

SelectionOfLayout

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```
library(knitr)
library(igraph)
library(rkappa)
makeSiteGraph<-function(kp){
  edges<-list()
  agents<-list()
  agmarks<-list()
  g <- graph.empty(n = 0, directed = FALSE)
  cl<-colors()
  vcl<-list()
  idx<-0
  subg<-0
  #kp<-triskelia
  subg<-subg+1
  k<-sub('\\\\$',' ',kp)
  unlist(strsplit(k,''),fixed=TRUE))->parts
  strs<-lapply(strsplit(parts,'[|]'),function(x) strsplit(x,'!'))
  for(i in 1:length(strs)){
    idx<-idx+1
    n<-strs[[i]][[1]]
    nname=paste(n,idx,sep=' ')
    agmarks[[nname]]<-idx
    nidx<-idx
    if(!(n %in% names(vcl))){
      vcl[[n]]<-colors()[8+length(vcl)*3]
    }
    if(!(n %in% names(agents))){
      agents[[n]]<-list()
    }
    g<-add.vertices(g,1,attr=list(name=n,name2=nname,color=vcl[[n]],type='agent',size=30))
    for(j in 2:length(strs[[i]])){
      s<-strs[[i]][[j]][1]
      if(!(s %in% names(agents))){
        agents[[n]][[s]]<-list()
      }
      if!(s %in% names(vcl)){
        vcl[[s]]<-colors()[8+length(vcl)*3]
      }
      idx<-idx+1
      agmarks[[nname]]<-c(agmarks[[nname]],idx)
      g<-add.vertices(g,1,attr=list(name=s,name2=paste0('site ',s),color=vcl[[s]],type='site',size=15))
      g<-add.edges(g,c(nidx,idx),type='site',weight=10,color='grey40',width=10)
      if(length(strs[[i]][[j]])>1){
        agents[[n]][[s]]<-append(agents[[n]][[s]],strs[[i]][[j]][2])
        e<-paste(strs[[i]][[j]][2],subg,sep=' ')
        if(e %in% names(edges)){
          g<-add.edges(g,c(edges[[e]],idx),type='bond',weight=1,color='black',width=3)
```

```

        }else{
            edges[e]<-idx
        }
    }
}
g$marks<-agmarks
return(g)
}

```

1 Make graphs

```

triskelia<- 'Cl(l!1,r!2),Cl(r!1,l!3),Cl(r!3,l!2) '
pentagonLHS<-paste0('Cl(Pd!0,l!1,r!2),Cl(Pp!3,d!4,l!5,r!1),',
                      'Cl(Pd!6,Pp!7,d!8,l!2,r!5),Cl(Pd!9,l!10,r!11),',
                      'Cl(Pp,d,l!12,r!10),Cl(Pd,Pp!13,d!14,l!11,r!12),',
                      'Cl(Pd!4,l!15,r!16),Cl(Pp!17,d!18,l!19,r!15),',
                      'Cl(Pd!20,Pp!3,d!6,l!16,r!19),Cl(Pd!8,Pp,d,l!29,r!30),',
                      'Cl(Pd,l!32,r!29),Cl(Pp!7,d!0,l!30,r!32),',
                      'Cl(Pp!13,d!9,l!33,r!34),Cl(Pd!14,Pp!17,d!20,l!35,r!33),',
                      'Cl(Pd!18,l!34,r!35)')
pentagonRHS<-paste0('Cl(Pd!0,l!1,r!2),Cl(Pp!3,d!4,l!5,r!1),',
                      'Cl(Pd!6,Pp!7,d!8,l!2,r!5),Cl(Pd!9,l!10,r!11),',
                      'Cl(Pp!36,d!38,l!12,r!10),Cl(Pd!37,Pp!13,d!14,l!11,r!12),',
                      'Cl(Pd!4,l!15,r!16),Cl(Pp!17,d!18,l!19,r!15),',
                      'Cl(Pd!20,Pp!3,d!6,l!16,r!19),Cl(Pd!8,Pp!36,d!37,l!29,r!30),',
                      'Cl(Pd!38,l!32,r!29),Cl(Pp!7,d!0,l!30,r!32),',
                      'Cl(Pp!13,d!9,l!33,r!34),Cl(Pd!14,Pp!17,d!20,l!35,r!33),',
                      'Cl(Pd!18,l!34,r!35)')
gLarge<-makeSiteGraph(pentagonLHS)
gSmall<-makeSiteGraph(triskelia)

```

2 Layout

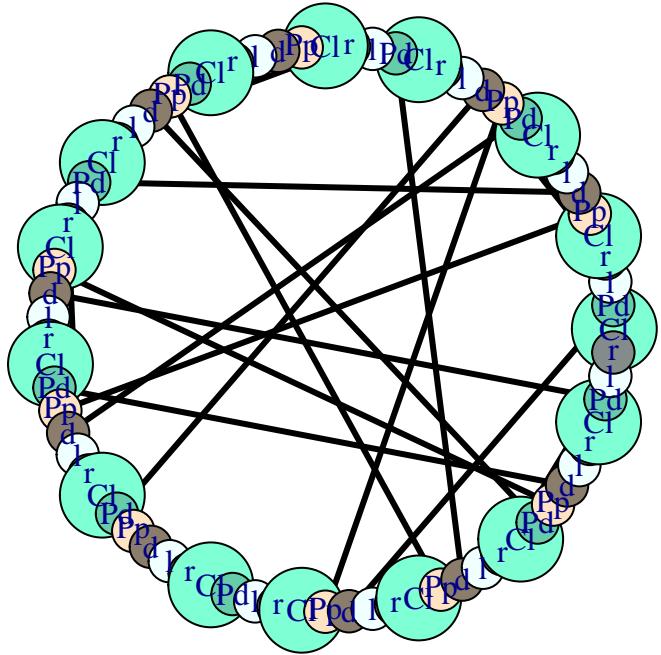
2.1 Circule

