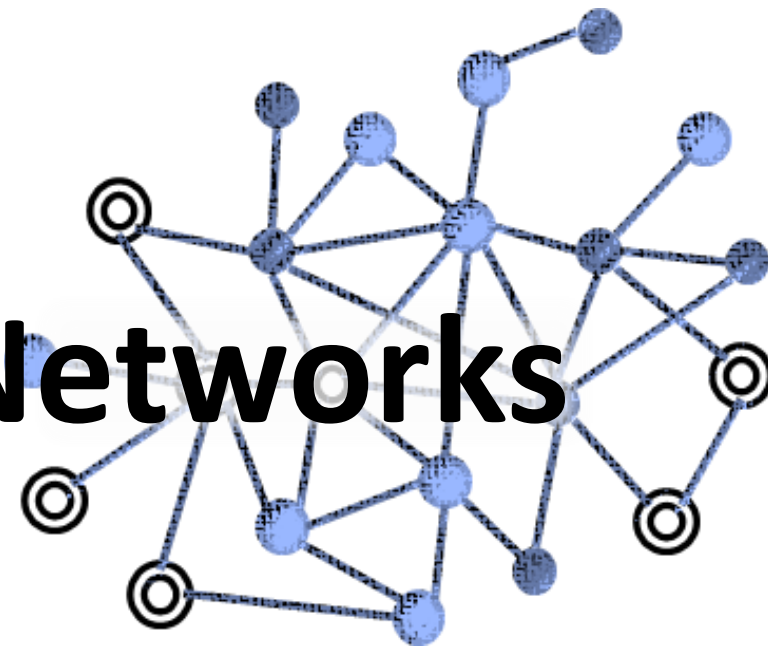




선문대학교
SUN MOON UNIVERSITY

Lab#02 – Network Tools

Social & Information Networks



김민경

AI소프트웨어학과

<https://www.minkyung.kim/>

Outline

Network Analysis & Visualization Tools

- Pajek
- Gephi

Data Download: E-강의동

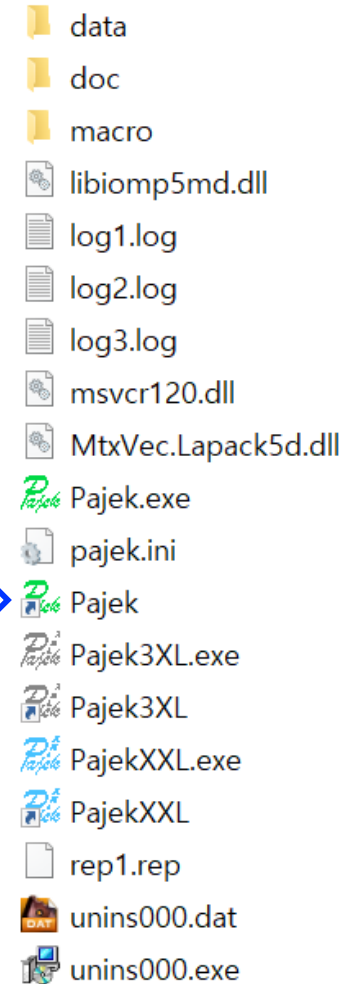
- Zachary's Karate Club Network
- 911 Terrorists
- Political Blogs

Pajek

- Download Pajek
 - <http://mrvar.fdv.uni-lj.si/pajek/>
- Installed Folder
 - C:\Users\Your_Account\AppData\Local\Pajek

[다음 중 편한방법으로 선택]:

- 시작화면 고정
- 바탕화면에 바로가기 만들기
- 작업표시줄에 등록



Pajek – Construct Networks

■ Construct Zachary's Karate Club Network

- filename.net

- Format:

*Vertices n

1 "v1_label"

2 "v2_label"

3 "v3_label"

...

n "vn_label"

