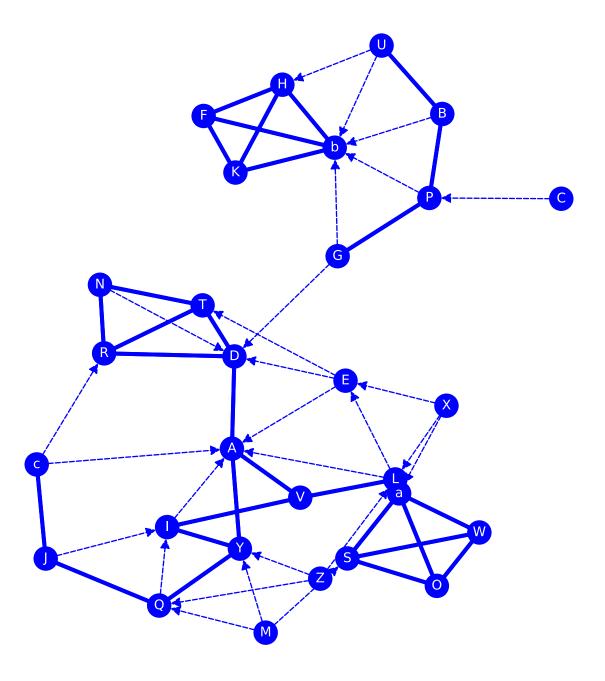


GROUP 1 - DEMO 2 NETWORK GRAPH

## A. Who would you choose to spend a free time outing with?

NN 29, NE 85, ND 10%, NC 12%, NT 58%, NR 68%





GROUP 1 - DEMO 2 RAW SCORES

# A. Who would you choose to spend a free time outing with?

ID	CHOICES	IC	PR	ВТ	CL	HU	ND
Α	D, V, Y	0.25	0.08	0.15	0.35	0.05	
В	P, U, b	0.07	0.01	0.02	0.10	0.02	
С	Р	0.00	0.01	0.00	0.00	0.01	←
D	A, R, T	0.21	0.08	0.14	0.34	0.07	
E	A, D, T	0.07	0.01	0.02	0.17	0.08	
F	b, H, K	0.11	0.06	0.00	0.16	0.02	
G	D, P, b	0.04	0.01	0.07	0.07	0.04	
Н	b, F, K	0.14	0.06	0.00	0.18	0.02	
I	A, V, Y	0.14	0.04	0.02	0.23	0.06	
J	I, Q, c	0.07	0.02	0.03	0.17	0.03	
K	b, F, H	0.11	0.06	0.00	0.16	0.02	
L	A, V, E	0.11	0.02	0.04	0.21	0.05	
M	Y, Q, S	0.00	0.01	0.00	0.00	0.03	←
N	D, R, T	0.07	0.04	0.00	0.21	0.06	
0	S, W, a	0.11	0.04	0.00	0.13	0.01	
Р	B, b, G	0.11	0.02	0.07	0.11	0.02	
Q	Y, I, J	0.14	0.03	0.05	0.22	0.04	
R	D, T, N	0.14	0.06	0.02	0.26	0.05	
S	O, W, a	0.14	0.04	0.00	0.15	0.01	
Т	D, R, N	0.14	0.06	0.01	0.27	0.05	
U	B, b, H	0.04	0.01	0.00	0.06	0.02	
V	A, I, L	0.11	0.05	0.05	0.26	0.05	
W	S, O, a	0.11	0.04	0.00	0.13	0.01	
X	E, L, a	0.00	0.01	0.00	0.00	0.02	←
Υ	A, I, Q	0.18	0.05	0.08	0.27	0.05	
Z	Y, Q, L	0.00	0.01	0.00	0.00	0.03	←
а	S, O, W	0.14	0.04	0.00	0.15	0.01	
b	F, H, K	0.25	0.07	0.02	0.25	0.02	
С	A, R, J	0.04	0.01	0.01	0.14	0.06	

IC In-Degree PR PageRank BT Betweenness CL Closenness HU Hub ND No In-Degree ( $\leftarrow$ ) No Out-Degree ( $\rightarrow$ ) No In or Out-Degree ( $\rightleftharpoons$ )