```

l<-layout_in_circle(gLarge)
plot(gLarge,layout=l,main=paste('Large with ',opts_current$get("label")))

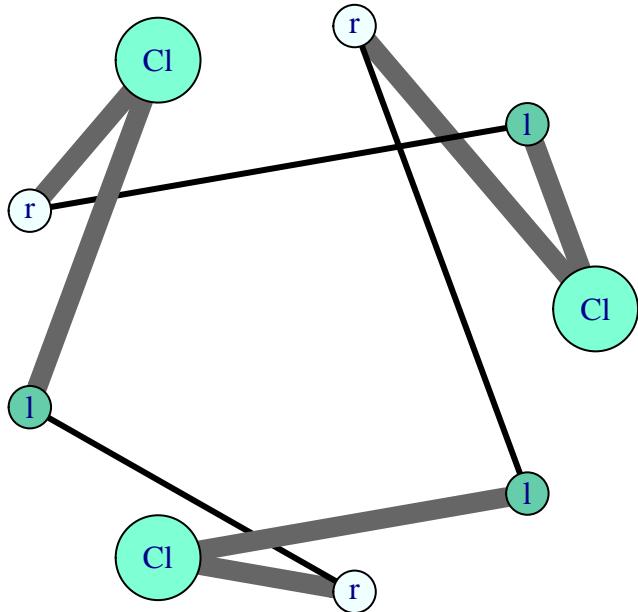
```

Large with layout.circulate



```
l<-layout_in_circle(gSmall)
plot(gSmall,layout=l,main=paste('Smal with ',opts_current$get("label")))
```

Smal with layout.circulate

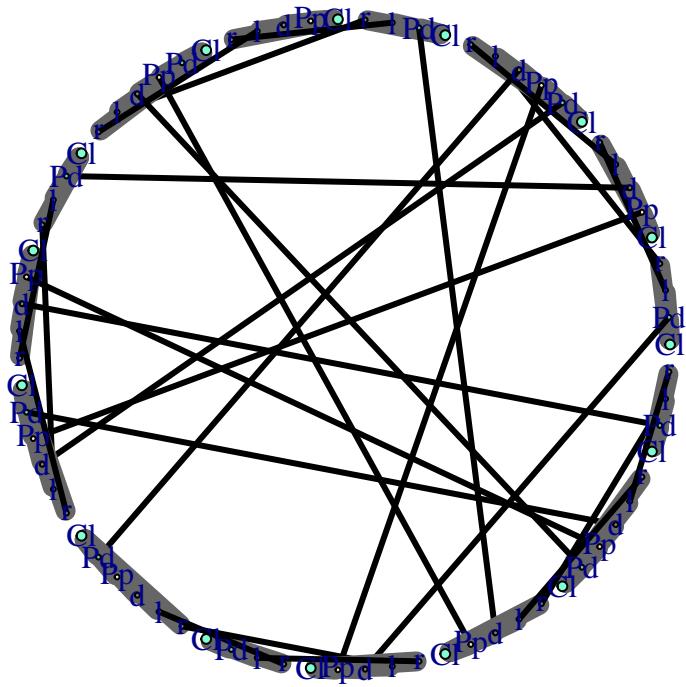