*Arcs

src_vid target_vid weight

|V|

```
*Vertices 34
1 "v1" 0.3185 0.5546 0.5000
2 "v2" 0.3321 0.4080 0.5000
3 "v3" 0.4922 0.4814 0.5000
4 "v4" 0.2690 0.3130 0.5000
5 "v5" 0.0617 0.5645 0.5000
6 "v6" 0.2349 0.8119 0.5000
7 "v7" 0.1314 0.7358 0.5000
8 "v8" 0.2451 0.4562 0.5000
9 "v9" 0.4897 0.3302 0.5000
10 "v10" 0.7346 0.4997 0.5000
11 "v11" 0.1361 0.6616 0.5000
12 "v12" 0.3826 0.8305 0.5000
13 "v13" 0.0781 0.4148 0.5000
14 "v14" 0.4271 0.3012 0.5000
15 "v15" 0.6173 0.0500 0.5000
16 "v16" 0.7774 0.0811 0.5000
17 "v17" 0.0500 0.9500 0.5000
18 "v18" 0.1269 0.3241 0.5000
19 "v19" 0.8425 0.1450 0.5000
20 "v20" 0.4887 0.4222 0.5000
21 "v21" 0.6976 0.0527 0.5000
22 "v22" 0.3211 0.7071 0.5000
23 "v23" 0.9332 0.3696 0.5000
24 "v24" 0.8823 0.4924 0.5000
25 "v25" 0.6910 0.8131 0.5000
26 "v26" 0.8188 0.7384 0.5000
27 "v27" 0.9500 0.1904 0.5000
28 "v28" 0.7135 0.5867 0.5000
29 "v29" 0.6704 0.4662 0.5000
30 "v30" 0.9001 0.3127 0.5000
31 "v31" 0.4961 0.1733 0.5000
32 "v32" 0.5854 0.5816 0.5000
33 "v33" 0.6762 0.2738 0.5000
34 "v34" 0.7076 0.3184 0.5000
*Arcs
1 2 1
1 3 1
1 4 1
1 5 1
1 6 1
1 7 1
1 8 1
1 9 1
1 11 1
1 12 1
```