GROUP 1 - DEMO 2 RANK SCORES

## A. Who would you choose to spend a free time outing with?

ID	CHOICES	IC	PR	ВТ	CL	HU	ND
A	D, V, Y	1	1	1	1	7	
В	P, U, b	6	21	10	19	21	
С	Р	8	25	20	22	29	←
D	A, R, T	2	2	2	2	2	
E	A, D, T	6	20	12	13	1	
F	b, H, K	5	6	20	14	17	
G	D, P, b	7	22	4	20	12	
Н	b, F, K	4	4	18	11	20	
1	A, V, Y	4	11	11	7	4	
J	I, Q, c	6	19	9	12	16	
K	b, F, H	5	5	20	14	18	
L	A, V, E	5	17	8	10	11	
M	Y, Q, S	8	25	20	22	15	←
N	D, R, T	6	15	20	9	3	
0	S, W, a	5	14	20	17	25	
Р	B, b, G	5	18	5	18	22	
Q	Y, I, J	4	16	7	8	13	
R	D, T, N	4	8	14	5	8	
S	O, W, a	4	13	17	15	28	
Т	D, R, N	4	7	15	4	9	
U	B, b, H	7	24	19	21	19	
V	A, I, L	5	10	6	5	10	
W	S, O, a	5	14	20	17	26	
X	E, L, a	8	25	20	22	24	←
Υ	A, I, Q	3	9	3	3	6	
Z	Y, Q, L	8	25	20	22	14	←
а	S, O, W	4	12	17	15	27	
b	F, H, K	1	3	13	6	23	
С	A, R, J	7	23	16	16	5	

IC In-Degree PR PageRank BT Betweenness CL Closenness HU Hub ND No In-Degree (← ) No Out-Degree (→) No In or Out-Degree (⇄) Very low High Very high



**GROUP 1 - DEMO 2** 

# **NODES ORDERED BY RANK SCORES**

# A. Who would you choose to spend a free time outing with?

RANK	IC	RANK	PR	RANK	вт	RANK	CL	RANK	HU
1	A	1	A	1	A	1	A	1	Е
1	b	2	D	2	D	2	D	2	D
2	D	3	b	3	Υ	3	Υ	3	N
3	Υ	4	Н	4	G	4	Т	4	I
4	Н	5	K	5	Р	5	R	5	С
4	1	6	F	6	V	5	V	6	Υ
4	Q	7	Т	7	Q	6	b	7	Α
4	R	8	R	8	L	7	I	8	R
4	S	9	Υ	9	J	8	Q	9	Т
4	Т	10	V	10	В	9	N	10	V
4	а	11	1	11	I	10	L	11	L
5	F	12	а	12	Е	11	Н	12	G
5	K	13	S	13	b	12	J	13	Q
5	L	14	0	14	R	13	Е	14	Z
5	0	14	W	15	T	14	F	15	М
5	Р	15	N	16	С	14	K	16	J
5	V	16	Q	17	S	15	S	17	F
5	W	17	L	17	а	15	а	18	K
6	В	18	Р	18	Н	16	С	19	U
6	Е	19	J	19	U	17	0	20	Н
6	J	20	Е	20	С	17	W	21	В
6	N	21	В	20	F	18	Р	22	Р
7	G	22	G	20	K	19	В	23	b
7	U	23	С	20	М	20	G	24	Χ
7	С	24	U	20	N	21	U	25	0
8	С	25	С	20	0	22	С	26	W
8	М	25	М	20	W	22	М	27	а
8	X	25	Χ	20	Χ	22	Χ	28	S
8	Z	25	Z	20	Z	22	Z	29	С

 ${f IC}$  In-Degree  ${f PR}$  PageRank  ${f BT}$  Betweenness  ${f CL}$  Closenness  ${f HU}$  Hub



GROUP 1 - DEMO 2 TYPES OF EDGES

#### A. Who would you choose to spend a free time outing with? Type I - Non reciprocal edges $X \to Y$ in network $A \cdot$ not $Y \to X$ in network AВb СP G D G b IΑ JI LA LΕ ΜQ MSΜY ΝD Рb QΙ UH Ub ΕD ΕT ΧE XLZLΖQ Ха ΖY сΑ c R