```

l<-layout_in_circle(gLarge)
sc<-10
plot(gLarge,layout=l*sc,ylim = c(-1*sc,sc),rescale=FALSE,main=paste('Large with ',opts_current$get("label")))

```

Large with layout.circule.scale

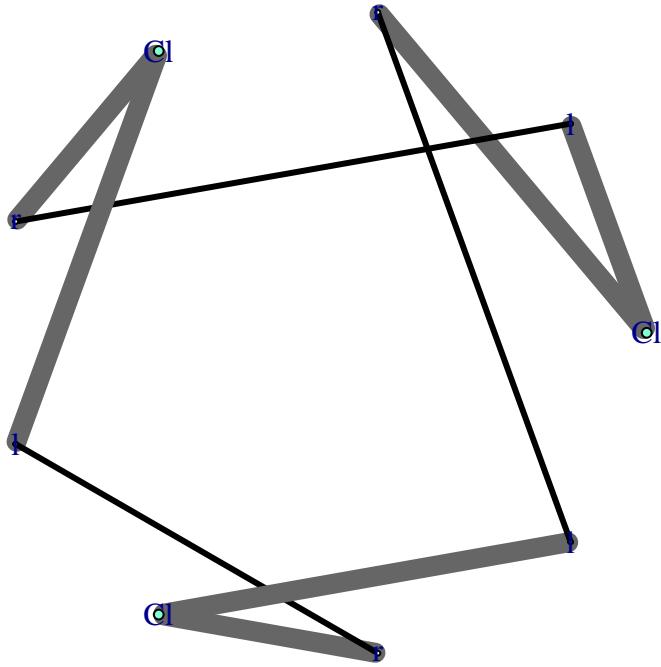


```

l<-layout_in_circle(gSmall)
plot(gSmall,layout=l*sc,ylim = c(-1*sc,sc),rescale=FALSE,main=paste('Smal with ',opts_current$get("label")))

```

Smal with layout.circule.scale

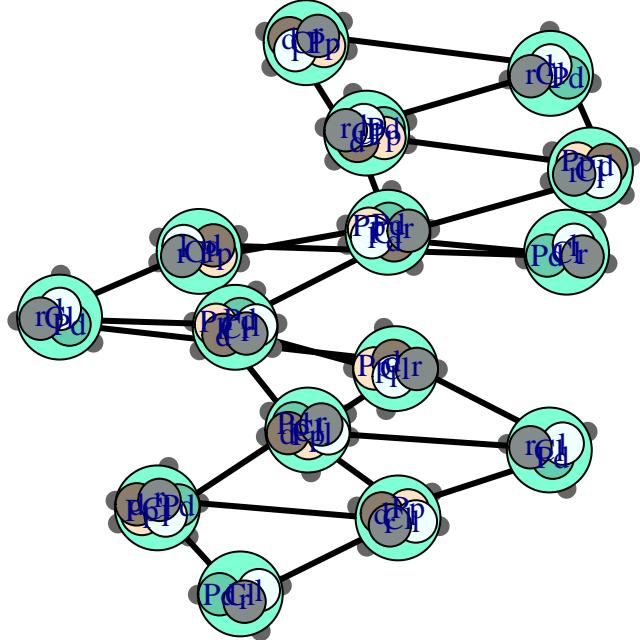


2.2 Kamada-Kavai

2.2.1 Standard weight

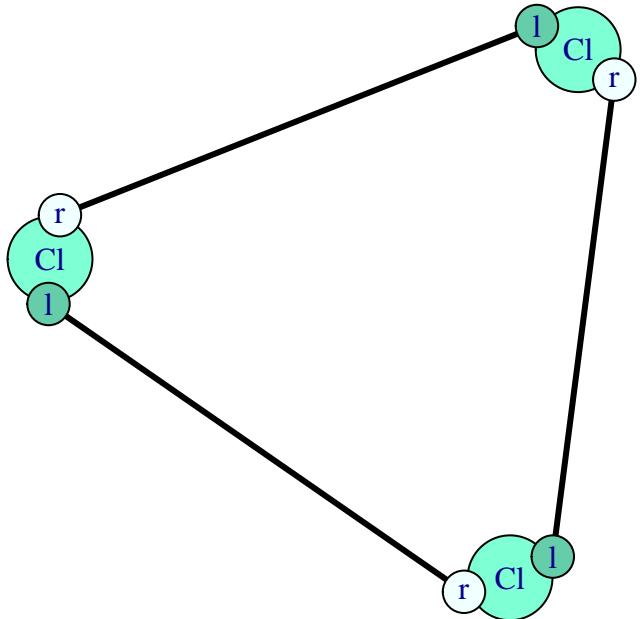
```
l<-layout_with_kk(gLarge,weights = 1/(E(gLarge)$weight))
plot(gLarge,layout=l,main=paste('Large with ',opts_current$get("label")))
```

Large with layout.kk.base



