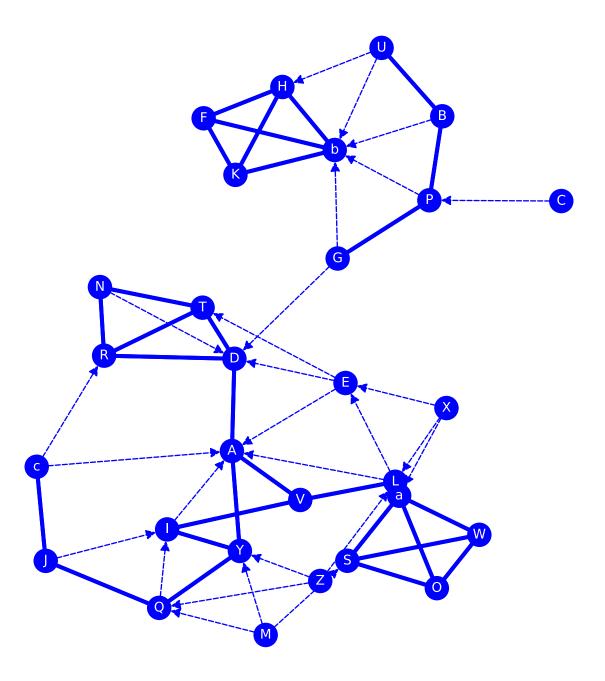


GROUP 1 - DEMO 2 NETWORK GRAPH

### 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
A	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	
Е	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	0.03	
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	0.03	
L	A, V, E	0.11	0.02	0.04	0.21	0.05	
М	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	0.01	0.27	0.05	
S	O, W, a	0.14	0.04	0.00	0.15	0.01	
T	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	0.27	0.05	
W	S, O, a	0.11	0.04	0.00	0.13	0.01	
Χ	E, L, a	0.00	0.01	0.00	0.00	0.01	←
Υ	A, I, Q	0.18	0.05	0.08	0.28	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 (← ) No Out-Degree (→) No In or Out-Degree (⇌)



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	20	
С	Р	8	25	20	22	28	<b>←</b>
D	A, R, T	2	2	2	2	2	
Е	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	19	
I	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	17	
L	A, V, E	5	17	8	10	11	
М	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	21	
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	27	
T	D, R, N	4	7	15	4	9	
U	B, b, H	7	24	19	21	18	
V	A, I, L	5	10	6	5	10	
W	S, O, a	5	14	20	17	24	
Χ	E, L, a	8	25	20	22	23	←
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	26	
b	F, H, K	1	3	13	6	22	
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 ( $\rightleftharpoons$ ) ■ Very low ■ 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	Α	1	Α	1	Α	1	E
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	1	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	I	11	I	10	L	11	L
5	F	12	а	12	E	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	Т	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	17	K
6	В	18	Р	18	Н	16	С	18	U
6	Ε	19	J	19	U	17	0	19	Н
6	J	20	Е	20	С	17	W	20	В
6	N	21	В	20	F	18	Р	21	Р
7	G	22	G	20	K	19	В	22	b
7	U	23	С	20	М	20	G	23	Χ
7	С	24	U	20	N	21	U	24	W
8	С	25	С	20	0	22	С	25	0
8	М	25	М	20	W	22	М	26	а
8	Χ	25	Χ	20	Χ	22	Χ	27	S
8	Z	25	Z	20	Z	22	Z	28	С

IC = In-Degree PR = PageRank BT = Betweenness CL = Closenness HU = Hub



**TYPES OF EDGES GROUP 1 - DEMO 2** 

#### A. Who would you choose to spend a free time outing with? Type I - Non reciprocal edges $X \to Y$ in network $B \cdot not Y \to X$ in network A Вb СP G D G b ΙA JI) [LA] LE MQMS ΜY N D Рb QΙ UH Ub ZQΧE XLХа ZLType II - Reciprocal edges $X \to Y$ in network $B \cdot Y \to X$ in network BGΡ ΗК Нb A D DR DT Fb Κb ВΡ ВU o s O a NRΝT O W QY RTS W S a W a Type III - Half symmetrical edges $X \rightarrow Y$ in network $B \cdot X \rightarrow Y$ in network A Рb U b DRΜQ NRΝT os $\mathsf{O}\,\mathsf{W}$ G b Type IV - Reversed half symmetrical edges $X \rightarrow Y$ in network $B \cdot Y \rightarrow X$ in network A

