

lab__week7.R

bodong

Tue Feb 28 14:03:21 2017

```
### Lab - Week 7

## Read data from Excel
library(readxl)
cscw = read_excel(file.path("~/Google Drive/UMN/Teaching/sna-ed", "assets/cscw17.xlsx"))
cscw_mentions = cscw[cscw$Relationship == "Mentions", ]

## Create graph
library(igraph)

##
## Attaching package: 'igraph'

## The following objects are masked from 'package:stats':
##
##      decompose, spectrum

## The following object is masked from 'package:base':
##
##      union

g = graph_from_data_frame(cscw, directed = TRUE)

## Warning in if (class(newval) == "factor") {: the condition has length > 1
## and only the first element will be used

get.edge.attribute(g)

## $Relationship
##      [1] "Mentions" "Mentions" "Mentions" "Mentions" "Mentions"
##      [6] "Mentions" "Mentions" "Mentions" "Mentions" "Mentions"
##     [11] "Mentions" "Tweet"   "Mentions" "Mentions" "Mentions"
##     [16] "Mentions" "Mentions" "Mentions" "Tweet"   "Tweet"
##     [21] "Mentions" "Mentions" "Mentions" "Mentions" "Mentions"
##     [26] "Mentions" "Mentions" "Mentions" "Mentions" "Mentions"
##     [31] "Mentions" "Mentions" "Mentions" "Mentions" "Mentions"
##     [36] "Mentions" "Tweet"   "Mentions" "Mentions" "Mentions"
##     [41] "Mentions" "Mentions" "Mentions" "Mentions" "Mentions"
##     [46] "Mentions" "Mentions" "Mentions" "Mentions" "Mentions"
##     [51] "Mentions" "Mentions" "Mentions" "Mentions" "Mentions"
##     [56] "Mentions" "Mentions" "Tweet"   "Tweet"   "Mentions"
##     [61] "Mentions" "Mentions" "Mentions" "Mentions" "Mentions"
##     [66] "Mentions" "Mentions" "Mentions" "Tweet"   "Mentions"
##     [71] "Mentions" "Mentions" "Tweet"   "Mentions" "Mentions"
##     [76] "Mentions" "Mentions" "Mentions" "Mentions" "Mentions"
##     [81] "Mentions" "Mentions" "Mentions" "Mentions" "Tweet"
##     [86] "Mentions" "Tweet"   "Mentions" "Mentions" "Mentions"
##     [91] "Mentions" "Mentions" "Mentions" "Tweet"   "Mentions"
##     [96] "Mentions" "Mentions" "Mentions" "Mentions" "Mentions"
##    [101] "Mentions" "Mentions" "Mentions" "Tweet"   "Mentions"
```

##	[106]	"Tweet"	"Tweet"	"Mentions"	"Mentions"	"Tweet"
##	[111]	"Mentions"	"Mentions"	"Mentions"	"Mentions"	"Tweet"
##	[116]	"Tweet"	"Tweet"	"Tweet"	"Mentions"	"Mentions"
##	[121]	"Mentions"	"Mentions"	"Mentions"	"Tweet"	"Mentions"
##	[126]	"Mentions"	"Tweet"	"Tweet"	"Tweet"	"Mentions"
##	[131]	"Mentions"	"Mentions"	"Mentions"	"Tweet"	"Mentions"
##	[136]	"Mentions"	"Mentions"	"Mentions"	"Tweet"	"Mentions"
##	[141]	"Mentions"	"Mentions"	"Mentions"	"Mentions"	"Mentions"
##	[146]	"Mentions"	"Mentions"	"Mentions"	"Mentions"	"Mentions"
##	[151]	"Mentions"	"Mentions"	"Tweet"	"Mentions"	"Mentions"
##	[156]	"Mentions"	"Mentions"	"Tweet"	"Mentions"	"Mentions"
##	[161]	"Mentions"	"Mentions"	"Mentions"	"Tweet"	"Tweet"
##	[166]	"Tweet"	"Tweet"	"Tweet"	"Mentions"	"Mentions"
##	[171]	"Mentions"	"Mentions"	"Mentions"	"Mentions"	"Mentions"
##	[176]	"Mentions"	"Mentions"	"Mentions"	"Mentions"	"Mentions"
##	[181]	"Tweet"	"Mentions"	"Tweet"	"Mentions"	"Mentions"
##	[186]	"Tweet"	"Tweet"	"Mentions"	"Tweet"	"Tweet"
##	[191]	"Tweet"	"Tweet"	"Tweet"	"Tweet"	"Tweet"
##	[196]	"Mentions"	"Tweet"	"Tweet"	"Tweet"	"Tweet"
##	[201]	"Mentions"	"Mentions"	"Mentions"	"Mentions"	"Tweet"
##	[206]	"Mentions"	"Tweet"	"Mentions"	"Mentions"	"Mentions"
##	[211]	"Mentions"	"Mentions"	"Tweet"	"Tweet"	"Tweet"
##	[216]	"Tweet"	"Mentions"	"Mentions"	"Mentions"	"Mentions"
##	[221]	"Mentions"	"Mentions"	"Replies to"	"Mentions"	"Mentions"
##	[226]	"Mentions"	"Mentions"	"Mentions"	"Mentions"	"Mentions"
##	[231]	"Mentions"	"Mentions"	"Mentions"	"Mentions"	"Mentions"
##	[236]	"Mentions"	"Mentions"	"Mentions"	"Mentions"	"Mentions"
##	[241]	"Mentions"	"Mentions"	"Mentions"	"Mentions"	"Mentions"
##	[246]	"Mentions"	"Mentions"	"Tweet"	"Mentions"	"Tweet"
##	[251]	"Mentions"	"Mentions"	"Tweet"	"Mentions"	"Tweet"
##	[256]	"Tweet"	"Mentions"	"Tweet"	"Mentions"	"Mentions"
##	[261]	"Mentions"	"Tweet"	"Mentions"	"Tweet"	"Mentions"
##	[266]	"Tweet"	"Mentions"	"Mentions"	"Mentions"	"Mentions"
##	[271]	"Tweet"	"Replies to"	"Tweet"	"Mentions"	"Tweet"
##	[276]	"Tweet"	"Tweet"	"Tweet"	"Tweet"	"Tweet"
##	[281]	"Tweet"	"Tweet"	"Mentions"	"Tweet"	"Tweet"
##	[286]	"Tweet"	"Tweet"	"Tweet"	"Mentions"	"Mentions"
##	[291]	"Tweet"	"Tweet"	"Mentions"	"Mentions"	"Mentions"
##	[296]	"Tweet"	"Tweet"	"Tweet"	"Replies to"	"Mentions"
##	[301]	"Tweet"	"Tweet"	"Tweet"	"Tweet"	"Tweet"
##	[306]	"Tweet"	"Mentions"	"Tweet"	"Mentions"	"Tweet"
##	[311]	"Tweet"	"Tweet"	"Tweet"	"Mentions"	"Tweet"
##	[316]	"Tweet"	"Tweet"	"Tweet"		
##						
##	\$Date					
##	[1]	1487263045	1487263045	1487263732	1487273669	1487275875 1487291959
##	[7]	1487291969	1487292006	1487292006	1487319676	1487319676 1487321408
##	[13]	1487344333	1487351498	1487445581	1487445581	1487514682 1487584703
##	[19]	1487439542	1487627275	1487642372	1487642386	1487643899 1487643919
##	[25]	1487643926	1487643926	1487654762	1487654762	1487654762 1487678597
##	[31]	1487680367	1487680367	1487680367	1487680875	1487680905 1487680905
##	[37]	1487694045	1487700046	1487700046	1487700046	1487700046 1487708230
##	[43]	1487715344	1487718410	1487718410	1487718410	1487718410 1487727345
##	[49]	1487727345	1487727345	1487727345	1487784032	1487784032 1487784032

```

## [55] 1487784032 1487710856 1487779277 1487530833 1487797271 1487802330
## [61] 1487802330 1487802330 1487802337 1487802337 1487802337 1487805395
## [67] 1487805395 1487805395 1487807937 1487809099 1487836645 1487837814
## [73] 1487842020 1487623992 1487842099 1487874827 1487876756 1487881690
## [79] 1487881690 1487885630 1487885630 1487886389 1487886389 1487886389
## [85] 1487342041 1487903988 1487905635 1487866801 1487910454 1487910454
## [91] 1487867976 1487867976 1487867976 1487946641 1487952740 1487952740
## [97] 1487952740 1487952740 1487954807 1487963322 1487963322 1487963322
## [103] 1487963322 1487965067 1487970378 1487970773 1487975023 1487688002
## [109] 1487688002 1487978910 1487984184 1487984184 1487984184 1487984184
## [115] 1487986338 1487999605 1487999962 1488028888 1487923461 1488032968
## [121] 1487923834 1487923834 1488033487 1487796178 1488032968 1488034224
## [127] 1488034694 1488035827 1487889783 1488035890 1488035890 1488035890
## [133] 1488035890 1487462866 1487508577 1486493906 1488036600 1488036600
## [139] 1486134080 1488036632 1488035646 1488035646 1488035646 1488035646
## [145] 1488036690 1488039736 1488039963 1488039963 1487699537 1487699537
## [151] 1487699537 1487699537 1488034878 1488039136 1488039136 1488039136
## [157] 1488039136 1488039271 1488041181 1488041417 1488041602 1488042101
## [163] 1488043159 1487972654 1488044286 1487984174 1488043020 1488045324
## [169] 1487699575 1487727692 1487699526 1487684531 1487684531 1487684531
## [175] 1487699575 1487699575 1487727692 1487699526 1487893978 1487895163
## [181] 1487272169 1487617078 1487945314 1487283398 1487976441 1488048533
## [187] 1487263341 1487269399 1487918853 1487951642 1487961206 1488048966
## [193] 1488049703 1488050765 1488036518 1488051004 1488051893 1488052298
## [199] 1488032528 1488053941 1488039850 1488039865 1488054121 1488054121
## [205] 1488054378 1487976025 1488054948 1488055344 1487269365 1487269365
## [211] 1488053689 1488053689 1488054904 1488055035 1488055146 1488055659
## [217] 1487647177 1487727692 1487648232 1487699526 1487680405 1487680405
## [223] 1488051517 1487648309 1487647177 1487727692 1487648232 1487648309
## [229] 1487951801 1487954228 1488044016 1487951809 1487951974 1487951801
## [235] 1487954228 1487954228 1488044016 1487951809 1487951974 1487951801
## [241] 1488044016 1487951809 1488054891 1487951974 1488044016 1487951974
## [247] 1487961079 1488042202 1488042758 1488044679 1488044765 1487715830
## [253] 1488048212 1488049785 1487807457 1488053017 1488053780 1487625250
## [259] 1487648309 1487952041 1487999780 1488041307 1488043011 1488049841
## [265] 1488059275 1488059970 1487624760 1487624771 1487895163 1487976397
## [271] 1488048269 1488060530 1488060635 1488045827 1487994050 1487996124
## [277] 1488060475 1488060522 1488060600 1488061359 1487262366 1488036278
## [283] 1487262554 1487258898 1487615124 1487615615 1487615639 1487615660
## [289] 1487705908 1487705911 1487952441 1487952482 1488061921 1488063776
## [295] 1488064013 1487983308 1488064428 1488064461 1488055170 1488054337
## [301] 1487704791 1487704812 1487704838 1487965877 1487996098 1488054737
## [307] 1488061991 1488065062 1488065141 1488049921 1488050545 1488051085
## [313] 1488062457 1488067995 1488069752 1487970361 1488039883 1488071302