```
l<-layout_with_kk(gSmall,weights = 1/(E(gSmall)$weight))
plot(gSmall,layout=l,main=paste('Smal with ',opts_current$get("label")))
```

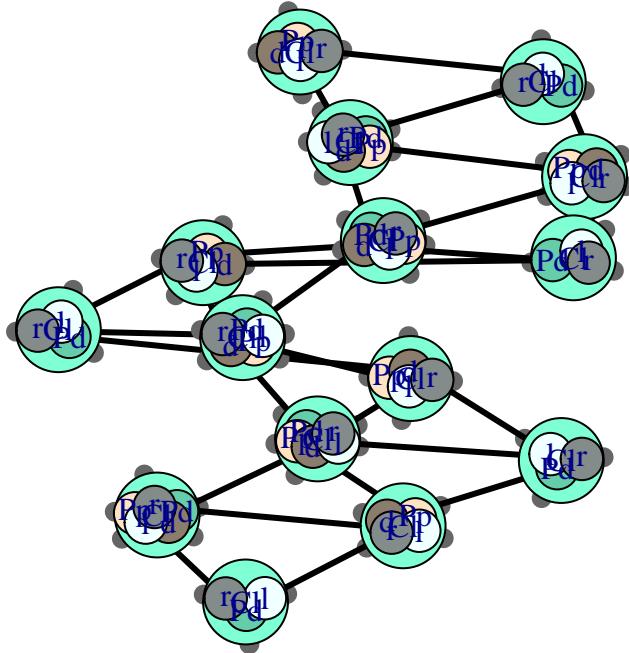
Smal with layout.kk.base



2.2.2 Scaled weight

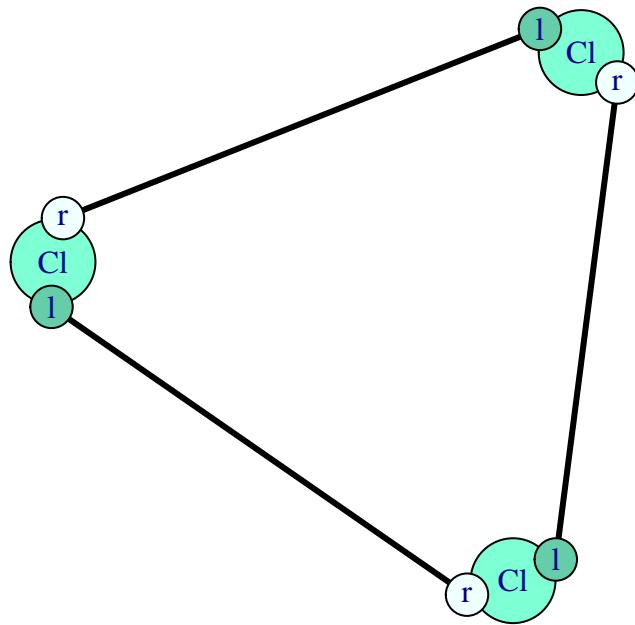
```
l<-layout_with_kk(gLarge,weights = 10/(E(gLarge)$weight))
plot(gLarge,layout=l,main= paste('Large with ',opts_current$get("label")))
```

Large with layout.kk.scale



```
l<-layout_with_kk(gSmall,weights = 10/(E(gSmall)$weight))
plot(gSmall,layout=l,main= paste('Smal with ',opts_current$get("label")))
```

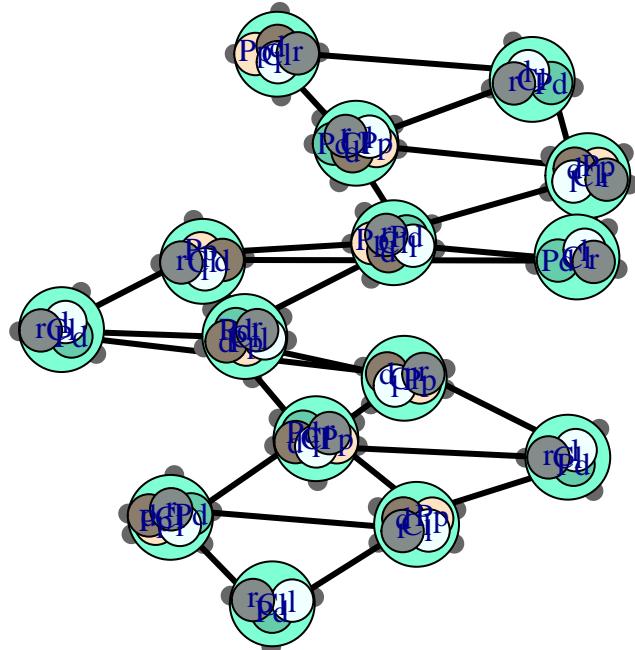
Small with layout.kk.scale



2.2.3 Size-scaled weight

