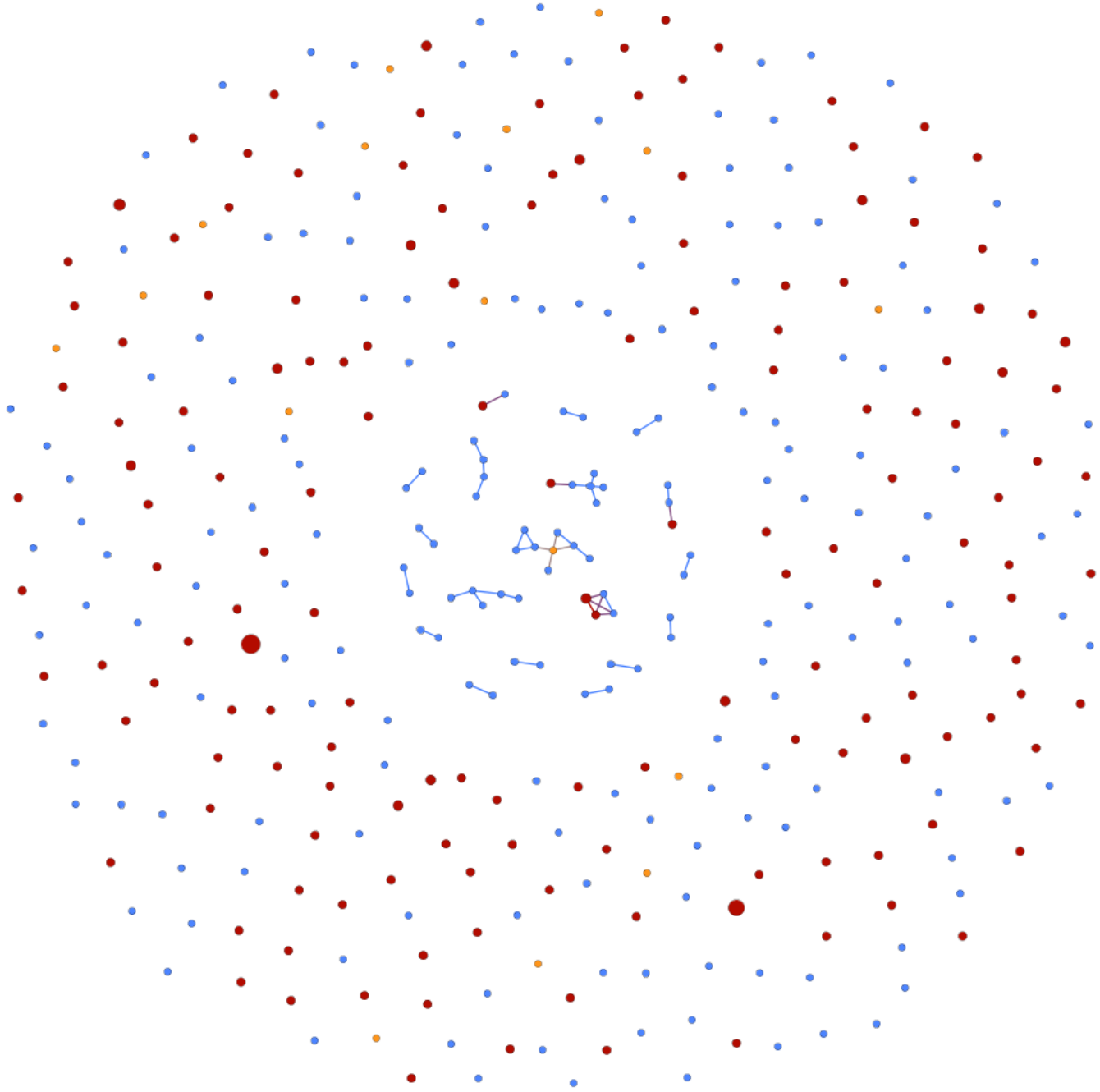
IV. Tight clusters structure: summary

1. The lowest share of isolates (19%)
2. Connected component easily divide to tight clusters; dense clusters have little connections between them (only 20% of ties are shared between clusters)
3. Each cluster formed around key actors (most active and central)
4. Participation behavior correspond to network composition

Relation between friendship centrality and communicative activity				
	Posts + comments	Received comments	Received likes	Likes
Degree centrality	0.236**	0.149	0.224**	0.597**
Betweenness centrality	0.336**	0.323**	0.403**	0.661**
Page Rank	0.277**	0.162**	0.252**	**0.673****
N = 268				
**- Pearson correlation is significant at the 0.01 level (2-sides)				

IV. Tight clusters structure: summary

Tight clusters community structure is associated with:
Offline-realm organizations groups



V. Disintegrated

Passive group member

Liker

Content contriubtor

Size - number of posted messages

Conclusion: structure types

Structure	Description	Group type	# of cases in the sample
"Tight crowd"	One large dense core; isolated & connected members contribute equally; male-female ties dominate	Dating groups	4
Bipolar crowd	2 antagonistic clusters	Muslim dating group	1
Stratified structure	One large dense core; mostly connected members contribute	HIV-activists groups; AIDS-dissidents groups	4
Tight clusters	Dense clusters have little ties in between; few isolates	Offline-realm organizations groups	3
Disintegrated	Isolates totally dominate, extremely low density; absence of community as itself	HIV and health activists	2
- Unclassified -	Controversial interpretation	Support group	1

Thank you for attention!

Comments & Questions?

Acknowledgments

This research project was carried out at the Laboratory for Internet Studies and funded by the Higher School of Economics' Basic Research Program