## Type II - Reciprocal edges

 $X \to Y$  in network  $A \cdot Y \to X$  in network A



# Type III - Half symmetrical edges

 $X \to Y$  in network  $A \cdot X \to Y$  in network B

## Type IV - Reversed half symmetrical edges

 $X \to Y$  in network  $A \cdot Y \to X$  in network B

# Type V - Full symmetrical edges

 $X \to Y,\, Y \to X$  in network  $A \cdot X \to Y,\, Y \to X$  in network B

FH Fb Hb Kb Oa RT



GROUP 1 - DEMO 2 NETWORK COMPONENTS

A. Who would you choose to spend a free time outing with?

**Connected components** 

A · B · C · D · E · F · G · H · I · J · K · L · M · N · O · P · Q · R · S · T · U · V · W · X · Y · Z · a · b · c

13 A·D·E·I·J·L·N·Q·R·T·V·Y·c 4 F·H·K·b B·G·P·U O·S·W·a D·N·R·T

3 Q·Y·Z A·I·V D·E·T I·J·Q A·I·Y B·U·b H·U·b A·E·L G·P·b

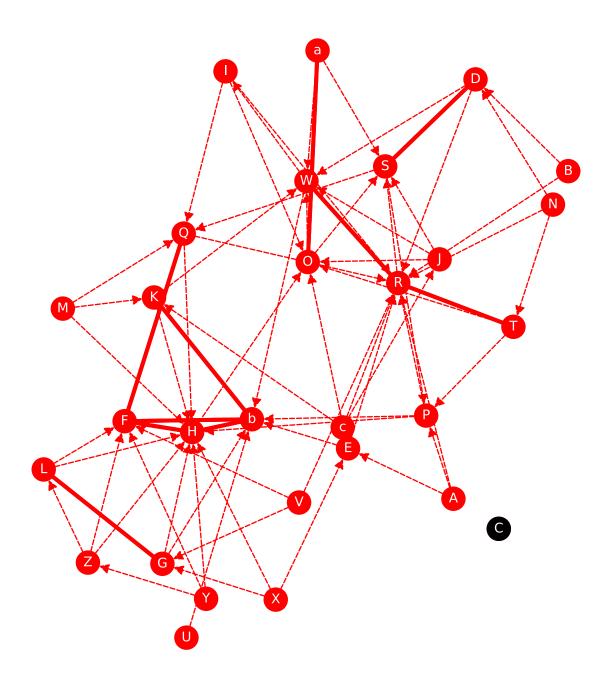
 $\left( \begin{array}{c} \mathsf{A} \cdot \mathsf{L} \cdot \mathsf{V} \end{array} \right) \left( \begin{array}{c} \mathsf{A} \cdot \mathsf{D} \cdot \mathsf{E} \end{array} \right) \left( \begin{array}{c} \mathsf{M} \cdot \mathsf{Q} \cdot \mathsf{Y} \end{array} \right) \left( \begin{array}{c} \mathsf{E} \cdot \mathsf{L} \cdot \mathsf{X} \end{array} \right) \left( \begin{array}{c} \mathsf{B} \cdot \mathsf{P} \cdot \mathsf{b} \end{array} \right) \left( \begin{array}{c} \mathsf{I} \cdot \mathsf{Q} \cdot \mathsf{Y} \end{array} \right)$ 