```
l<-layout_with_kk(gLarge,weights = vcount(gLarge)^2/(E(gLarge)$weight))
plot(gLarge,layout=l,main=paste('Large with ',opts_current$get("label")))
```

Large with layout.kk.size

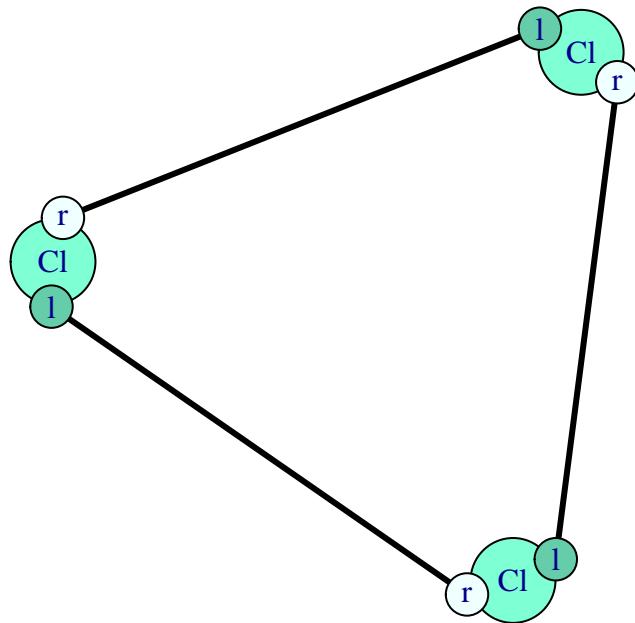


```

l<-layout_with_kk(gSmall,weights = vcount(gSmall)^2/(E(gSmall)$weight))
plot(gSmall,layout=l,main=paste('Smal with ',opts_current$get("label")))

```

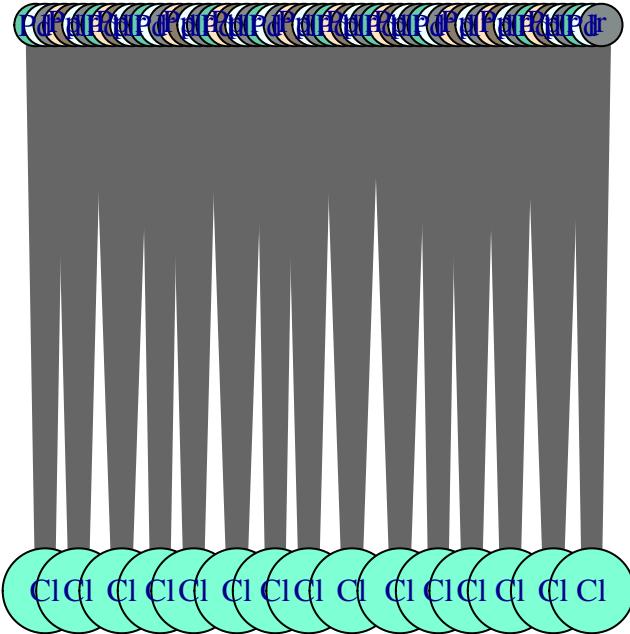
Small with layout.kk.size



2.3 Bipartite

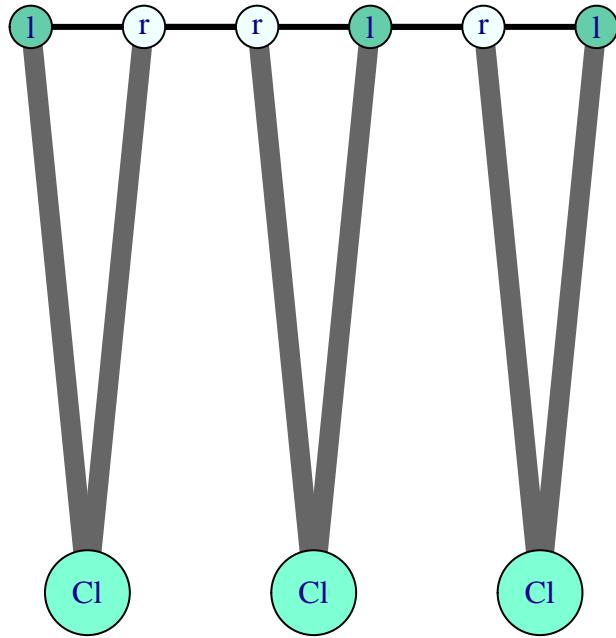
```
l<-layout_as_bipartite(gLarge,types = V(gLarge)$type=="agent")
plot(gLarge,layout=l,main= paste('Large with ',opts_current$get("label")))
```

Large with layout.bipartite