```

```
## Plot graph
```

```
plot(g)
```

```
## Warning in res[ord[idx]] <- r: number of items to replace is not a multiple
## of replacement length
```

```
## Warning in res[ord[idx]] <- r: number of items to replace is not a multiple
## of replacement length
```

```
## Warning in res[ord[idx]] <- r: number of items to replace is not a multiple
```

```
## of replacement length

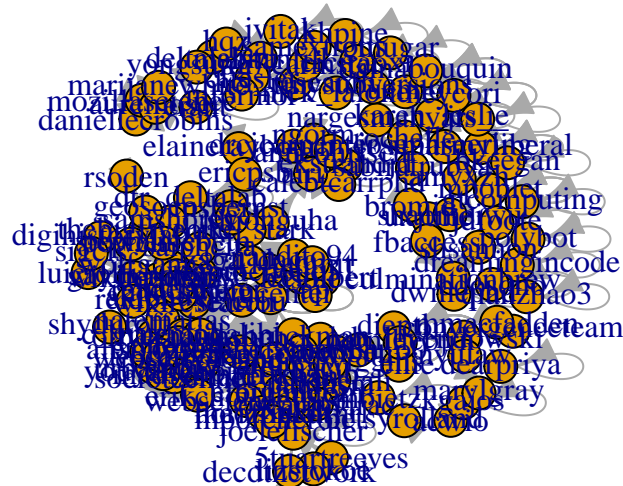
## Warning in res[ord[idx]] <- r: number of items to replace is not a multiple
## of replacement length

## Warning in res[ord[idx]] <- r: number of items to replace is not a multiple
## of replacement length

## Warning in res[ord[idx]] <- r: number of items to replace is not a multiple
## of replacement length

## Warning in res[ord[idx]] <- r: number of items to replace is not a multiple
## of replacement length

## Warning in res[ord[idx]] <- r: number of items to replace is not a multiple
## of replacement length
```



```
## Network-level
graph.density(g)
```

```
## [1] 0.01544289
```

```
diameter(g)
```

```
## [1] 5
```

```
cohesion(g)
```

```
## [1] 0
```

```
## Node-level
```

```
degree(g)
```

```
##      paulusm      ekstrandjd      basole      drcjcarpenter
##          2          1          1          1
##      shionguha      abdoelali      hci_research      calebtcarrphd
##          4          2          3          1
##          hci_lab      betsyrolland      ngorm      smarmyliberal
##          2          1          1          4
##      drlaeeqkhan      asbruckman      ragreens      websciencetrust
##          2          4          3          1
```

##	madsesmith	phdischoolsu	gtcomputing	urbanitas
##	3	3	2	4
##	caoutchouc31	zaga_daga	alisonpsu	sociotechnet
##	1	1	4	4
##	youyanghou	deltalabnu	webscicologne	c_gruenloh
##	4	6	3	3
##	domwln	nick_lalone	rsoden	5tuartreeves
##	3	2	1	1
##	lizstokoe	erant	horizoncdt	nandito94
##	1	2	2	1
##	uwdub	xavix	oscarrovirac	uxjulie
##	1	2	2	3
##	dr_carmster	samextrous	qianzhao3	bigmlcom
##	4	1	2	4
##	efernandez	gvucenter	gmugar	akionux
##	2	14	2	4
##	ravenben	wikimedianyc	shsannon	luiciolfi
##	1	4	2	3
##	jts__	dcnacu	aviggio	dreamingincode
##	2	4	4	2
##	nargesmahyar	tinysubversions	uenno	theofficialmrl
##	2	2	2	3
##	joelefischer	mporcheron	decdtnetwork	jvitak
##	9	3	1	2
##	josephseering	wolfgang8741	mbietz	andreawiggins
##	2	6	4	13
##	msbernst	saiphcita	dtr_deltalab	acwio
##	3	7	3	1
##	levendowski	daniellecrobins	natematias	shyduroff
##	1	2	13	1
##	digihistorylab	convergenceteam	sigcis	melstanfill
##	1	1	1	1
##	heycori	mpoblet	pr_ozturk	oliverhaimson
##	4	6	13	15
##	naz_andalibi	drexelcci	bkeegan	airi_
##	36	2	2	8
##	anneohirsch	bdosono	khpine	kgajos
##	9	2	2	4
##	marylgray	dearpriya	rochelle	dainabouquin
##	1	2	2	4
##	mozillascience	auremoser	marijanewhite	sabiratrubya
##	4	4	2	2
##	wikiresearch	amyxzh	matsch_o0	andicat
##	15	2	13	20
##	heratoms	readermeter	capt_swing	samshorey
##	23	13	13	3
##	thebigfiveone	stephaniebeth	geosoco	karen_leslie
##	3	4	6	2
##	erikchoi	dieptl	acm_cscw	dwmcpht
##	3	14	46	4
##	polybot	jdfoote	elaineraybourn	ericpsb
##	2	2	2	5
##	staeiou	luke_stark	cfiesler	informor
##	20	2	10	1

##	ciciraoxi	gaycyborg	jcccf	vocativ
##	2	12	3	8
##	hqz	yongsung7	fbaccess	bromid
##	1	1	1	1
##	shaomeiwu	eegilbert	tanmit	ap
##	1	1	1	1
##	halfak	nyulaw	mmacfadden	reidpr
##	11	1	1	1
##	_ellie	pernillebjrn	powells	culminationbrew
##	1	2	1	2

betweenness(g)

##	paulusm	ekstrandjd	basole	drcjcarpenter
##	0.000000	0.000000	0.000000	0.000000
##	shionguha	abdoelali	hci_research	calebtcarrphd
##	0.000000	0.000000	0.000000	0.000000
##	hci_lab	betsyrolland	ngorm	smarmyliberal
##	0.000000	0.000000	0.000000	0.000000
##	drlaeekqkhan	asbruckman	ragreens	websciencetrust
##	0.000000	0.000000	0.000000	0.000000
##	madsesmith	phdischoolsu	gtcomputing	urbanitas
##	0.000000	0.000000	0.000000	0.000000
##	caoutchouc31	zaga_daga	alisonpsu	sociotechnet
##	0.000000	0.000000	0.000000	0.000000
##	youyanghou	deltalabnu	webscicologne	c_gruenloh
##	0.000000	0.000000	0.000000	0.000000
##	domwln	nick_lalone	rsoden	5stuartreeves
##	0.000000	0.000000	0.000000	0.000000
##	lizstokoe	erant	horizoncdt	nandito94
##	0.000000	0.000000	0.000000	0.000000
##	uwdub	xavix	oscarrovirac	uxjulie
##	0.000000	0.000000	0.000000	0.000000
##	dr_carmster	samextrous	qianzhao3	bigmlcom
##	0.000000	0.000000	0.000000	0.000000
##	efernandez	gvucenter	gmugar	akionux
##	0.000000	78.000000	0.000000	0.000000
##	ravenben	wikimedianyc	shsannon	luiciolfi
##	0.000000	0.000000	0.000000	0.000000
##	jts__	dcnacu	aviggio	dreamingincode
##	0.000000	0.000000	0.000000	0.000000
##	nargesmahyar	tinysubversions	uenno	theofficialmrl
##	0.000000	0.000000	0.000000	0.000000
##	joelefischer	mporcheron	decdtnetwork	jvitak
##	16.000000	0.000000	0.000000	0.000000
##	josephseering	wolfgang8741	mbietz	andreawiggins
##	0.000000	0.000000	0.000000	54.000000
##	msbernst	saiphcita	dtr_deltalab	acwio
##	0.000000	0.000000	0.000000	0.000000
##	levendowski	daniellecrobins	natematias	shyduroff
##	0.000000	0.000000	20.000000	0.000000
##	digihistorylab	convergenceteam	sigcis	melstanfill
##	0.000000	0.000000	0.000000	0.000000
##	heycori	mpoblet	pr_ozturk	oliverhaimson
##	0.000000	0.000000	2.000000	7.666667

##	naz_andalibi	drexelcci	bkeegan	airi_
##	241.833333	0.000000	0.000000	0.000000
##	anneohirsch	bdosono	khpine	kgajos
##	0.000000	0.000000	0.000000	0.000000
##	marylgray	dearpriya	rochelle	dainabouquin
##	0.000000	0.000000	0.000000	0.000000
##	mozillascience	auremoser	marijanewhite	sabiratrubya
##	0.000000	0.000000	0.000000	0.000000
##	wikiresearch	amyxzh	matsch_o0	andicat
##	56.500000	0.000000	0.000000	2.000000
##	heratoms	readermeter	capt_swing	samshorey
##	24.000000	0.000000	0.000000	0.000000
##	thebigfiveone	stephaniebeth	geosoco	karen_leslie
##	0.000000	0.000000	0.000000	0.000000
##	erikchoi	dieptl	acm_cscw	dwmcpht
##	0.000000	0.000000	143.000000	0.000000
##	polybot	jdfoote	elaineraybourn	ericpsb
##	0.000000	0.000000	0.000000	1.000000
##	staeiou	luke_stark	cfiesler	informor
##	0.000000	0.000000	0.000000	0.000000
##	ciciraoxi	gaycyborg	jcccf	vocativ
##	0.000000	0.000000	0.000000	0.000000
##	hqz	yongsung7	fbaccess	bromid
##	0.000000	0.000000	0.000000	0.000000
##	shaomeiwu	eegilbert	tanmit	ap
##	0.000000	0.000000	0.000000	0.000000
##	halfak	nyulaw	mmacfadden	reidpr
##	0.000000	0.000000	0.000000	0.000000
##	_ellie	pernillebjrn	powells	culminationbrew
##	0.000000	0.000000	0.000000	0.000000

