

WA. Working with raw data

Introduction to Social Network Analysis in R

Dr. Uma Ravat

1. Setting up the network

```
# (remove # below and run this if they are not already installed )
# once installed put # back to avoid warnings/errors
#install.packages("igraph")
#install.packages("igraphdata")

library(igraphdata)
library(igraph)

##
## Attaching package: 'igraph'

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

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

library(Matrix)

## Some setup so plots are bigger with no margins
#default margins
def_marg <- c(5.1, 4.1, 4.1, 2.1)

#no margins
no_marg <- c(0, 0, 0, 0)

## load the data and export to .csv
data(UKfaculty)
UKfaculty.df <- igraph::as_data_frame(UKfaculty)

## This graph was created by an old(er) igraph version.
##   Call upgrade_graph() on it to use with the current igraph version
##   For now we convert it on the fly...
```

```
write.csv(UKfaculty.df,"../data/ukfaculty_df.csv", row.names = FALSE)
```

Load the UKfaculty data frame from the csv file.

```
UKfaculty_df <- read.csv("../data/ukfaculty_df.csv")  
EL <- subset(UKfaculty_df, select = c(1, 2))  
UKfaculty.edgelist <- matrix(unlist(EL),ncol=2)
```

Convert Network Edge Data to 'igraph' Objects

```
#general igraph (defaults to directed)  
UKfaculty.igraph <- graph.edgelist((UKfaculty.edgelist))  
  
class(UKfaculty.igraph)
```

```
## [1] "igraph"
```

```
UKfaculty.igraph
```

```
## IGRAPH 877eba7 D--- 81 817 --  
## + edges from 877eba7:  
## [1] 57->52 76->42 12->69 43->34 28->47 58->51 7->29 40->71 5->37 48->55  
## [11] 6->58 21->8 28->69 43->21 67->58 65->42 5->67 52->75 37->64 4->36  
## [21] 12->49 19->46 37->9 74->36 62->1 15->2 72->49 46->62 2->29 40->12  
## [31] 22->29 71->69 4->3 37->69 5->6 77->13 23->49 52->35 20->14 62->70  
## [41] 34->35 76->72 7->42 37->42 51->80 38->45 62->64 36->53 62->77 17->61  
## [51] 7->68 46->29 44->53 18->58 12->16 72->42 52->32 58->21 38->17 15->51  
## [61] 22->7 22->69 5->13 29->2 77->12 37->35 18->46 10->71 22->47 20->19  
## [71] 19->31 68->13 49->69 30->63 5->49 53->75 62->57 73->81 29->69 71->40  
## [81] 19->58 49->42 37->5 18->2 20->80 75->53 15->54 76->58 40->23 5->12  
## + ... omitted several edges
```

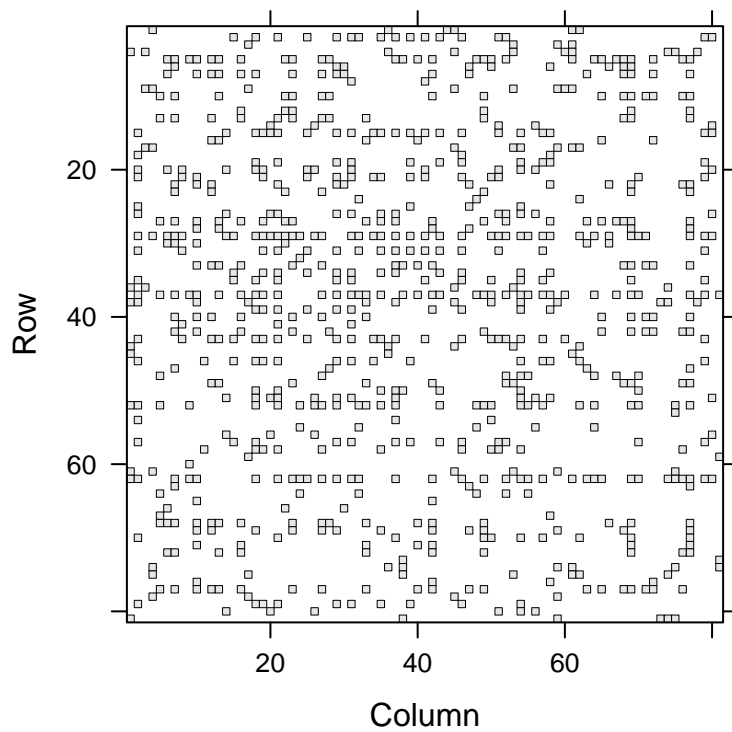
```
UKfaculty
```

```
## IGRAPH 6f42903 D-W- 81 817 --  
## + attr: Type (g/c), Date (g/c), Citation (g/c), Author (g/c), Group  
## | (v/n), weight (e/n)  
## + edges from 6f42903:  
## [1] 57->52 76->42 12->69 43->34 28->47 58->51 7->29 40->71 5->37 48->55  
## [11] 6->58 21->8 28->69 43->21 67->58 65->42 5->67 52->75 37->64 4->36  
## [21] 12->49 19->46 37->9 74->36 62->1 15->2 72->49 46->62 2->29 40->12  
## [31] 22->29 71->69 4->3 37->69 5->6 77->13 23->49 52->35 20->14 62->70  
## [41] 34->35 76->72 7->42 37->42 51->80 38->45 62->64 36->53 62->77 17->61  
## [51] 7->68 46->29 44->53 18->58 12->16 72->42 52->32 58->21 38->17 15->51  
## [61] 22->7 22->69 5->13 29->2 77->12 37->35 18->46 10->71 22->47 20->19  
## + ... omitted several edges
```


[illegible]

Adjacency Matrix Visualization

```
image(Matrix(UKfaculty.adjacency))
```



Dimensions: 81 x 81

Save the igraph object

```
# Save an object to a file
saveRDS(UKfaculty.igraph, file = "../data/my_UKfaculty_igraph.rds")
# Restore the object
my_UKfaculty <- readRDS(file = "../data/my_UKfaculty_igraph.rds")

my_UKfaculty
```

```
## IGRAPH 877eba7 D--- 81 817 --
## + edges from 877eba7:
## [1] 57->52 76->42 12->69 43->34 28->47 58->51 7->29 40->71 5->37 48->55
## [11] 6->58 21->8 28->69 43->21 67->58 65->42 5->67 52->75 37->64 4->36
## [21] 12->49 19->46 37->9 74->36 62->1 15->2 72->49 46->62 2->29 40->12
## [31] 22->29 71->69 4->3 37->69 5->6 77->13 23->49 52->35 20->14 62->70
## [41] 34->35 76->72 7->42 37->42 51->80 38->45 62->64 36->53 62->77 17->61
## [51] 7->68 46->29 44->53 18->58 12->16 72->42 52->32 58->21 38->17 15->51
## [61] 22->7 22->69 5->13 29->2 77->12 37->35 18->46 10->71 22->47 20->19
## [71] 19->31 68->13 49->69 30->63 5->49 53->75 62->57 73->81 29->69 71->40
## [81] 19->58 49->42 37->5 18->2 20->80 75->53 15->54 76->58 40->23 5->12
## + ... omitted several edges
```