```
l<-layout_as_bipartite(gSmall,types = V(gSmall)$type=="agent")
plot(gSmall,layout=l,main= paste('Smal with ',opts_current$get("label")))
```

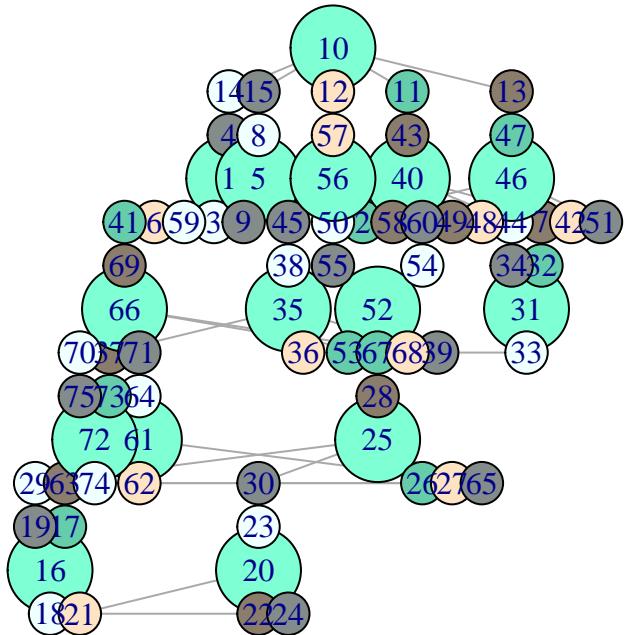
Smal with layout.bipartite



2.4 Sugiyama

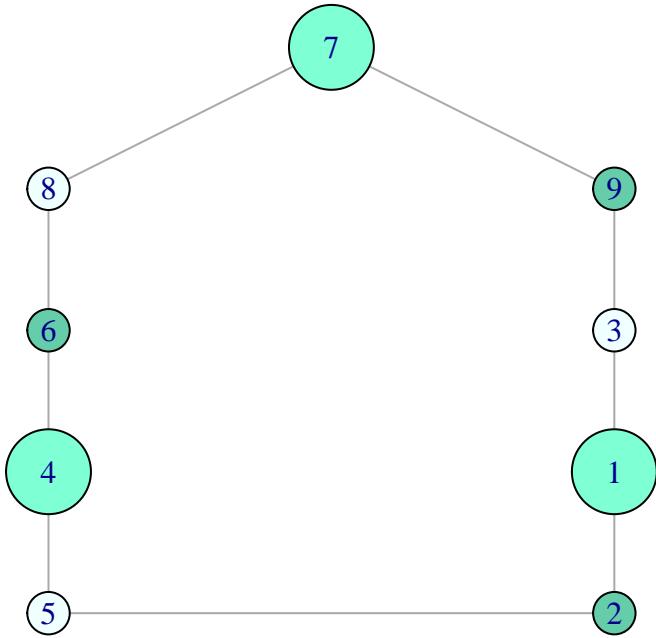
```
l<-layout_with_sugiyama(gLarge)
plot(l$extd_graph,main=paste('Large with ',opts_current$get("label")))
```

Large with layout.sugiyama



