Graphing Metrics PDF

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R Markdown

–> Best practice when it comes to NLP is to explore the data, the nodes, and metrics related to the nodes. Understanding this data and its structure opens us to the next steps to conduct proper NLP analysis and start the preprocessing of the data

```
library(igraph)
```

```
## Warning: package 'igraph' was built under R version 3.6.2
```

```
##
## Attaching package: 'igraph'
```

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

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

```
library(rmarkdown)

Members= read.csv("Members.csv", header=T)
CommitteeEMail= read.csv("CommitteeEMail.csv", header=T)
#GraphDensity
Membersgraph=graph_from_data_frame(Members, directed=F)
Membersgraph=graph_from_data_frame(Members, directed=F, vertices=CommitteeEMail)
```

```
## Error in graph_from_data_frame(Members, directed = F, vertices = CommitteeEMail): Duplicate vertex na
```

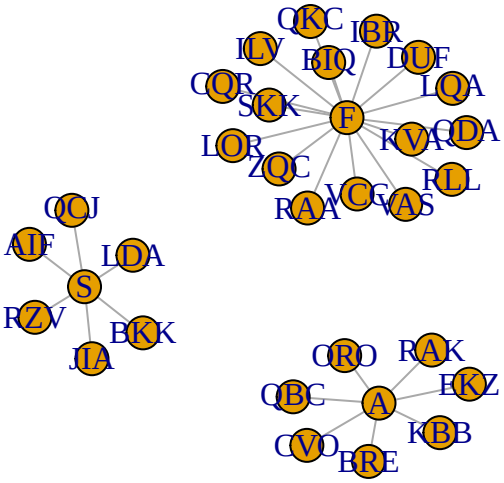
```
V(Membersgraph)
```

```
## + 32/32 vertices, named, from 483e14f:
##  [1] KVA RLL RAK LQA RAA LOR AIF VAS SKK CQR RZV LDA DUF ZQC QDA CVO BRE
## [18] JIA BIQ EKZ QCJ QKC KBB ORO BKK QBC ILV VCC IBR F   A   S
```

```
E(Membersgraph)
```

```
## + 29/29 edges from 483e14f (vertex names):
##  [1] KVA--F RLL--F RAK--A LQA--F RAA--F LOR--F AIF--S VAS--F SKK--F CQR--F
## [11] RZV--S LDA--S DUF--F ZQC--F QDA--F CVO--A BRE--A JIA--S BIQ--F EKZ--A
## [21] QCJ--S QKC--F KBB--A ORO--A BKK--S QBC--A ILV--F VCC--F IBR--F
```

```
MG= simplify(Membersgraph)
plot(MG)
```




```
graph.density(MG)
```

```
## [1] 0.05846774
```

```
#GraphReciprocity
reciprocity(MG)
```

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

```
#Egometrics- degree
degree(MG)
```

```
## KVA RLL RAK LQA RAA LOR AIF VAS SKK CQR RZV LDA DUF ZQC QDA CVO BRE JIA
##   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1
## BIQ EKZ QCJ QKC KBB ORO BKK QBC ILV VCC IBR   F   A   S
##   1   1   1   1   1   1   1   1   1   1   1  16   7   6
```

```
#Egometrics- closeness
closeness(MG)
```

```
## Warning in closeness(MG): At centrality.c:2874 :closeness centrality is not
## well-defined for disconnected graphs
```

```
##         KVA         RLL         RAK         LQA         RAA         LOR
## 0.001956947 0.001956947 0.001280410 0.001956947 0.001956947 0.001956947
##         AIF         VAS         SKK         CQR         RZV         LDA
## 0.001233046 0.001956947 0.001956947 0.001956947 0.001233046 0.001233046
##         DUF         ZQC         QDA         CVO         BRE         JIA
## 0.001956947 0.001956947 0.001956947 0.001280410 0.001280410 0.001233046
##         BIQ         EKZ         QCJ         QKC         KBB         ORO
## 0.001956947 0.001280410 0.001233046 0.001956947 0.001280410 0.001280410
##         BKK         QBC         ILV         VCC         IBR           F
## 0.001233046 0.001280410 0.001956947 0.001956947 0.001956947 0.002016129
##           A           S
## 0.001290323 0.001240695
```

```
#Egometrics- betweenness
betweenness(MG)
```

```
## KVA RLL RAK LQA RAA LOR AIF VAS SKK CQR RZV LDA DUF ZQC QDA CVO BRE JIA
##   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
## BIQ EKZ QCJ QKC KBB ORO BKK QBC ILV VCC IBR   F   A   S
```

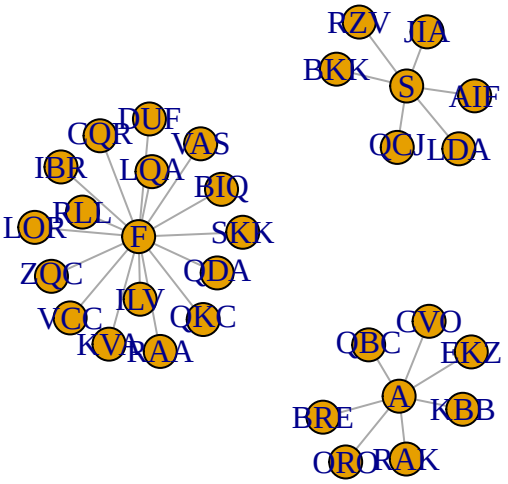
```
##   0   0   0   0   0   0   0   0   0   0   0 120  21  15
```

```
#Egometrics- eigenvectorcentrality
evcent(MG)
```

```
## $vector
##  KVA  RLL  RAK  LQA  RAA  LOR  AIF  VAS  SKK  CQR  RZV  LDA  DUF  ZQC  QDA
## 0.25 0.25 0.00 0.25 0.25 0.25 0.00 0.25 0.25 0.25 0.00 0.00 0.25 0.25 0.25
##  CVO  BRE  JIA  BIQ  EKZ  QCJ  QKC  KBB  ORO  BKK  QBC  ILV  VCC  IBR    F
## 0.00 0.00 0.00 0.25 0.00 0.00 0.25 0.00 0.00 0.00 0.00 0.25 0.25 0.25 1.00
##    A    S
## 0.00 0.00
##
## $value
## [1] 4
##
## $options
## $options$bmat
## [1] "I"
##
## $options$n
## [1] 32
##
## $options$which
## [1] "LA"
##
## $options$nev
## [1] 1
##
## $options$tol
## [1] 0
##
## $options$ncv
## [1] 0
##
## $options$ldv
## [1] 0
##
## $options$ishift
## [1] 1
##
## $options$maxiter
## [1] 1000
##
## $options$nb
## [1] 1
##
## $options$mode
## [1] 1
##
## $options$start
## [1] 1
##
## $options$sigma
## [1] 0
```

```
##
## $options$sigmai
## [1] 0
##
## $options$info
## [1] 0
##
## $options$iter
## [1] 1
##
## $options$nconv
## [1] 1
##
## $options$numop
## [1] 16
##
## $options$numopb
## [1] 0
##
## $options$numreo
## [1] 14
```

Including Plots



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.