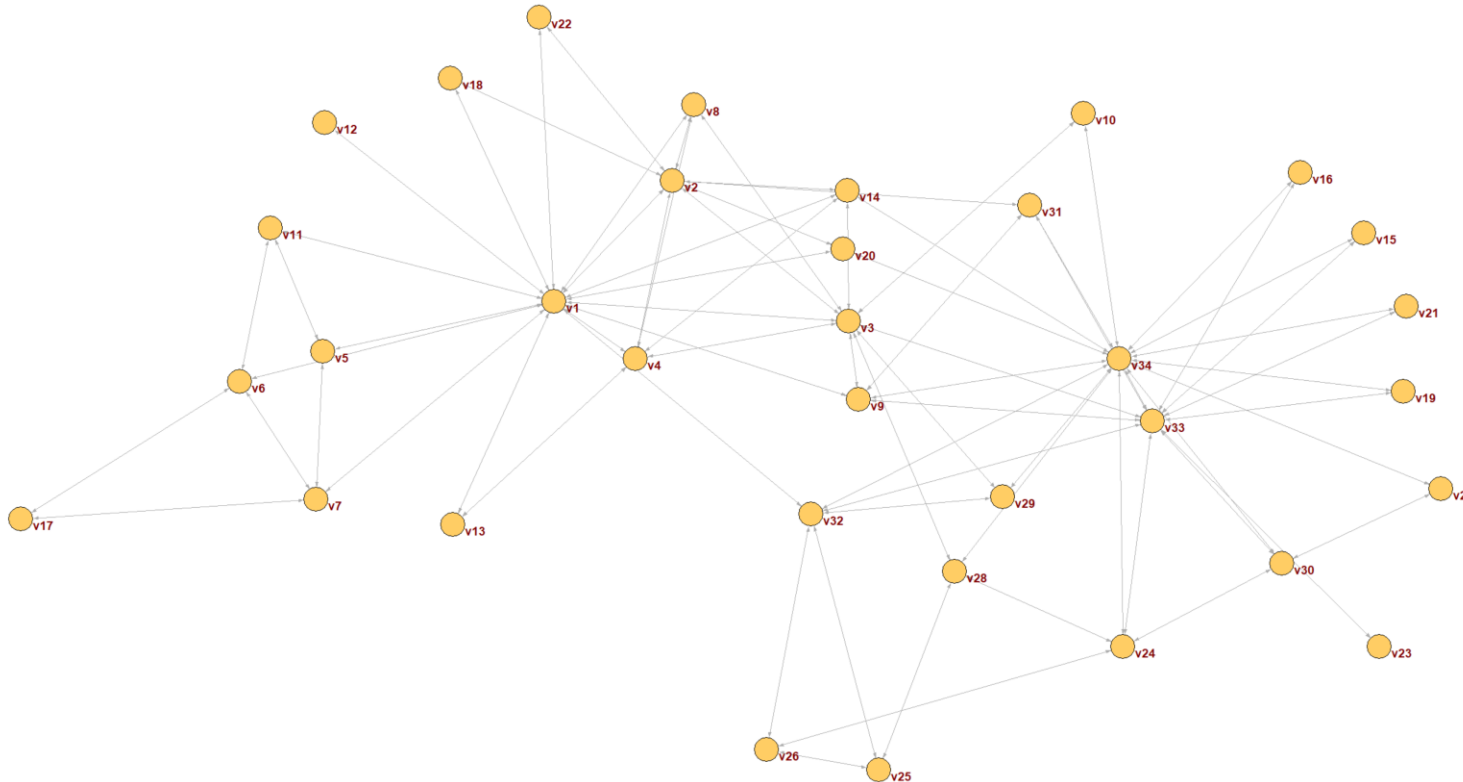
Example network file

Pajek – Construct Networks

■ Construct Zachary's Karate Club Network

■ filename.net

■ Format:



*Vertices 34			
1	"v1"	0.3185	0.5546
2	"v2"	0.3321	0.4080
3	"v3"	0.4922	0.4814
4	"v4"	0.2690	0.3130
5	"v5"	0.0617	0.5645
6	"v6"	0.2349	0.8119
7	"v7"	0.1314	0.7358
8	"v8"	0.2451	0.4562
9	"v9"	0.4897	0.3302
10	"v10"	0.7346	0.4997
11	"v11"	0.1361	0.6616
12	"v12"	0.3826	0.8305
13	"v13"	0.0781	0.4148
14	"v14"	0.4271	0.3012
15	"v15"	0.6173	0.0500
16	"v16"	0.7774	0.0811
17	"v17"	0.0500	0.9500
18	"v18"	0.1269	0.3241
19	"v19"	0.8425	0.1450
20	"v20"	0.4887	0.4222
21	"v21"	0.6976	0.0527
22	"v22"	0.3211	0.7071
23	"v23"	0.9332	0.3696
24	"v24"	0.8823	0.4924
25	"v25"	0.6910	0.8131
26	"v26"	0.8188	0.7384
27	"v27"	0.9500	0.1904
28	"v28"	0.7135	0.5867
29	"v29"	0.6704	0.4662
30	"v30"	0.9001	0.3127
31	"v31"	0.4961	0.1733
32	"v32"	0.5854	0.5816
33	"v33"	0.6762	0.2738
34	"v34"	0.7076	0.3184
*Arcs			
1	2 1		
1	3 1		
1	4 1		
1	5 1		
1	6 1		
1	7 1		
1	8 1		
1	9 1		
1	11 1		
1	12 1		


Example network file

Pajek – Construct Networks


■ Zachary's Karate Club Network **Partition**

- filename.**clu**

- Format:

***Vertices** n  |V|

1
1
1
2
1
2
2
...