```
l<-layout_with_sugiyama(gSmall)
plot(l$extd_graph,main=paste('Smal with ',opts_current$get("label")))
```

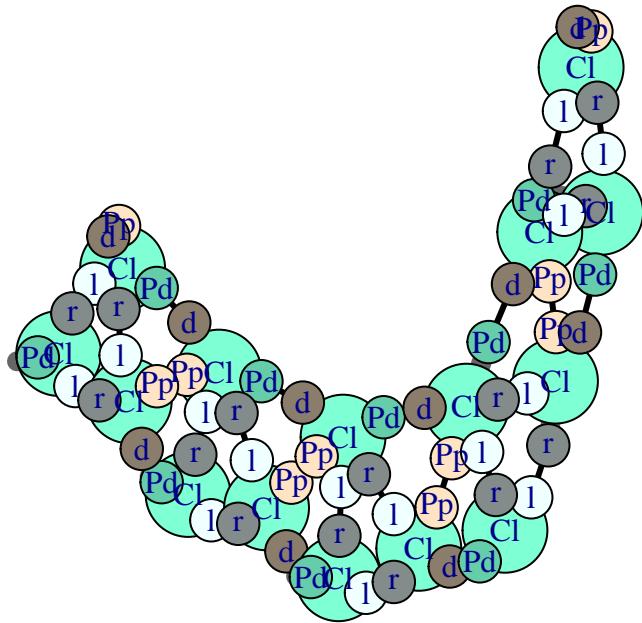
Smal with layout.sugiyama



2.5 Nicely

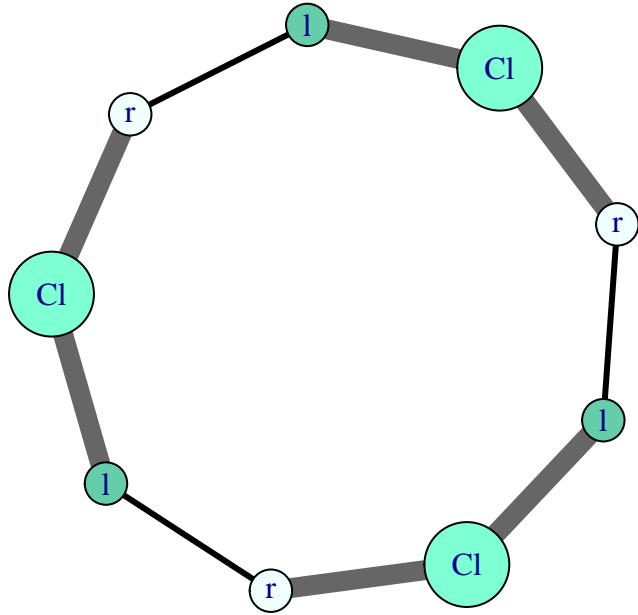
```
l<-layout_nicely(gLarge)
plot(gLarge,layout=l,main= paste('Large with ',opts_current$get("label")))
```

Large with layout.nicely



```
l<-layout_nicely(gSmall)
plot(gSmall,layout=l,main= paste('Smal with ',opts_current$get("label")))
```

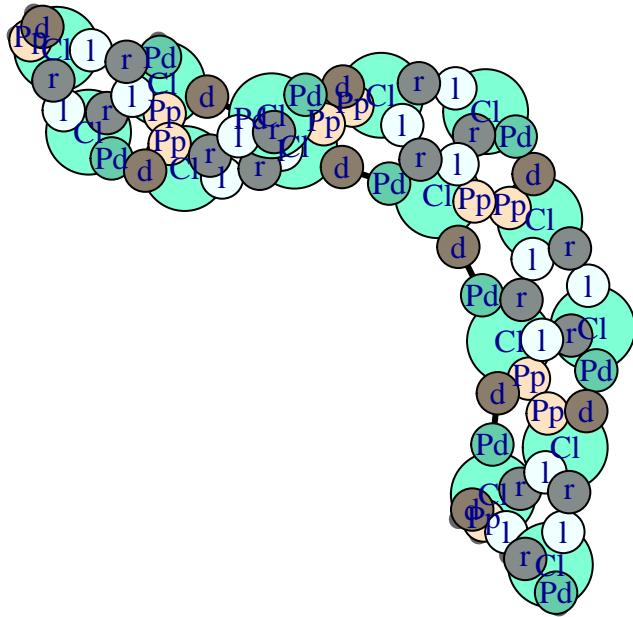
Smal with layout.nicely



2.5.1 Nicely with weight

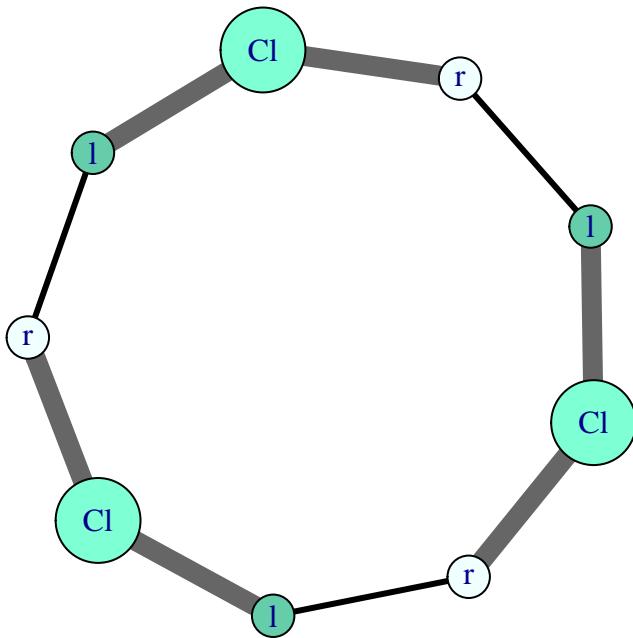
```
l<-layout_nicely(gLarge,weights=V(gLarge)$weight*vcount(gLarge))
plot(gLarge,layout=l,main=paste('Large with ',opts_current$get("label")))
```

Large with layout.nicely.weight