Components

components(g)

\$membership

##	paulusm	ekstrandjd	basole	drcjcarpenter
##	1	1	1	1
##	shionguha	abdoelali	hci_research	calebtcarrphd
##	1	1	2	1
##	hci_lab	betsyrolland	ngorm	smarmyliberal
##	1	1	1	3
##	drlaeekhan	asbruckman	ragreens	websciencetrust
##	1	1	1	1
##	madsesmith	phdischoolsu	gtcomputing	urbanitas
##	1	1	4	1
##	caoutchouc31	zaga_daga	alisonpsu	sociotechnet
##	1	1	1	1
##	youyanghou	deltalabnu	webscicologne	c_gruenloh
##	1	5	1	1
##	domw1n	nick_lalone	rsoden	5tuartreeves
##	1	6	1	1
##	lizstokoe	erant	horizoncdt	nandito94
##	1	7	1	1
##	uwdub	xavix	oscarrovirac	uxjulie
##	1	1	1	8

##	dr_carmster	samextrous	qianzhao3	bigmlcom
##	2	2	9	1
##	efernandez	gvucenter	gmugar	akionux
##	1	1	10	1
##	ravenben	wikimedianyc	shsannon	luiciolfi
##	1	1	11	1
##	jts__	dcnacu	aviggio	dreamingincode
##	12	1	1	13
##	nargesmahyar	tinysubversions	uenno	theofficialmrl
##	14	15	16	1
##	joelefischer	mporcheron	decdtnetwork	javitak
##	1	1	1	17
##	josephseering	wolfgang8741	mbietz	andreawiggins
##	18	1	1	1
##	msbernst	saiphcita	dtr_deltalab	acwio
##	1	1	1	19
##	levendowski	daniellecrobins	natematias	shyduroff
##	20	21	1	1
##	digihistorylab	convergenceteam	sigcis	melstanfill
##	1	22	1	23
##	heycori	mpoblet	pr_ozturk	oliverhaimson
##	24	25	1	1
##	naz_andalibi	drexelcci	bkeegan	airi_
##	1	1	26	1
##	anneohirsch	bdosono	khpine	kgajos
##	1	27	28	19
##	marylgray	dearpriya	rochelle	dainabouquin
##	19	29	30	31
##	mozillascience	auremoser	marijanewhite	sabiratrubya
##	21	21	21	32
##	wikiresearch	amyxzh	matsch_o0	andicat
##	1	33	1	1
##	heratoms	readermeter	capt_swing	samshorey
##	1	1	1	1
##	thebigfiveone	stephaniebeth	geosoco	karen_leslie
##	1	1	1	34
##	erikchoi	dieptl	acm_cscw	dwmcphd
##	1	1	1	35
##	polybot	jdfoote	elaineraybourn	ericpsb
##	36	37	1	1
##	staeiou	luke_stark	cfiesler	informor
##	1	1	23	23
##	ciciraoxi	gaycyborg	jcccf	vocativ
##	38	1	1	1
##	hqz	yongsung7	fbaccess	bromid
##	5	5	8	8
##	shaomeiwu	eegilbert	tanmit	ap
##	8	1	1	1
##	halfak	nyulaw	mmacfadden	reidpr
##	1	20	22	1
##	_ellie	pernillebjrn	powells	culminationbrew
##	1	1	1	35
##				
##	\$csize			


```
## [1] 90 3 1 1 3 1 1 4 1 1 1 1 1 1 1 1 1 1 3 2 4 2 3
## [24] 1 1 1 1 1 1 1 1 1 1 1 2 1 1 1
##
## $no
## [1] 38
```

```
clusters(g)
```

```
## $membership
##      paulusm      ekstrandjd      basole      drcjcarpenter
##           1           1           1           1
##      shionguha      abdoelali      hci_research      calebtcarrphd
##           1           1           2           1
##      hci_lab      betsyrolland      ngorm      smarmyliberal
##           1           1           1           3
##      drlaeeqkhan      asbruckman      ragreens      websciencetrust
##           1           1           1           1
##      madsesmith      phdischoolsu      gtcomputing      urbanitas
##           1           1           4           1
##      caoutchouc31      zaga_daga      alisonpsu      sociotechnet
##           1           1           1           1
##      youyanghou      deltalabnu      webscicologne      c_gruenloh
##           1           5           1           1
##      domwln      nick_lalone      rsoden      5stuartreeves
##           1           6           1           1
##      lizstokoe      erant      horizoncdt      nandito94
##           1           7           1           1
##      uwdub      xavix      oscarrovirac      uxjulie
##           1           1           1           8
##      dr_carmster      samextrous      qianzhao3      bigmlcom
##           2           2           9           1
##      efernandez      gvucenter      gmugar      akionux
##           1           1           10          1
##      ravenben      wikimediamyc      shsannon      luiciolfi
##           1           1           11          1
##      jts__      dcnacu      aviggio      dreamingincode
##          12           1           1           13
##      nargesmahyar      tinysubversions      uenno      theofficialmrl
##          14           15           16          1
##      joelefisher      mporcheron      decdtnetwork      jvitak
##           1           1           1           17
##      josephseering      wolfgang8741      mbietz      andreawiggins
##          18           1           1           1
##      msbernst      saiphcita      dtr_deltalab      acwio
##           1           1           1           19
##      levendowski      daniellecrobins      natematias      shyduroff
##          20           21           1           1
##      digihistorylab      convergenceteam      sigcis      melstanfill
##           1           22           1           23
##      heycori      mpoblet      pr_ozturk      oliverhaimson
##          24           25           1           1
##      naz_andalibi      drexelcci      bkeegan      airi_
##           1           1           26          1
##      anneohirsch      bdosono      khpine      kgajos
##           1           27           28          19
```

```

##      marylgray      dearpriya      rochelle      dainabouquin
##      19            29            30            31
## mozillascience      auremoser      marijanewhite      sabiratrubya
##      21            21            21            32
##      wikiresearch      amyxzh      matsch_o0      andicat
##      1            33            1            1
##      heratoms      readermeter      capt_swing      samshorey
##      1            1            1            1
## thebigfiveone      stephaniebeth      geosoco      karen_leslie
##      1            1            1            34
##      erikchoi      dieptl      acm_cscw      dwmcphd
##      1            1            1            35
##      polybot      jdfoote      elaineraybourn      ericpsb
##      36            37            1            1
##      staeiou      luke_stark      cfiesler      informor
##      1            1            23            23
##      ciciraoxi      gaycyborg      jcccf      vocativ
##      38            1            1            1
##      hqz      yongsung7      fbaccess      bromid
##      5            5            8            8
##      shaomeiwu      eegilbert      tanmit      ap
##      8            1            1            1
##      halfak      nyulaw      mmacfadden      reidpr
##      1            20            22            1
##      _ellie      pernillebjrn      powells      culminationbrew
##      1            1            1            35
##
## $csize
## [1] 90  3  1  1  3  1  1  4  1  1  1  1  1  1  1  1  1  3  2  4  2  3
## [24] 1  1  1  1  1  1  1  1  1  1  1  2  1  1  1
##
## $no
## [1] 38
## Cliques
cliques(g)

## Warning in .Call("R_igraph_cliques", graph, as.numeric(min),
## as.numeric(max), : At cliques.c:192 :directionality of edges is ignored for
## directed graphs

## [[1]]
## + 1/144 vertex, named:
## [1] paulusm
##
## [[2]]
## + 1/144 vertex, named:
## [1] ekstrandjd
##
## [[3]]
## + 1/144 vertex, named:
## [1] basole
##
## [[4]]
## + 1/144 vertex, named:

```

```

## [1] drcjcarpenter
##
## [[5]]
## + 1/144 vertex, named:
## [1] shionguha
##
## [[6]]
## + 1/144 vertex, named:
## [1] abdoelali
##
## [[7]]
## + 1/144 vertex, named:
## [1] hci_research
##
## [[8]]
## + 1/144 vertex, named:
## [1] calebtcarrphd
##
## [[9]]
## + 1/144 vertex, named:
## [1] hci_lab
##
## [[10]]
## + 1/144 vertex, named:
## [1] betsyrolland
##
## [[11]]
## + 1/144 vertex, named:
## [1] ngorm
##
## [[12]]
## + 1/144 vertex, named:
## [1] smarmyliberal
##
## [[13]]
## + 1/144 vertex, named:
## [1] drlaeeqkhan
##
## [[14]]
## + 1/144 vertex, named:
## [1] asbruckman
##
## [[15]]
## + 1/144 vertex, named:
## [1] ragreens
##
## [[16]]
## + 1/144 vertex, named:
## [1] websciencetrust
##
## [[17]]
## + 1/144 vertex, named:
## [1] madsesmith
##

```

```

## [[18]]
## + 1/144 vertex, named:
## [1] phdischoolsu
##
## [[19]]
## + 1/144 vertex, named:
## [1] gtcomputing
##
## [[20]]
## + 1/144 vertex, named:
## [1] urbanitas
##
## [[21]]
## + 1/144 vertex, named:
## [1] caoutchouc31
##
## [[22]]
## + 1/144 vertex, named:
## [1] zaga_daga
##
## [[23]]
## + 1/144 vertex, named:
## [1] alisonpsu
##
## [[24]]
## + 1/144 vertex, named:
## [1] sociotechnet
##
## [[25]]
## + 1/144 vertex, named:
## [1] youyanghou
##
## [[26]]
## + 1/144 vertex, named:
## [1] deltalabnu
##
## [[27]]
## + 1/144 vertex, named:
## [1] webscicologne
##
## [[28]]
## + 1/144 vertex, named:
## [1] c_gruenloh
##
## [[29]]
## + 1/144 vertex, named:
## [1] domwln
##
## [[30]]
## + 1/144 vertex, named:
## [1] nick_lalone
##
## [[31]]
## + 1/144 vertex, named:

```

```

## [1] rsoden
##
## [[32]]
## + 1/144 vertex, named:
## [1] 5stuartreeves
##
## [[33]]
## + 1/144 vertex, named:
## [1] lizstokoe
##
## [[34]]
## + 1/144 vertex, named:
## [1] erant
##
## [[35]]
## + 1/144 vertex, named:
## [1] horizoncdt
##
## [[36]]
## + 1/144 vertex, named:
## [1] nandito94
##
## [[37]]
## + 1/144 vertex, named:
## [1] uwdub
##
## [[38]]
## + 1/144 vertex, named:
## [1] xavix
##
## [[39]]
## + 1/144 vertex, named:
## [1] oscarrovirac
##
## [[40]]
## + 1/144 vertex, named:
## [1] uxjulie
##
## [[41]]
## + 1/144 vertex, named:
## [1] dr_carmster
##
## [[42]]
## + 1/144 vertex, named:
## [1] samextrous
##
## [[43]]
## + 1/144 vertex, named:
## [1] qianzhao3
##
## [[44]]
## + 1/144 vertex, named:
## [1] bigmlcom
##

```

```

## [[45]]
## + 1/144 vertex, named:
## [1] efernandez
##
## [[46]]
## + 1/144 vertex, named:
## [1] gvucenter
##
## [[47]]
## + 1/144 vertex, named:
## [1] gmugar
##
## [[48]]
## + 1/144 vertex, named:
## [1] akionux
##
## [[49]]
## + 1/144 vertex, named:
## [1] ravenben
##
## [[50]]
## + 1/144 vertex, named:
## [1] wikimedianyc
##
## [[51]]
## + 1/144 vertex, named:
## [1] shsannon
##
## [[52]]
## + 1/144 vertex, named:
## [1] luiciolfi
##
## [[53]]
## + 1/144 vertex, named:
## [1] jts__
##
## [[54]]
## + 1/144 vertex, named:
## [1] dcnacu
##
## [[55]]
## + 1/144 vertex, named:
## [1] aviggio
##
## [[56]]
## + 1/144 vertex, named:
## [1] dreamingincode
##
## [[57]]
## + 1/144 vertex, named:
## [1] nargesmahyar
##
## [[58]]
## + 1/144 vertex, named:

```

```

## [1] tinysubversions
##
## [[59]]
## + 1/144 vertex, named:
## [1] uenno
##
## [[60]]
## + 1/144 vertex, named:
## [1] theofficialmrl
##
## [[61]]
## + 1/144 vertex, named:
## [1] joelefisher
##
## [[62]]
## + 1/144 vertex, named:
## [1] mporcheron
##
## [[63]]
## + 1/144 vertex, named:
## [1] decdtnetwork
##
## [[64]]
## + 1/144 vertex, named:
## [1] jvitak
##
## [[65]]
## + 1/144 vertex, named:
## [1] josephseering
##
## [[66]]
## + 1/144 vertex, named:
## [1] wolfgang8741
##
## [[67]]
## + 1/144 vertex, named:
## [1] mbietz
##
## [[68]]
## + 1/144 vertex, named:
## [1] andreawiggins
##
## [[69]]
## + 1/144 vertex, named:
## [1] msbernst
##
## [[70]]
## + 1/144 vertex, named:
## [1] saiphcita
##
## [[71]]
## + 1/144 vertex, named:
## [1] dtr_deltalab
##

```

```

## [[72]]
## + 1/144 vertex, named:
## [1] acwio
##
## [[73]]
## + 1/144 vertex, named:
## [1] levendowski
##
## [[74]]
## + 1/144 vertex, named:
## [1] daniellecrobins
##
## [[75]]
## + 1/144 vertex, named:
## [1] natematias
##
## [[76]]
## + 1/144 vertex, named:
## [1] shyduroff
##
## [[77]]
## + 1/144 vertex, named:
## [1] digihistorylab
##
## [[78]]
## + 1/144 vertex, named:
## [1] convergenceteam
##
## [[79]]
## + 1/144 vertex, named:
## [1] sigcis
##
## [[80]]
## + 1/144 vertex, named:
## [1] melstanfill
##
## [[81]]
## + 1/144 vertex, named:
## [1] heycori
##
## [[82]]
## + 1/144 vertex, named:
## [1] mpoblet
##
## [[83]]
## + 1/144 vertex, named:
## [1] pr_ozturk
##
## [[84]]
## + 1/144 vertex, named:
## [1] oliverhaimson
##
## [[85]]
## + 1/144 vertex, named:

```



```

## [1] naz_andalibi
##
## [[86]]
## + 1/144 vertex, named:
## [1] drexelcci
##
## [[87]]
## + 1/144 vertex, named:
## [1] bkeegan
##
## [[88]]
## + 1/144 vertex, named:
## [1] airi_
##
## [[89]]
## + 1/144 vertex, named:
## [1] anneohirsch
##
## [[90]]
## + 1/144 vertex, named:
## [1] bdosono
##
## [[91]]
## + 1/144 vertex, named:
## [1] khpine
##
## [[92]]
## + 1/144 vertex, named:
## [1] kgajos
##
## [[93]]
## + 1/144 vertex, named:
## [1] marylgray
##
## [[94]]
## + 1/144 vertex, named:
## [1] dearpriya
##
## [[95]]
## + 1/144 vertex, named:
## [1] rochelle
##
## [[96]]
## + 1/144 vertex, named:
## [1] dainabouquin
##
## [[97]]
## + 1/144 vertex, named:
## [1] mozillascience
##
## [[98]]
## + 1/144 vertex, named:
## [1] auremoser
##

```

```

## [[99]]
## + 1/144 vertex, named:
## [1] marijanewhite
##
## [[100]]
## + 1/144 vertex, named:
## [1] sabiratrubya
##
## [[101]]
## + 1/144 vertex, named:
## [1] wikiresearch
##
## [[102]]
## + 1/144 vertex, named:
## [1] amyxzh
##
## [[103]]
## + 1/144 vertex, named:
## [1] matsch_o0
##
## [[104]]
## + 1/144 vertex, named:
## [1] andicat
##
## [[105]]
## + 1/144 vertex, named:
## [1] heratoms
##
## [[106]]
## + 1/144 vertex, named:
## [1] readermeter
##
## [[107]]
## + 1/144 vertex, named:
## [1] capt_swing
##
## [[108]]
## + 1/144 vertex, named:
## [1] samshorey
##
## [[109]]
## + 1/144 vertex, named:
## [1] thebigfiveone
##
## [[110]]
## + 1/144 vertex, named:
## [1] stephaniebeth
##
## [[111]]
## + 1/144 vertex, named:
## [1] geosoco
##
## [[112]]
## + 1/144 vertex, named:

```

```

## [1] karen_leslie
##
## [[113]]
## + 1/144 vertex, named:
## [1] erikchoi
##
## [[114]]
## + 1/144 vertex, named:
## [1] dieptl
##
## [[115]]
## + 1/144 vertex, named:
## [1] acm_cscw
##
## [[116]]
## + 1/144 vertex, named:
## [1] dwmcphd
##
## [[117]]
## + 1/144 vertex, named:
## [1] polybot
##
## [[118]]
## + 1/144 vertex, named:
## [1] jdfoote
##
## [[119]]
## + 1/144 vertex, named:
## [1] elaineraybourn
##
## [[120]]
## + 1/144 vertex, named:
## [1] ericpsb
##
## [[121]]
## + 1/144 vertex, named:
## [1] staeiou
##
## [[122]]
## + 1/144 vertex, named:
## [1] luke_stark
##
## [[123]]
## + 1/144 vertex, named:
## [1] cfiesler
##
## [[124]]
## + 1/144 vertex, named:
## [1] informor
##
## [[125]]
## + 1/144 vertex, named:
## [1] ciciraoxi
##

```

```

## [[126]]
## + 1/144 vertex, named:
## [1] gaycyborg
##
## [[127]]
## + 1/144 vertex, named:
## [1] jcccf
##
## [[128]]
## + 1/144 vertex, named:
## [1] vocativ
##
## [[129]]
## + 1/144 vertex, named:
## [1] hqz
##
## [[130]]
## + 1/144 vertex, named:
## [1] yongsung7
##
## [[131]]
## + 1/144 vertex, named:
## [1] fbaccess
##
## [[132]]
## + 1/144 vertex, named:
## [1] bromid
##
## [[133]]
## + 1/144 vertex, named:
## [1] shaomeiwu
##
## [[134]]
## + 1/144 vertex, named:
## [1] eegilbert
##
## [[135]]
## + 1/144 vertex, named:
## [1] tanmit
##
## [[136]]
## + 1/144 vertex, named:
## [1] ap
##
## [[137]]
## + 1/144 vertex, named:
## [1] halfak
##
## [[138]]
## + 1/144 vertex, named:
## [1] nyulaw
##
## [[139]]
## + 1/144 vertex, named:

```

```

## [1] mmacfadden
##
## [[140]]
## + 1/144 vertex, named:
## [1] reidpr
##
## [[141]]
## + 1/144 vertex, named:
## [1] _ellie
##
## [[142]]
## + 1/144 vertex, named:
## [1] pernillebjrn
##
## [[143]]
## + 1/144 vertex, named:
## [1] powells
##
## [[144]]
## + 1/144 vertex, named:
## [1] culminationbrew
##
## [[145]]
## + 2/144 vertices, named:
## [1] paulusm      andreawiggins
##
## [[146]]
## + 2/144 vertices, named:
## [1] paulusm acm_cscw
##
## [[147]]
## + 2/144 vertices, named:
## [1] ekstrandjd airi_
##
## [[148]]
## + 2/144 vertices, named:
## [1] basole      gvucenter
##
## [[149]]
## + 2/144 vertices, named:
## [1] drcjcarpenter airi_
##
## [[150]]
## + 2/144 vertices, named:
## [1] shionguha gvucenter
##
## [[151]]
## + 2/144 vertices, named:
## [1] shionguha msbernst
##
## [[152]]
## + 2/144 vertices, named:
## [1] shionguha airi_
##

```

```

## [[153]]
## + 2/144 vertices, named:
## [1] shionguha jcccf
##
## [[154]]
## + 2/144 vertices, named:
## [1] abdoelali      andreawiggins
##
## [[155]]
## + 2/144 vertices, named:
## [1] abdoelali acm_cscw
##
## [[156]]
## + 2/144 vertices, named:
## [1] hci_research dr_carmster
##
## [[157]]
## + 2/144 vertices, named:
## [1] calebtcarrphd airi_
##
## [[158]]
## + 2/144 vertices, named:
## [1] hci_lab      andreawiggins
##
## [[159]]
## + 2/144 vertices, named:
## [1] hci_lab acm_cscw
##
## [[160]]
## + 2/144 vertices, named:
## [1] betsyrolland mbietz
##
## [[161]]
## + 2/144 vertices, named:
## [1] ngorm airi_
##
## [[162]]
## + 2/144 vertices, named:
## [1] drlaeeqkhan acm_cscw
##
## [[163]]
## + 2/144 vertices, named:
## [1] asbruckman gvucenter
##
## [[164]]
## + 2/144 vertices, named:
## [1] asbruckman      andreawiggins
##
## [[165]]
## + 2/144 vertices, named:
## [1] asbruckman acm_cscw
##
## [[166]]
## + 2/144 vertices, named:

