

```
# Number of nodes and edges
```

```
vcount(g1)
```

```
[1] 220
```

```
ecount(g1)
```

```
[1] 118
```

```
is_directed(g1)
```

```
[1] TRUE
```

```
# Edge density
```

```
edge_density(g1)
```

```
[1] 0.002449149
```

```
# Average distance, diameter
```

```
mean_distance(g1, directed=T)
```

```
[1] 1
```

```
diameter(g1, directed=T)
```

```
[1] 1
```

```
# Degree distribution (in-degree,out-degree)
```

```
deg <- degree(g1)
```

```
mean(deg)
```

```
[1] 1.072727
```

```
deg_in <- degree(g1, mode = "in")
```

```
deg_out <- degree(g1, mode = "out")
```

```
mean(deg_in)
```

```
[1] 0.5363636
```

```
mean(deg_out)
```

```
[1] 0.5363636
```

```
# Centrality indices (degree, eigenvector, closeness, betweenness)
```

```
# Degree centrality
```

```
sort(deg_in, decreasing = T)[1:10]
```

```
Uncle_SamCoco    06230550_IS    IbnKashmir_    sonofshishan    melvynlion
```

```
6        2        2        2        2
```

```
btt_ar GunsandCoffee70 AbuLaythAlHindi YazeedDhardaa25 abubakerdimshqi
```

```
1        1        1        1        1
```

```
sort(deg_out, decreasing = T)[1:10]
```

```
Mustafa Al Iraqi    Maghrebi    Abu Ayisha    The Caravan
```

```
4        3        2        2
```

```
Emran Getu    wayf44rer    ابن سالار    GunsandCoffee
```

```
2        2        2        1
```

```
Abu Layth Al Hindi    ابو الدرداء #خلافة
```

```
1        1
```

```
# Closeness centrality
clos_in <- closeness(g1, mode = "in")
sort(clos_in, decreasing = T)[1:10]
```

```
Uncle_SamCoco 06230550_IS IbnKashmir_ sonofshishan melvynlion
2.133743e-05 2.094592e-05 2.094592e-05 2.094592e-05 2.094592e-05
btt_ar GunsandCoffee70 AbuLaythAlHindi YazeedDhardaa25 abubakerdimshqi
2.085027e-05 2.085027e-05 2.085027e-05 2.085027e-05 2.085027e-05
```

```
clos_out <- closeness(g1, mode = "out")
sort(clos_out, decreasing = T)[1:10]
```

```
Mustafa Al Iraqi Maghrebi Abu Ayisha The Caravan
2.113986e-05 2.104244e-05 2.094592e-05 2.094592e-05
Emran Getu wayf44rer ابن سالار GunsandCoffee
2.094592e-05 2.094592e-05 2.094592e-05 2.085027e-05
Abu Layth Al Hindi ابو الدرداء #خلافة
2.085027e-05 2.085027e-05
```

```
# Hubs and Authorities
hs <- hub_score(g1)$vector
sort(hs, decreasing = T)[1:10]
```

```
Obi-Wan Al Coconuty Bill KillCoconut راعي البقر جوز الهند
1.000000e+00 1.000000e+00 1.000000e+00
كتكات كوكونة ككتكات كوكونة ككتكات كوكونة
1.000000e+00 1.000000e+00 1.000000e+00
Uncle_SamCoco 06230550_IS IbnKashmir_
1.631688e-15 5.778895e-16 5.778895e-16
sonofshishan
5.778895e-16
```

```
sort(as, decreasing = T)[1:5]
Uncle_SamCoco Mustafa Al Iraqi 06230550_IS mustaklash
1.000000e+00 4.163336e-16 3.608225e-16 3.608225e-16
moustiklash
3.608225e-16
```

```
# PageRank
pr<-page_rank(g1, algo = c("prpack", "arpack", "power"), vids = V(g1),
directed = TRUE, damping = 0.85, personalized = NULL, weights = NULL,
options = NULL)$vector
sort(pr, decreasing = T)[1:10]
```

```
Uncle_SamCoco 06230550_IS IbnKashmir_ sonofshishan melvynlion
0.019563823 0.008659397 0.008659397 0.008659397 0.008659397
btt_ar GunsandCoffee70 AbuLaythAlHindi YazeedDhardaa25 abubakerdimshqi
0.005933291 0.005933291 0.005933291 0.005933291 0.005933291
```

WORDCLOUD