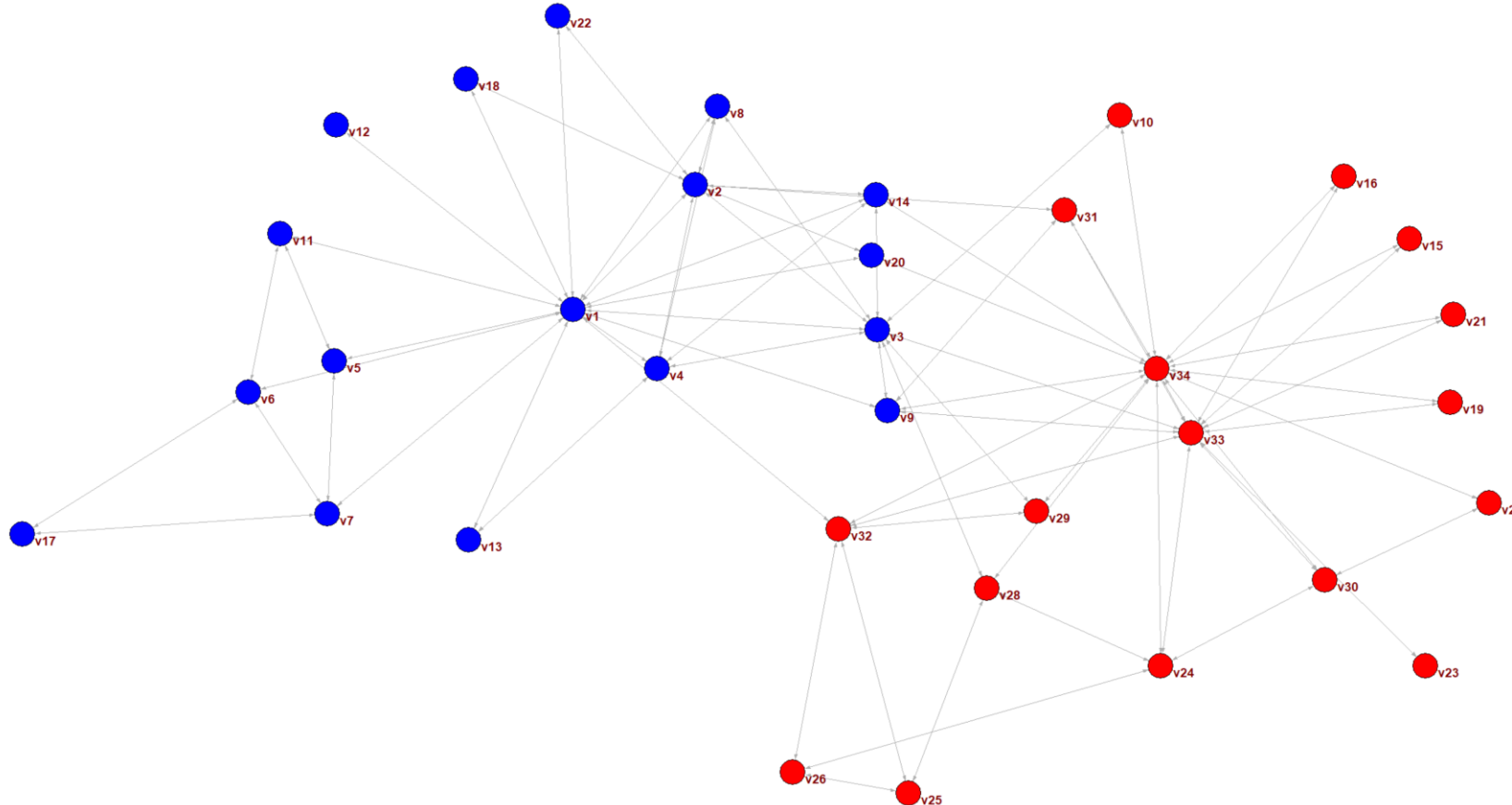
 partition id

```
*Vertices 34
1
1
1
1
1
1
1
1
1
1
2
1
1
1
1
2
2
2
1
1
2
1
2
1
```

Example partition file

Pajek – Construct Networks

- Zachary's Karate Club Network Partition
 - filename.clu
 - Format:

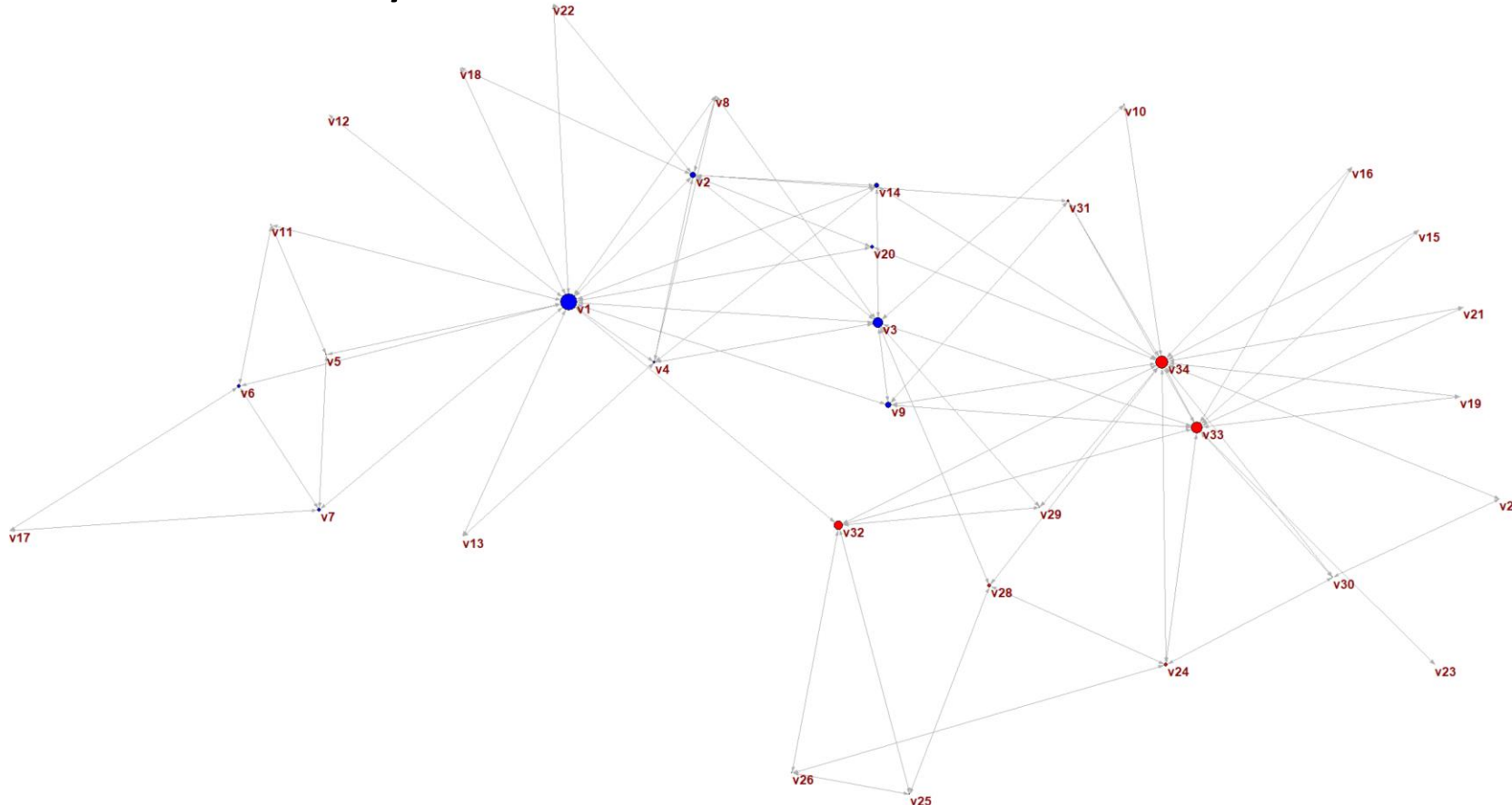


```
*Vertices 34
1
1
1
1
1
1
1
1
1
1
1
2
1
1
1
1
2
2
2
1
1
2
1
2
1
2
1
```

Example partition file

Pajek – Construct Networks

- Zachary's Karate Club Network **Vector**
 - filename.**vec**
 - Format: check your created file!



Pajek – Practice

- Construct 911 Terrorists' Network
 - Partition
 - Vector
 - Visualization