GROUP 1 - DEMO 2 NETWORK GRAPH

## B. Who would you choose to organize a study group?

NN 29, NE 81, ND 10%, NC 31%, NT 32%, NR 25%





GROUP 1 - DEMO 2 RAW SCORES

## B. Who would you choose to organize a study group?

ID	CHOICES	IC	PR	ВТ	CL	HU	ND
Α	E, P, R	0.00	0.01	0.00	0.00	0.03	<b>←</b>
В	R, D	0.00	0.01	0.00	0.00	0.03	←
С	-	0.00	0.01	0.00	0.00	0.00	$\rightleftharpoons$
D	R, S, W	0.11	0.03	0.01	0.32	0.04	
E	R, O, b	0.07	0.01	0.01	0.07	0.05	
F	b, H, Q	0.25	0.10	0.04	0.44	0.05	
G	b, H, L	0.11	0.01	0.01	0.11	0.04	
Н	O, b, F	0.39	0.12	0.09	0.51	0.04	
1	R, O, Q	0.04	0.03	0.01	0.33	0.04	
J	S, W, O	0.04	0.01	0.01	0.04	0.02	
K	W, b, H	0.11	0.04	0.02	0.37	0.05	
L	F, H, G	0.07	0.01	0.00	0.11	0.04	
М	H, Q, K	0.00	0.01	0.00	0.00	0.04	←
N	R, D, T	0.00	0.01	0.00	0.00	0.03	←
0	S, W, a	0.21	0.07	0.10	0.49	0.01	
Р	R, b, H	0.11	0.04	0.02	0.33	0.06	
Q	R, F, H	0.14	0.06	0.04	0.43	0.06	
R	S, W, T	0.43	0.09	0.10	0.51	0.01	
S	P, D, Q	0.18	0.07	0.08	0.43	0.01	
T	P, R, O	0.07	0.03	0.02	0.34	0.04	
U	b	0.00	0.01	0.00	0.00	0.02	←
V	R, F, G	0.00	0.01	0.00	0.00	0.04	←
W	R, b, I	0.21	0.08	0.08	0.47	0.04	
X	E, H, G	0.00	0.01	0.00	0.00	0.03	←
Υ	F, H, Z	0.00	0.01	0.00	0.00	0.04	←
Z	F, H, L	0.04	0.01	0.00	0.04	0.04	
а	S, W, O	0.04	0.02	0.00	0.33	0.02	
b	F, H, K	0.29	0.12	0.07	0.53	0.04	
С	R, J, K	0.00	0.01	0.00	0.00	0.03	←

IC In-Degree PR PageRank BT Betweenness CL Closenness HU Hub ND No In-Degree ( $\leftarrow$ ) No Out-Degree ( $\rightarrow$ ) No In or Out-Degree ( $\rightleftharpoons$ )



GROUP 1 - DEMO 2 RANK SCORES

## B. Who would you choose to organize a study group?

ID	CHOICES	IC	PR	ВТ	CL	HU	ND
A	E, P, R	11	19	19	16	19	←
В	R, D	11	19	19	16	22	←
С	-	11	19	19	16	28	$\rightleftharpoons$
D	R, S, W	8	12	13	12	17	
E	R, O, b	9	17	12	14	3	
F	b, H, Q	4	3	8	5	5	
G	b, H, L	8	15	14	13	7	
Н	O, b, F	2	2	3	2	11	
I	R, O, Q	10	13	16	11	14	
J	S, W, O	10	18	15	15	23	
K	W, b, H	8	9	11	8	4	
L	F, H, G	9	16	17	13	6	
M	H, Q, K	11	19	19	16	16	←
N	R, D, T	11	19	19	16	21	←
Ο	S, W, a	5	6	2	3	27	
Р	R, b, H	8	10	10	11	1	
Q	R, F, H	7	8	7	7	2	
R	S, W, T	1	4	1	2	25	
S	P, D, Q	6	7	4	6	26	
Т	P, R, O	9	11	9	9	15	
U	b	11	19	19	16	24	←
V	R, F, G	11	19	19	16	9	←
W	R, b, I	5	5	5	4	12	
X	E, H, G	11	19	19	16	18	←
Υ	F, H, Z	11	19	19	16	13	←
Z	F, H, L	10	18	18	15	10	
а	S, W, O	10	14	19	10	23	
b	F, H, K	3	1	6	1	8	
С	R, J, K	11	19	19	16	20	<b>←</b>

IC In-Degree PR PageRank BT Betweenness CL Closenness HU Hub ND No In-Degree (← ) No Out-Degree (→) No In or Out-Degree (⇄) Very low High Very high