```

```

## [1] ragreens      oliverhaimson
##
## [[167]]
## + 2/144 vertices, named:
## [1] ragreens      naz_andalibi
##
## [[168]]
## + 2/144 vertices, named:
## [1] ragreens andicat
##
## [[169]]
## + 2/144 vertices, named:
## [1] websciencetrust acm_cscw
##
## [[170]]
## + 2/144 vertices, named:
## [1] madsesmith    oliverhaimson
##
## [[171]]
## + 2/144 vertices, named:
## [1] madsesmith    naz_andalibi
##
## [[172]]
## + 2/144 vertices, named:
## [1] madsesmith andicat
##
## [[173]]
## + 2/144 vertices, named:
## [1] phdischoolsu  andreawiggins
##
## [[174]]
## + 2/144 vertices, named:
## [1] phdischoolsu acm_cscw
##
## [[175]]
## + 2/144 vertices, named:
## [1] urbanitas pr_ozturk
##
## [[176]]
## + 2/144 vertices, named:
## [1] urbanitas    naz_andalibi
##
## [[177]]
## + 2/144 vertices, named:
## [1] urbanitas andicat
##
## [[178]]
## + 2/144 vertices, named:
## [1] urbanitas vocativ
##
## [[179]]
## + 2/144 vertices, named:
## [1] caoutchouc31 staeiou
##

```

```

## [[180]]
## + 2/144 vertices, named:
## [1] zaga_daga staeiou
##
## [[181]]
## + 2/144 vertices, named:
## [1] alisonpsu pr_ozturk
##
## [[182]]
## + 2/144 vertices, named:
## [1] alisonpsu naz_andalibi
##
## [[183]]
## + 2/144 vertices, named:
## [1] alisonpsu andicat
##
## [[184]]
## + 2/144 vertices, named:
## [1] alisonpsu vocativ
##
## [[185]]
## + 2/144 vertices, named:
## [1] sociotechnet pr_ozturk
##
## [[186]]
## + 2/144 vertices, named:
## [1] sociotechnet naz_andalibi
##
## [[187]]
## + 2/144 vertices, named:
## [1] sociotechnet andicat
##
## [[188]]
## + 2/144 vertices, named:
## [1] sociotechnet vocativ
##
## [[189]]
## + 2/144 vertices, named:
## [1] youyanghou pr_ozturk
##
## [[190]]
## + 2/144 vertices, named:
## [1] youyanghou naz_andalibi
##
## [[191]]
## + 2/144 vertices, named:
## [1] youyanghou andicat
##
## [[192]]
## + 2/144 vertices, named:
## [1] youyanghou vocativ
##
## [[193]]
## + 2/144 vertices, named:

```



```

## [1] deltalabnu hqz
##
## [[194]]
## + 2/144 vertices, named:
## [1] deltalabnu yongsung7
##
## [[195]]
## + 2/144 vertices, named:
## [1] webscicologne oliverhaimson
##
## [[196]]
## + 2/144 vertices, named:
## [1] webscicologne naz_andalibi
##
## [[197]]
## + 2/144 vertices, named:
## [1] webscicologne andicat
##
## [[198]]
## + 2/144 vertices, named:
## [1] c_gruenloh      oliverhaimson
##
## [[199]]
## + 2/144 vertices, named:
## [1] c_gruenloh      naz_andalibi
##
## [[200]]
## + 2/144 vertices, named:
## [1] c_gruenloh andicat
##
## [[201]]
## + 2/144 vertices, named:
## [1] domwln          oliverhaimson
##
## [[202]]
## + 2/144 vertices, named:
## [1] domwln          naz_andalibi
##
## [[203]]
## + 2/144 vertices, named:
## [1] domwln andicat
##
## [[204]]
## + 2/144 vertices, named:
## [1] rsoden geosoco
##
## [[205]]
## + 2/144 vertices, named:
## [1] 5tuartreeves joelefischer
##
## [[206]]
## + 2/144 vertices, named:
## [1] lizstokoe      joelefischer
##

```

```

## [[207]]
## + 2/144 vertices, named:
## [1] horizoncdt joelefisher
##
## [[208]]
## + 2/144 vertices, named:
## [1] horizoncdt acm_cscw
##
## [[209]]
## + 2/144 vertices, named:
## [1] nandito94 gvucenter
##
## [[210]]
## + 2/144 vertices, named:
## [1] uwdub acm_cscw
##
## [[211]]
## + 2/144 vertices, named:
## [1] xavix bigmlcom
##
## [[212]]
## + 2/144 vertices, named:
## [1] xavix acm_cscw
##
## [[213]]
## + 2/144 vertices, named:
## [1] oscarrovirac bigmlcom
##
## [[214]]
## + 2/144 vertices, named:
## [1] oscarrovirac acm_cscw
##
## [[215]]
## + 2/144 vertices, named:
## [1] uxjulie fbaccess
##
## [[216]]
## + 2/144 vertices, named:
## [1] uxjulie bromid
##
## [[217]]
## + 2/144 vertices, named:
## [1] uxjulie shaomeiwu
##
## [[218]]
## + 2/144 vertices, named:
## [1] dr_carmster samextrous
##
## [[219]]
## + 2/144 vertices, named:
## [1] bigmlcom efernandez
##
## [[220]]
## + 2/144 vertices, named:

```

```

## [1] bigmlcom acm_cscw
##
## [[221]]
## + 2/144 vertices, named:
## [1] efernandez acm_cscw
##
## [[222]]
## + 2/144 vertices, named:
## [1] gvucenter naz_andalibi
##
## [[223]]
## + 2/144 vertices, named:
## [1] gvucenter acm_cscw
##
## [[224]]
## + 2/144 vertices, named:
## [1] gvucenter eegilbert
##
## [[225]]
## + 2/144 vertices, named:
## [1] gvucenter tanmit
##
## [[226]]
## + 2/144 vertices, named:
## [1] gvucenter ap
##
## [[227]]
## + 2/144 vertices, named:
## [1] akionux wikiresearch
##
## [[228]]
## + 2/144 vertices, named:
## [1] akionux readermeter
##
## [[229]]
## + 2/144 vertices, named:
## [1] akionux capt_swing
##
## [[230]]
## + 2/144 vertices, named:
## [1] akionux halfak
##
## [[231]]
## + 2/144 vertices, named:
## [1] ravenben acm_cscw
##
## [[232]]
## + 2/144 vertices, named:
## [1] wikimedianyc wikiresearch
##
## [[233]]
## + 2/144 vertices, named:
## [1] wikimedianyc readermeter
##

```

```

## [[234]]
## + 2/144 vertices, named:
## [1] wikimediantyc capt_swing
##
## [[235]]
## + 2/144 vertices, named:
## [1] wikimediantyc halfak
##
## [[236]]
## + 2/144 vertices, named:
## [1] luiciolfi gaycyborg
##
## [[237]]
## + 2/144 vertices, named:
## [1] dcnacu      andreawiggins
##
## [[238]]
## + 2/144 vertices, named:
## [1] dcnacu      acm_cscw
##
## [[239]]
## + 2/144 vertices, named:
## [1] aviggio      wikiresearch
##
## [[240]]
## + 2/144 vertices, named:
## [1] aviggio      readermeter
##
## [[241]]
## + 2/144 vertices, named:
## [1] aviggio      capt_swing
##
## [[242]]
## + 2/144 vertices, named:
## [1] aviggio halfak
##
## [[243]]
## + 2/144 vertices, named:
## [1] theofficialmrl joelefisher
##
## [[244]]
## + 2/144 vertices, named:
## [1] theofficialmrl mporcheron
##
## [[245]]
## + 2/144 vertices, named:
## [1] theofficialmrl acm_cscw
##
## [[246]]
## + 2/144 vertices, named:
## [1] joelefisher mporcheron
##
## [[247]]
## + 2/144 vertices, named:

```

```

## [1] joelefisher decdtnetwork
##
## [[248]]
## + 2/144 vertices, named:
## [1] joelefisher acm_cscw
##
## [[249]]
## + 2/144 vertices, named:
## [1] mporcheron acm_cscw
##
## [[250]]
## + 2/144 vertices, named:
## [1] wolfgang8741 wikiresearch
##
## [[251]]
## + 2/144 vertices, named:
## [1] wolfgang8741 readermeter
##
## [[252]]
## + 2/144 vertices, named:
## [1] wolfgang8741 capt_swing
##
## [[253]]
## + 2/144 vertices, named:
## [1] wolfgang8741 halfak
##
## [[254]]
## + 2/144 vertices, named:
## [1] mbietz      andreawiggins
##
## [[255]]
## + 2/144 vertices, named:
## [1] andreawiggins matsch_o0
##
## [[256]]
## + 2/144 vertices, named:
## [1] andreawiggins acm_cscw
##
## [[257]]
## + 2/144 vertices, named:
## [1] msbernst  saiphcita
##
## [[258]]
## + 2/144 vertices, named:
## [1] msbernst  jcccf
##
## [[259]]
## + 2/144 vertices, named:
## [1] saiphcita   dtr_deltalab
##
## [[260]]
## + 2/144 vertices, named:
## [1] saiphcita   wikiresearch
##

```

```

## [[261]]
## + 2/144 vertices, named:
## [1] saiphcita readermeter
##
## [[262]]
## + 2/144 vertices, named:
## [1] saiphcita capt_swing
##
## [[263]]
## + 2/144 vertices, named:
## [1] saiphcita jcccf
##
## [[264]]
## + 2/144 vertices, named:
## [1] saiphcita halfak
##
## [[265]]
## + 2/144 vertices, named:
## [1] acwio kgajos
##
## [[266]]
## + 2/144 vertices, named:
## [1] levendowski nyulaw
##
## [[267]]
## + 2/144 vertices, named:
## [1] daniellecrobins mozillascience
##
## [[268]]
## + 2/144 vertices, named:
## [1] daniellecrobins auremoser
##
## [[269]]
## + 2/144 vertices, named:
## [1] natematias shyduroff
##
## [[270]]
## + 2/144 vertices, named:
## [1] natematias pr_ozturk
##
## [[271]]
## + 2/144 vertices, named:
## [1] natematias naz_andalibi
##
## [[272]]
## + 2/144 vertices, named:
## [1] natematias wikiresearch
##
## [[273]]
## + 2/144 vertices, named:
## [1] natematias andicat
##
## [[274]]
## + 2/144 vertices, named:

```

```

## [1] natematias readermeter
##
## [[275]]
## + 2/144 vertices, named:
## [1] natematias capt_swing
##
## [[276]]
## + 2/144 vertices, named:
## [1] natematias vocativ
##
## [[277]]
## + 2/144 vertices, named:
## [1] natematias halfak
##
## [[278]]
## + 2/144 vertices, named:
## [1] digihistorylab gaycyborg
##
## [[279]]
## + 2/144 vertices, named:
## [1] convergenceteam mmacfadden
##
## [[280]]
## + 2/144 vertices, named:
## [1] sigcis gaycyborg
##
## [[281]]
## + 2/144 vertices, named:
## [1] melstanfill cfiesler
##
## [[282]]
## + 2/144 vertices, named:
## [1] pr_ozturk oliverhaimson
##
## [[283]]
## + 2/144 vertices, named:
## [1] pr_ozturk naz_andalibi
##
## [[284]]
## + 2/144 vertices, named:
## [1] pr_ozturk andicat
##
## [[285]]
## + 2/144 vertices, named:
## [1] pr_ozturk vocativ
##
## [[286]]
## + 2/144 vertices, named:
## [1] oliverhaimson naz_andalibi
##
## [[287]]
## + 2/144 vertices, named:
## [1] oliverhaimson andicat
##

```

```

## [[288]]
## + 2/144 vertices, named:
## [1] oliverhaimson heratoms
##
## [[289]]
## + 2/144 vertices, named:
## [1] oliverhaimson vocativ
##
## [[290]]
## + 2/144 vertices, named:
## [1] naz_andalibi drexelcci
##
## [[291]]
## + 2/144 vertices, named:
## [1] naz_andalibi wikiresearch
##
## [[292]]
## + 2/144 vertices, named:
## [1] naz_andalibi andicat
##
## [[293]]
## + 2/144 vertices, named:
## [1] naz_andalibi heratoms
##
## [[294]]
## + 2/144 vertices, named:
## [1] naz_andalibi readermeter
##
## [[295]]
## + 2/144 vertices, named:
## [1] naz_andalibi capt_swing
##
## [[296]]
## + 2/144 vertices, named:
## [1] naz_andalibi erikchoi
##
## [[297]]
## + 2/144 vertices, named:
## [1] naz_andalibi acm_cscw
##
## [[298]]
## + 2/144 vertices, named:
## [1] naz_andalibi gaycyborg
##
## [[299]]
## + 2/144 vertices, named:
## [1] naz_andalibi vocativ
##
## [[300]]
## + 2/144 vertices, named:
## [1] naz_andalibi halfak
##
## [[301]]
## + 2/144 vertices, named:

```



```

## [1] drexelcci acm_cscw
##
## [[302]]
## + 2/144 vertices, named:
## [1] airi_      anneohirsch
##
## [[303]]
## + 2/144 vertices, named:
## [1] kgajos     marylgray
##
## [[304]]
## + 2/144 vertices, named:
## [1] mozillascience auremoser
##
## [[305]]
## + 2/144 vertices, named:
## [1] mozillascience marijanewhite
##
## [[306]]
## + 2/144 vertices, named:
## [1] auremoser     marijanewhite
##
## [[307]]
## + 2/144 vertices, named:
## [1] wikiresearch heratoms
##
## [[308]]
## + 2/144 vertices, named:
## [1] wikiresearch readermeter
##
## [[309]]
## + 2/144 vertices, named:
## [1] wikiresearch capt_swing
##
## [[310]]
## + 2/144 vertices, named:
## [1] wikiresearch acm_cscw
##
## [[311]]
## + 2/144 vertices, named:
## [1] wikiresearch halfak
##
## [[312]]
## + 2/144 vertices, named:
## [1] wikiresearch reidpr
##
## [[313]]
## + 2/144 vertices, named:
## [1] matsch_o0 dieptl
##
## [[314]]
## + 2/144 vertices, named:
## [1] matsch_o0 acm_cscw
##

```

```

## [[315]]
## + 2/144 vertices, named:
## [1] matsch_o0 _ellie
##
## [[316]]
## + 2/144 vertices, named:
## [1] matsch_o0    pernillebjrn
##
## [[317]]
## + 2/144 vertices, named:
## [1] andicat  heratoms
##
## [[318]]
## + 2/144 vertices, named:
## [1] heratoms    readermeter
##
## [[319]]
## + 2/144 vertices, named:
## [1] heratoms    capt_swing
##
## [[320]]
## + 2/144 vertices, named:
## [1] heratoms    samshorey
##
## [[321]]
## + 2/144 vertices, named:
## [1] heratoms    thebigfiveone
##
## [[322]]
## + 2/144 vertices, named:
## [1] heratoms    stephaniebeth
##
## [[323]]
## + 2/144 vertices, named:
## [1] heratoms    geosoco
##
## [[324]]
## + 2/144 vertices, named:
## [1] heratoms    staeiou
##
## [[325]]
## + 2/144 vertices, named:
## [1] heratoms    gaycyborg
##
## [[326]]
## + 2/144 vertices, named:
## [1] heratoms    halfak
##
## [[327]]
## + 2/144 vertices, named:
## [1] heratoms    powells
##
## [[328]]
## + 2/144 vertices, named:

```

```

## [1] readermeter capt_swing
##
## [[329]]
## + 2/144 vertices, named:
## [1] readermeter halfak
##
## [[330]]
## + 2/144 vertices, named:
## [1] capt_swing halfak
##
## [[331]]
## + 2/144 vertices, named:
## [1] dieptl      pernillebjrn
##
## [[332]]
## + 2/144 vertices, named:
## [1] acm_cscw staeiou
##
## [[333]]
## + 2/144 vertices, named:
## [1] dwmcphd      culminationbrew
##
## [[334]]
## + 2/144 vertices, named:
## [1] elaineraybourn ericpsb
##
## [[335]]
## + 2/144 vertices, named:
## [1] ericpsb      luke_stark
##
## [[336]]
## + 2/144 vertices, named:
## [1] staeiou      luke_stark
##
## [[337]]
## + 2/144 vertices, named:
## [1] cfiesler informor
##
## [[338]]
## + 3/144 vertices, named:
## [1] paulusm      andreawiggins acm_cscw
##
## [[339]]
## + 3/144 vertices, named:
## [1] shionguha msbernst jcccf
##
## [[340]]
## + 3/144 vertices, named:
## [1] abdoelali      andreawiggins acm_cscw
##
## [[341]]
## + 3/144 vertices, named:
## [1] hci_lab      andreawiggins acm_cscw
##

```

```

## [[342]]
## + 3/144 vertices, named:
## [1] asbruckman gvucenter acm_cscw
##
## [[343]]
## + 3/144 vertices, named:
## [1] asbruckman andreawiggins acm_cscw
##
## [[344]]
## + 3/144 vertices, named:
## [1] ragreens oliverhaimson naz_andalibi
##
## [[345]]
## + 3/144 vertices, named:
## [1] ragreens oliverhaimson andicat
##
## [[346]]
## + 3/144 vertices, named:
## [1] ragreens naz_andalibi andicat
##
## [[347]]
## + 3/144 vertices, named:
## [1] madsesmith oliverhaimson naz_andalibi
##
## [[348]]
## + 3/144 vertices, named:
## [1] madsesmith oliverhaimson andicat
##
## [[349]]
## + 3/144 vertices, named:
## [1] madsesmith naz_andalibi andicat
##
## [[350]]
## + 3/144 vertices, named:
## [1] phdischoolsu andreawiggins acm_cscw
##
## [[351]]
## + 3/144 vertices, named:
## [1] urbanitas pr_ozturk naz_andalibi
##
## [[352]]
## + 3/144 vertices, named:
## [1] urbanitas pr_ozturk andicat
##
## [[353]]
## + 3/144 vertices, named:
## [1] urbanitas pr_ozturk vocativ
##
## [[354]]
## + 3/144 vertices, named:
## [1] urbanitas naz_andalibi andicat
##
## [[355]]
## + 3/144 vertices, named:

```

```

## [1] urbanitas    naz_andalibi vocativ
##
## [[356]]
## + 3/144 vertices, named:
## [1] alisonpsu    pr_ozturk    naz_andalibi
##
## [[357]]
## + 3/144 vertices, named:
## [1] alisonpsu pr_ozturk andicat
##
## [[358]]
## + 3/144 vertices, named:
## [1] alisonpsu pr_ozturk vocativ
##
## [[359]]
## + 3/144 vertices, named:
## [1] alisonpsu    naz_andalibi andicat
##
## [[360]]
## + 3/144 vertices, named:
## [1] alisonpsu    naz_andalibi vocativ
##
## [[361]]
## + 3/144 vertices, named:
## [1] sociotechnet pr_ozturk    naz_andalibi
##
## [[362]]
## + 3/144 vertices, named:
## [1] sociotechnet pr_ozturk    andicat
##
## [[363]]
## + 3/144 vertices, named:
## [1] sociotechnet pr_ozturk    vocativ
##
## [[364]]
## + 3/144 vertices, named:
## [1] sociotechnet naz_andalibi andicat
##
## [[365]]
## + 3/144 vertices, named:
## [1] sociotechnet naz_andalibi vocativ
##
## [[366]]
## + 3/144 vertices, named:
## [1] youyanghou   pr_ozturk    naz_andalibi
##
## [[367]]
## + 3/144 vertices, named:
## [1] youyanghou pr_ozturk    andicat
##
## [[368]]
## + 3/144 vertices, named:
## [1] youyanghou pr_ozturk    vocativ
##

```

```

## [[369]]
## + 3/144 vertices, named:
## [1] youyanghou naz_andalibi andicat
##
## [[370]]
## + 3/144 vertices, named:
## [1] youyanghou naz_andalibi vocativ
##
## [[371]]
## + 3/144 vertices, named:
## [1] webscicologne oliverhaimson naz_andalibi
##
## [[372]]
## + 3/144 vertices, named:
## [1] webscicologne oliverhaimson andicat
##
## [[373]]
## + 3/144 vertices, named:
## [1] webscicologne naz_andalibi andicat
##
## [[374]]
## + 3/144 vertices, named:
## [1] c_gruenloh oliverhaimson naz_andalibi
##
## [[375]]
## + 3/144 vertices, named:
## [1] c_gruenloh oliverhaimson andicat
##
## [[376]]
## + 3/144 vertices, named:
## [1] c_gruenloh naz_andalibi andicat
##
## [[377]]
## + 3/144 vertices, named:
## [1] domwln oliverhaimson naz_andalibi
##
## [[378]]
## + 3/144 vertices, named:
## [1] domwln oliverhaimson andicat
##
## [[379]]
## + 3/144 vertices, named:
## [1] domwln naz_andalibi andicat
##
## [[380]]
## + 3/144 vertices, named:
## [1] horizoncdt joelefischer acm_cscw
##
## [[381]]
## + 3/144 vertices, named:
## [1] xavix bigmlcom acm_cscw
##
## [[382]]
## + 3/144 vertices, named:

```

```

## [1] oscarrovirac bigmlcom      acm_cscw
##
## [[383]]
## + 3/144 vertices, named:
## [1] bigmlcom      efernandez acm_cscw
##
## [[384]]
## + 3/144 vertices, named:
## [1] gvucenter      naz_andalibi acm_cscw
##
## [[385]]
## + 3/144 vertices, named:
## [1] akionux        wikiresearch readermeter
##
## [[386]]
## + 3/144 vertices, named:
## [1] akionux        wikiresearch capt_swing
##
## [[387]]
## + 3/144 vertices, named:
## [1] akionux        wikiresearch halfak
##
## [[388]]
## + 3/144 vertices, named:
## [1] akionux        readermeter capt_swing
##
## [[389]]
## + 3/144 vertices, named:
## [1] akionux        readermeter halfak
##
## [[390]]
## + 3/144 vertices, named:
## [1] akionux        capt_swing halfak
##
## [[391]]
## + 3/144 vertices, named:
## [1] wikimedianyc  wikiresearch readermeter
##
## [[392]]
## + 3/144 vertices, named:
## [1] wikimedianyc  wikiresearch capt_swing
##
## [[393]]
## + 3/144 vertices, named:
## [1] wikimedianyc  wikiresearch halfak
##
## [[394]]
## + 3/144 vertices, named:
## [1] wikimedianyc  readermeter  capt_swing
##
## [[395]]
## + 3/144 vertices, named:
## [1] wikimedianyc  readermeter  halfak
##

```

```

## [[396]]
## + 3/144 vertices, named:
## [1] wikimediantyc capt_swing halfak
##
## [[397]]
## + 3/144 vertices, named:
## [1] dcnacu andreaawiggins acm_cscw
##
## [[398]]
## + 3/144 vertices, named:
## [1] aviggio wikiresearch readermeter
##
## [[399]]
## + 3/144 vertices, named:
## [1] aviggio wikiresearch capt_swing
##
## [[400]]
## + 3/144 vertices, named:
## [1] aviggio wikiresearch halfak
##
## [[401]]
## + 3/144 vertices, named:
## [1] aviggio readermeter capt_swing
##
## [[402]]
## + 3/144 vertices, named:
## [1] aviggio readermeter halfak
##
## [[403]]
## + 3/144 vertices, named:
## [1] aviggio capt_swing halfak
##
## [[404]]
## + 3/144 vertices, named:
## [1] theofficialmrl joelefisher mporcheron
##
## [[405]]
## + 3/144 vertices, named:
## [1] theofficialmrl joelefisher acm_cscw
##
## [[406]]
## + 3/144 vertices, named:
## [1] theofficialmrl mporcheron acm_cscw
##
## [[407]]
## + 3/144 vertices, named:
## [1] joelefisher mporcheron acm_cscw
##
## [[408]]
## + 3/144 vertices, named:
## [1] wolfgang8741 wikiresearch readermeter
##
## [[409]]
## + 3/144 vertices, named:

```



```

## [1] wolfgang8741 wikiresearch capt_swing
##
## [[410]]
## + 3/144 vertices, named:
## [1] wolfgang8741 wikiresearch halfak
##
## [[411]]
## + 3/144 vertices, named:
## [1] wolfgang8741 readermeter capt_swing
##
## [[412]]
## + 3/144 vertices, named:
## [1] wolfgang8741 readermeter halfak
##
## [[413]]
## + 3/144 vertices, named:
## [1] wolfgang8741 capt_swing halfak
##
## [[414]]
## + 3/144 vertices, named:
## [1] andreawiggins matsch_o0 acm_cscw
##
## [[415]]
## + 3/144 vertices, named:
## [1] msbernst saiphcita jcccf
##
## [[416]]
## + 3/144 vertices, named:
## [1] saiphcita wikiresearch readermeter
##
## [[417]]
## + 3/144 vertices, named:
## [1] saiphcita wikiresearch capt_swing
##
## [[418]]
## + 3/144 vertices, named:
## [1] saiphcita wikiresearch halfak
##
## [[419]]
## + 3/144 vertices, named:
## [1] saiphcita readermeter capt_swing
##
## [[420]]
## + 3/144 vertices, named:
## [1] saiphcita readermeter halfak
##
## [[421]]
## + 3/144 vertices, named:
## [1] saiphcita capt_swing halfak
##
## [[422]]
## + 3/144 vertices, named:
## [1] daniellecrobins mozillascience auremoser
##

```

```

## [[423]]
## + 3/144 vertices, named:
## [1] natematias pr_ozturk naz_andalibi
##
## [[424]]
## + 3/144 vertices, named:
## [1] natematias pr_ozturk andicat
##
## [[425]]
## + 3/144 vertices, named:
## [1] natematias pr_ozturk vocativ
##
## [[426]]
## + 3/144 vertices, named:
## [1] natematias naz_andalibi wikiresearch
##
## [[427]]
## + 3/144 vertices, named:
## [1] natematias naz_andalibi andicat
##
## [[428]]
## + 3/144 vertices, named:
## [1] natematias naz_andalibi readermeter
##
## [[429]]
## + 3/144 vertices, named:
## [1] natematias naz_andalibi capt_swing
##
## [[430]]
## + 3/144 vertices, named:
## [1] natematias naz_andalibi vocativ
##
## [[431]]
## + 3/144 vertices, named:
## [1] natematias naz_andalibi halfak
##
## [[432]]
## + 3/144 vertices, named:
## [1] natematias wikiresearch readermeter
##
## [[433]]
## + 3/144 vertices, named:
## [1] natematias wikiresearch capt_swing
##
## [[434]]
## + 3/144 vertices, named:
## [1] natematias wikiresearch halfak
##
## [[435]]
## + 3/144 vertices, named:
## [1] natematias readermeter capt_swing
##
## [[436]]
## + 3/144 vertices, named:

```

```

## [1] natematias readermeter halfak
##
## [[437]]
## + 3/144 vertices, named:
## [1] natematias capt_swing halfak
##
## [[438]]
## + 3/144 vertices, named:
## [1] pr_ozturk      oliverhaimson naz_andalibi
##
## [[439]]
## + 3/144 vertices, named:
## [1] pr_ozturk      oliverhaimson andicat
##
## [[440]]
## + 3/144 vertices, named:
## [1] pr_ozturk      oliverhaimson vocativ
##
## [[441]]
## + 3/144 vertices, named:
## [1] pr_ozturk      naz_andalibi andicat
##
## [[442]]
## + 3/144 vertices, named:
## [1] pr_ozturk      naz_andalibi vocativ
##
## [[443]]
## + 3/144 vertices, named:
## [1] oliverhaimson naz_andalibi andicat
##
## [[444]]
## + 3/144 vertices, named:
## [1] oliverhaimson naz_andalibi heratoms
##
## [[445]]
## + 3/144 vertices, named:
## [1] oliverhaimson naz_andalibi vocativ
##
## [[446]]
## + 3/144 vertices, named:
## [1] oliverhaimson andicat      heratoms
##
## [[447]]
## + 3/144 vertices, named:
## [1] naz_andalibi drexelcci    acm_cscw
##
## [[448]]
## + 3/144 vertices, named:
## [1] naz_andalibi wikiresearch heratoms
##
## [[449]]
## + 3/144 vertices, named:
## [1] naz_andalibi wikiresearch readermeter
##

```

```

## [[450]]
## + 3/144 vertices, named:
## [1] naz_andalibi wikiresearch capt_swing
##
## [[451]]
## + 3/144 vertices, named:
## [1] naz_andalibi wikiresearch acm_cscw
##
## [[452]]
## + 3/144 vertices, named:
## [1] naz_andalibi wikiresearch halfak
##
## [[453]]
## + 3/144 vertices, named:
## [1] naz_andalibi andicat      heratoms
##
## [[454]]
## + 3/144 vertices, named:
## [1] naz_andalibi heratoms     readermeter
##
## [[455]]
## + 3/144 vertices, named:
## [1] naz_andalibi heratoms     capt_swing
##
## [[456]]
## + 3/144 vertices, named:
## [1] naz_andalibi heratoms     gaycyborg
##
## [[457]]
## + 3/144 vertices, named:
## [1] naz_andalibi heratoms     halfak
##
## [[458]]
## + 3/144 vertices, named:
## [1] naz_andalibi readermeter  capt_swing
##
## [[459]]
## + 3/144 vertices, named:
## [1] naz_andalibi readermeter  halfak
##
## [[460]]
## + 3/144 vertices, named:
## [1] naz_andalibi capt_swing   halfak
##
## [[461]]
## + 3/144 vertices, named:
## [1] mozillascience auremoser    marijanewhite
##
## [[462]]
## + 3/144 vertices, named:
## [1] wikiresearch heratoms     readermeter
##
## [[463]]
## + 3/144 vertices, named:

```

```

## [1] wikiresearch heratoms      capt_swing
##
## [[464]]
## + 3/144 vertices, named:
## [1] wikiresearch heratoms      halfak
##
## [[465]]
## + 3/144 vertices, named:
## [1] wikiresearch readermeter    capt_swing
##
## [[466]]
## + 3/144 vertices, named:
## [1] wikiresearch readermeter    halfak
##
## [[467]]
## + 3/144 vertices, named:
## [1] wikiresearch capt_swing     halfak
##
## [[468]]
## + 3/144 vertices, named:
## [1] matsch_o0    dieptl        pernillebjrn
##
## [[469]]
## + 3/144 vertices, named:
## [1] heratoms      readermeter    capt_swing
##
## [[470]]
## + 3/144 vertices, named:
## [1] heratoms      readermeter    halfak
##
## [[471]]
## + 3/144 vertices, named:
## [1] heratoms      capt_swing     halfak
##
## [[472]]
## + 3/144 vertices, named:
## [1] readermeter    capt_swing     halfak
##
## [[473]]
## + 4/144 vertices, named:
## [1] ragreens      oliverhaimson naz_andalibi  andicat
##
## [[474]]
## + 4/144 vertices, named:
## [1] madsesmith    oliverhaimson naz_andalibi  andicat
##
## [[475]]
## + 4/144 vertices, named:
## [1] urbanitas      pr_ozturk      naz_andalibi  andicat
##
## [[476]]
## + 4/144 vertices, named:
## [1] urbanitas      pr_ozturk      naz_andalibi  vocativ
##