# Sa

Type V - Full symmetrical edges

Jс

HK

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

W a

FΗ F b Нb Κb Оа RT



GROUP 1 - DEMO 2 NETWORK COMPONENTS

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

**Connected components** 

29 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

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

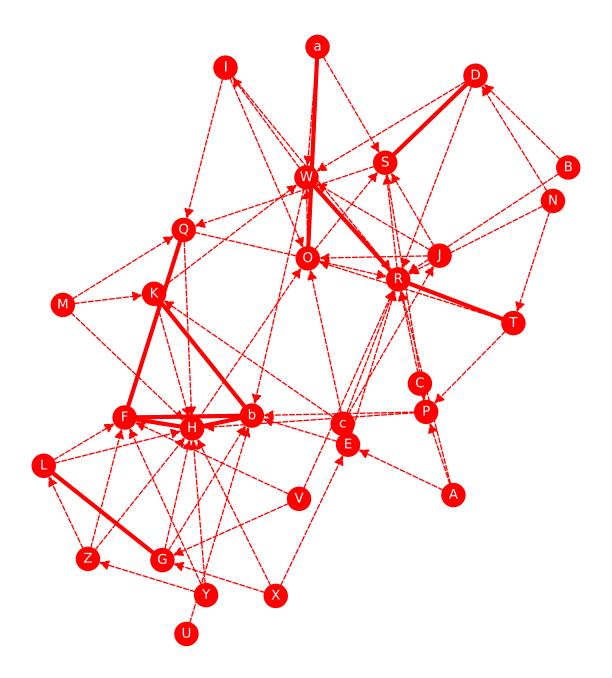
 $egin{pmatrix} \mathsf{B}\cdot\mathsf{U}\cdot\mathsf{b} \end{pmatrix} egin{pmatrix} \mathsf{E}\cdot\mathsf{L}\cdot\mathsf{X} \end{pmatrix} egin{pmatrix} \mathsf{I}\cdot\mathsf{Q}\cdot\mathsf{Y} \end{pmatrix} egin{pmatrix} \mathsf{D}\cdot\mathsf{E}\cdot\mathsf{T} \end{pmatrix} egin{pmatrix} \mathsf{Q}\cdot\mathsf{Y}\cdot\mathsf{Z} \end{bmatrix}$ 



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	$\rightleftarrows$
D	R, S, W	0.11	0.03	0.01	0.32	0.04	
Е	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	
I	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	<b>←</b>
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	<b>←</b>
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	
Χ	E, H, G	0.00	0.01	0.00	0.00	0.03	<b>←</b>
Υ	F, H, Z	0.00	0.01	0.00	0.00	0.04	<b>←</b>
Z	F, H, L	0.04	0.01	0.00	0.04	0.04	
а	S, W, O	0.04	0.03	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	<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 (⇌)



GROUP 1 - DEMO 2 RANK SCORES

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

ID	CHOICES	IC	PR	ВТ	CL	HU	ND
А	E, P, R	11	19	19	16	19	<del></del>
В	R, D	11	19	19	16	22	←
С	-	11	19	19	16	28	$\rightleftharpoons$
D	R, S, W	8	12	13	12	17	
Е	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	
1	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	
М	H, Q, K	11	19	19	16	16	←
N	R, D, T	11	19	19	16	21	←
0	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	
T	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	
Χ	E, H, G	11	19	19	16	18	←
Υ	F, H, Z	11	19	19	16	13	<b>←</b>
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	←

**IC** = In-Degree **PR** = PageRank **BT** = Betweenness **CL** = Closenness **HU** = Hub **ND** = No In-Degree (← ) No Out-Degree (→) No In or Out-Degree ( $\rightleftarrows$ ) **Were Very Injection** 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	I	12	W
9	Е	13	I	13	D	11	Р	13	Υ
9	L	14	а	14	G	12	D	14	I
9	Т	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	N
11	С	19	С	19	М	16	С	22	В
11	M	19	М	19	N	16	М	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	Х	19	Υ	16	Х	26	S
11	Υ	19	Υ	19	а	16	Υ	27	0
11	С	19	С	19	С	16	С	28	С

IC = In-Degree PR = PageRank BT = Betweenness CL = Closenness HU = Hub



GROUP 1 - DEMO 2 TYPES OF EDGES

#### B. Who would you choose to organize a study group? Type I - Non reciprocal edges $X \to Y$ in network $B \cdot not Y \to X$ in network AΗО ΙQ ΑE ΑP ARB D BRDR $\mathsf{D}\,\mathsf{W}$ ΕO $\mathsf{E}\,\mathsf{R}$ Εb GΗ G b 10 JO ΚH KWLF MH $\mathsf{M}\,\mathsf{K}$ M Q N D NRΝT osO W РΗ QΗ SP SQ ΤО VFV G WΙ W b ΧE $\mathsf{X}\,\mathsf{G}$ U b ۷R a S a W сJ cК c R Type II - Reciprocal edges $X \rightarrow Y$ in network $B \cdot Y \rightarrow X$ in network BF b D S FΗ F Q Нb Κb Оа RTR W GL Type III - Half symmetrical edges $X \to Y$ in network $B \cdot X \to Y$ in network A

Рb

U b

OW

# Type IV - Reversed half symmetrical edges

NR

ΝT

os

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

ΜQ

 $\mathsf{D}\,\mathsf{R}$ 

G b

AE DR IQ NR NT OS OW YZ

# 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**





$$O \cdot S \cdot a$$
  $O \cdot W \cdot a$   $J \cdot O \cdot S$   $P \cdot R \cdot S$   $I \cdot R \cdot W$   $H \cdot M \cdot Q$   $G \cdot H \cdot X$   $P \cdot R \cdot T$   $B \cdot D \cdot R$   $K \cdot W \cdot b$ 