**GROUP 1 - DEMO 2** 

# **NODES ORDERED BY RANK SCORES**

## B. Who would you choose to organize a study group?

RANK	IC	RANK	PR	RANK	ВТ	RANK	CL	RANK	HU
1	R	1	b	1	R	1	b	1	Р
2	Н	2	Н	2	0	2	Н	2	Q
3	b	3	F	3	Н	2	R	3	Е
4	F	4	R	4	S	3	0	4	K
5	0	5	W	5	W	4	W	5	F
5	W	6	0	6	b	5	F	6	L
6	S	7	S	7	Q	6	S	7	G
7	Q	8	Q	8	F	7	Q	8	b
8	D	9	K	9	Т	8	K	9	V
8	G	10	Р	10	Р	9	Т	10	Z
8	K	11	Т	11	K	10	а	11	Н
8	Р	12	D	12	Е	11	1	12	W
9	Е	13	1	13	D	11	Р	13	Υ
9	L	14	а	14	G	12	D	14	1
9	T	15	G	15	J	13	G	15	Т
10	I	16	L	16	I	13	L	16	М
10	J	17	Е	17	L	14	Е	17	D
10	Z	18	J	18	Z	15	J	18	Χ
10	а	18	Z	19	Α	15	Z	19	Α
11	Α	19	Α	19	В	16	Α	20	С
11	В	19	В	19	С	16	В	21	Ν
11	С	19	С	19	M	16	С	22	В
11	М	19	M	19	N	16	M	23	J
11	N	19	N	19	U	16	N	23	а
11	U	19	U	19	V	16	U	24	U
11	V	19	V	19	Χ	16	V	25	R
11	Χ	19	Χ	19	Υ	16	Χ	26	S
11	Υ	19	Υ	19	а	16	Υ	27	0
11	С	19	С	19	С	16	С	28	С

 ${f IC}$  In-Degree  ${f PR}$  PageRank  ${f BT}$  Betweenness  ${f CL}$  Closenness  ${f HU}$  Hub



GROUP 1 - DEMO 2 TYPES OF EDGES

# B. Who would you choose to organize a study group?

#### Type I - Non reciprocal edges

 $X \rightarrow Y$  in network B  $\cdot$  not  $Y \rightarrow X$  in network B

ΑE ΑP ARВD BRDRD W ΕO  $\mathsf{E}\,\mathsf{R}$ Εb GΗ G b ΗО 10 ΙQ IR LH ΚН KWLF ΜН M Q N D NRNT osO W РΗ QH MKSP VF V G W b SQ ΤO ΤP U b VRWΙ XΕ ΧG ΧН ΥF ZL a W a S c K сJ сR

## Type II - Reciprocal edges

 $X \to Y$  in network  $B \cdot Y \to X$  in network B

DS (FH) (FQ) (Fb) (GL) (Hb) (Kb) (Oa) (RT) (RW)

## Type III - Half symmetrical edges

 $X \to Y$  in network  $B \cdot X \to Y$  in network A

#### Type IV - Reversed half symmetrical edges

 $X \to Y$  in network  $B \cdot Y \to X$  in network A

DR [HF] [ | Q | ΚH NR NT OS O W TRYΖ аΟ a S a W bΕ bΗ bΚ сJ

## Type V - Full symmetrical edges

 $X \to Y,\, Y \to X$  in network  $B \, \cdot \, X \to Y,\, Y \to X$  in network A

(FH)(Fb)(Hb)(Kb)(Oa)(RT)

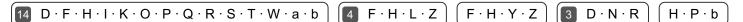


GROUP 1 - DEMO 2 NETWORK COMPONENTS

#### B. Who would you choose to organize a study group?

#### **Connected components**





$$P \cdot R \cdot T$$
  $D \cdot R \cdot W$   $I \cdot Q \cdot R$   $F \cdot H \cdot Q$   $G \cdot H \cdot L$   $D \cdot R \cdot S$   $I \cdot R \cdot W$   $G \cdot H \cdot b$   $H \cdot K \cdot b$ 

$$\left( \hspace{.1cm} \mathsf{H} \cdot \mathsf{K} \cdot \mathsf{M} \hspace{.1cm} \right) \left( \hspace{.1cm} \mathsf{F} \cdot \mathsf{H} \cdot \mathsf{b} \hspace{.1cm} \right) \left( \hspace{.1cm} \mathsf{J} \cdot \mathsf{O} \cdot \mathsf{W} \hspace{.1cm} \right) \left( \hspace{.1cm} \mathsf{Q} \cdot \mathsf{R} \cdot \mathsf{S} \hspace{.1cm} \right) \left( \hspace{.1cm} \mathsf{K} \cdot \mathsf{W} \cdot \mathsf{b} \hspace{.1cm} \right) \left( \hspace{.1cm} \mathsf{O} \cdot \mathsf{W} \cdot \mathsf{a} \hspace{.1cm} \right) \left( \hspace{.1cm} \mathsf{A} \cdot \mathsf{E} \cdot \mathsf{R} \cdot \mathsf{R} \cdot \mathsf{A} \cdot \mathsf{$$