```

```

## [[477]]
## + 4/144 vertices, named:
## [1] alisonpsu    pr_ozturk    naz_andalibi andicat
##
## [[478]]
## + 4/144 vertices, named:
## [1] alisonpsu    pr_ozturk    naz_andalibi vocativ
##
## [[479]]
## + 4/144 vertices, named:
## [1] sociotechnet pr_ozturk    naz_andalibi andicat
##
## [[480]]
## + 4/144 vertices, named:
## [1] sociotechnet pr_ozturk    naz_andalibi vocativ
##
## [[481]]
## + 4/144 vertices, named:
## [1] youyanghou   pr_ozturk    naz_andalibi andicat
##
## [[482]]
## + 4/144 vertices, named:
## [1] youyanghou   pr_ozturk    naz_andalibi vocativ
##
## [[483]]
## + 4/144 vertices, named:
## [1] webscicologne oliverhaimson naz_andalibi andicat
##
## [[484]]
## + 4/144 vertices, named:
## [1] c_gruenloh    oliverhaimson naz_andalibi andicat
##
## [[485]]
## + 4/144 vertices, named:
## [1] domwln        oliverhaimson naz_andalibi andicat
##
## [[486]]
## + 4/144 vertices, named:
## [1] akionux       wikiresearch  readermeter   capt_swing
##
## [[487]]
## + 4/144 vertices, named:
## [1] akionux       wikiresearch  readermeter   halfak
##
## [[488]]
## + 4/144 vertices, named:
## [1] akionux       wikiresearch  capt_swing    halfak
##
## [[489]]
## + 4/144 vertices, named:
## [1] akionux       readermeter   capt_swing    halfak
##
## [[490]]
## + 4/144 vertices, named:

```

```

## [1] wikimediantyc wikiresearch readermeter capt_swing
##
## [[491]]
## + 4/144 vertices, named:
## [1] wikimediantyc wikiresearch readermeter halfak
##
## [[492]]
## + 4/144 vertices, named:
## [1] wikimediantyc wikiresearch capt_swing halfak
##
## [[493]]
## + 4/144 vertices, named:
## [1] wikimediantyc readermeter capt_swing halfak
##
## [[494]]
## + 4/144 vertices, named:
## [1] aviggio wikiresearch readermeter capt_swing
##
## [[495]]
## + 4/144 vertices, named:
## [1] aviggio wikiresearch readermeter halfak
##
## [[496]]
## + 4/144 vertices, named:
## [1] aviggio wikiresearch capt_swing halfak
##
## [[497]]
## + 4/144 vertices, named:
## [1] aviggio readermeter capt_swing halfak
##
## [[498]]
## + 4/144 vertices, named:
## [1] theofficialmrl joelefisher mporcheron acm_cscw
##
## [[499]]
## + 4/144 vertices, named:
## [1] wolfgang8741 wikiresearch readermeter capt_swing
##
## [[500]]
## + 4/144 vertices, named:
## [1] wolfgang8741 wikiresearch readermeter halfak
##
## [[501]]
## + 4/144 vertices, named:
## [1] wolfgang8741 wikiresearch capt_swing halfak
##
## [[502]]
## + 4/144 vertices, named:
## [1] wolfgang8741 readermeter capt_swing halfak
##
## [[503]]
## + 4/144 vertices, named:
## [1] saiphcita wikiresearch readermeter capt_swing
##

```

```

## [[504]]
## + 4/144 vertices, named:
## [1] saiphcita    wikiresearch readermeter halfak
##
## [[505]]
## + 4/144 vertices, named:
## [1] saiphcita    wikiresearch capt_swing halfak
##
## [[506]]
## + 4/144 vertices, named:
## [1] saiphcita    readermeter capt_swing halfak
##
## [[507]]
## + 4/144 vertices, named:
## [1] natematias  pr_ozturk    naz_andalibi andicat
##
## [[508]]
## + 4/144 vertices, named:
## [1] natematias  pr_ozturk    naz_andalibi vocativ
##
## [[509]]
## + 4/144 vertices, named:
## [1] natematias  naz_andalibi wikiresearch readermeter
##
## [[510]]
## + 4/144 vertices, named:
## [1] natematias  naz_andalibi wikiresearch capt_swing
##
## [[511]]
## + 4/144 vertices, named:
## [1] natematias  naz_andalibi wikiresearch halfak
##
## [[512]]
## + 4/144 vertices, named:
## [1] natematias  naz_andalibi readermeter capt_swing
##
## [[513]]
## + 4/144 vertices, named:
## [1] natematias  naz_andalibi readermeter halfak
##
## [[514]]
## + 4/144 vertices, named:
## [1] natematias  naz_andalibi capt_swing halfak
##
## [[515]]
## + 4/144 vertices, named:
## [1] natematias  wikiresearch readermeter capt_swing
##
## [[516]]
## + 4/144 vertices, named:
## [1] natematias  wikiresearch readermeter halfak
##
## [[517]]
## + 4/144 vertices, named:

```



```

## [1] natematias    wikiresearch capt_swing    halfak
##
## [[518]]
## + 4/144 vertices, named:
## [1] natematias    readermeter capt_swing    halfak
##
## [[519]]
## + 4/144 vertices, named:
## [1] pr_ozturk      oliverhaimson naz_andalibi    andicat
##
## [[520]]
## + 4/144 vertices, named:
## [1] pr_ozturk      oliverhaimson naz_andalibi    vocativ
##
## [[521]]
## + 4/144 vertices, named:
## [1] oliverhaimson naz_andalibi    andicat      heratoms
##
## [[522]]
## + 4/144 vertices, named:
## [1] naz_andalibi wikiresearch heratoms    readermeter
##
## [[523]]
## + 4/144 vertices, named:
## [1] naz_andalibi wikiresearch heratoms    capt_swing
##
## [[524]]
## + 4/144 vertices, named:
## [1] naz_andalibi wikiresearch heratoms    halfak
##
## [[525]]
## + 4/144 vertices, named:
## [1] naz_andalibi wikiresearch readermeter    capt_swing
##
## [[526]]
## + 4/144 vertices, named:
## [1] naz_andalibi wikiresearch readermeter    halfak
##
## [[527]]
## + 4/144 vertices, named:
## [1] naz_andalibi wikiresearch capt_swing    halfak
##
## [[528]]
## + 4/144 vertices, named:
## [1] naz_andalibi heratoms    readermeter    capt_swing
##
## [[529]]
## + 4/144 vertices, named:
## [1] naz_andalibi heratoms    readermeter    halfak
##
## [[530]]
## + 4/144 vertices, named:
## [1] naz_andalibi heratoms    capt_swing    halfak
##

```

```

## [[531]]
## + 4/144 vertices, named:
## [1] naz_andalibi readermeter capt_swing halfak
##
## [[532]]
## + 4/144 vertices, named:
## [1] wikiresearch heratoms readermeter capt_swing
##
## [[533]]
## + 4/144 vertices, named:
## [1] wikiresearch heratoms readermeter halfak
##
## [[534]]
## + 4/144 vertices, named:
## [1] wikiresearch heratoms capt_swing halfak
##
## [[535]]
## + 4/144 vertices, named:
## [1] wikiresearch readermeter capt_swing halfak
##
## [[536]]
## + 4/144 vertices, named:
## [1] heratoms readermeter capt_swing halfak
##
## [[537]]
## + 5/144 vertices, named:
## [1] akionux wikiresearch readermeter capt_swing halfak
##
## [[538]]
## + 5/144 vertices, named:
## [1] wikimediantyc wikiresearch readermeter capt_swing halfak
##
## [[539]]
## + 5/144 vertices, named:
## [1] aviggio wikiresearch readermeter capt_swing halfak
##
## [[540]]
## + 5/144 vertices, named:
## [1] wolfgang8741 wikiresearch readermeter capt_swing halfak
##
## [[541]]
## + 5/144 vertices, named:
## [1] saiphcita wikiresearch readermeter capt_swing halfak
##
## [[542]]
## + 5/144 vertices, named:
## [1] natematias naz_andalibi wikiresearch readermeter capt_swing
##
## [[543]]
## + 5/144 vertices, named:
## [1] natematias naz_andalibi wikiresearch readermeter halfak
##
## [[544]]
## + 5/144 vertices, named:

```

```

## [1] natematias naz_andalibi wikiresearch capt_swing halfak
##
## [[545]]
## + 5/144 vertices, named:
## [1] natematias naz_andalibi readermeter capt_swing halfak
##
## [[546]]
## + 5/144 vertices, named:
## [1] natematias wikiresearch readermeter capt_swing halfak
##
## [[547]]
## + 5/144 vertices, named:
## [1] naz_andalibi wikiresearch heratoms readermeter capt_swing
##
## [[548]]
## + 5/144 vertices, named:
## [1] naz_andalibi wikiresearch heratoms readermeter halfak
##
## [[549]]
## + 5/144 vertices, named:
## [1] naz_andalibi wikiresearch heratoms capt_swing halfak
##
## [[550]]
## + 5/144 vertices, named:
## [1] naz_andalibi wikiresearch readermeter capt_swing halfak
##
## [[551]]
## + 5/144 vertices, named:
## [1] naz_andalibi heratoms readermeter capt_swing halfak
##
## [[552]]
## + 5/144 vertices, named:
## [1] wikiresearch heratoms readermeter capt_swing halfak
##
## [[553]]
## + 6/144 vertices, named:
## [1] natematias naz_andalibi wikiresearch readermeter capt_swing
## [6] halfak
##
## [[554]]
## + 6/144 vertices, named:
## [1] naz_andalibi wikiresearch heratoms readermeter capt_swing
## [6] halfak

```

```
largest.cliques(g)
```

```

## Warning in .Call("R_igraph_largest_cliques", graph, PACKAGE = "igraph"): At
## cliques.c:908 :directionality of edges is ignored for directed graphs
##
## [[1]]
## + 6/144 vertices, named:
## [1] halfak wikiresearch readermeter capt_swing naz_andalibi
## [6] heratoms
##
## [[2]]

```

```
## + 6/144 vertices, named:  
## [1] halfak      wikiresearch readermeter  capt_swing  naz_andalibi  
## [6] natematias
```