```
l<-layout_nicely(gSmall,weights=V(gSmall)$weight*vcount(gSmall))
plot(gSmall,layout=l,main=paste('Smal with ',opts_current$get("label")))
```

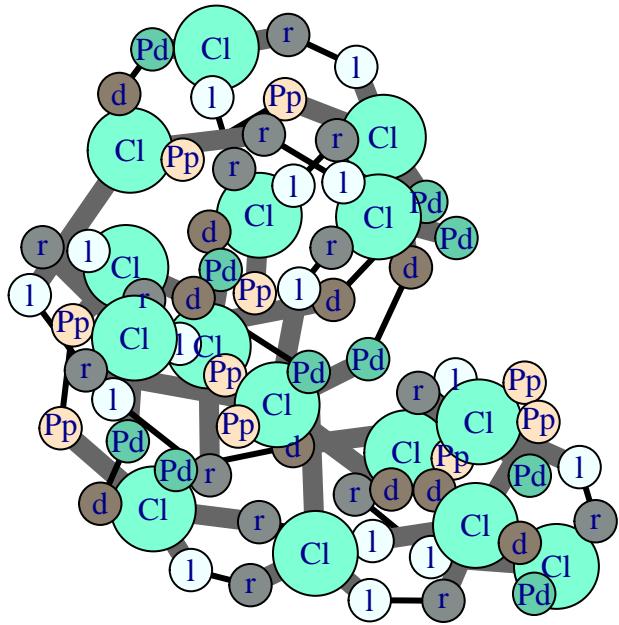
Smal with layout.nicely.weight



2.6 Davidson-Harel

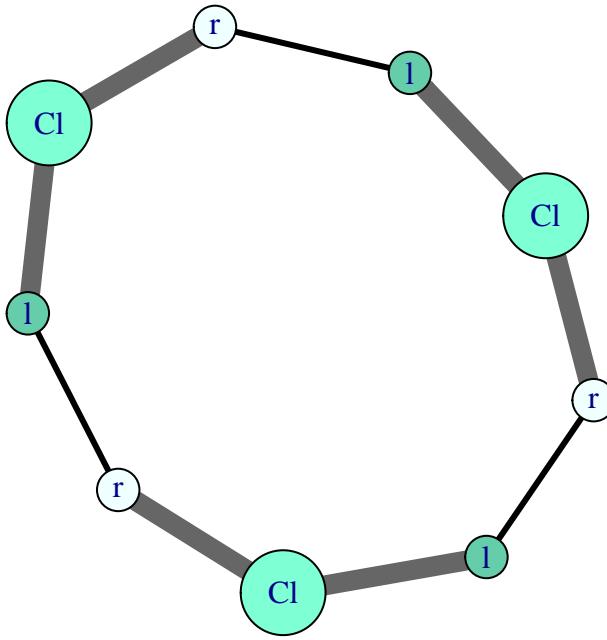
```
l<-layout_with_dh(gLarge)
plot(gLarge,layout=l,main= paste('Large with ',opts_current$get("label")))
```

Large with layout.dh



```
l<-layout_with_dh(gSmall)
plot(gSmall,layout=l,main= paste('Smal with ',opts_current$get("label")))
```

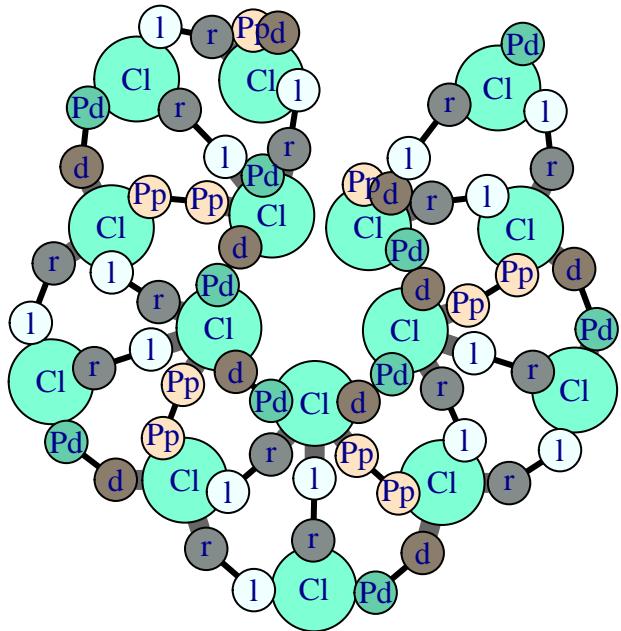
Smal with layout.dh



2.7 The GEM layout algorithm

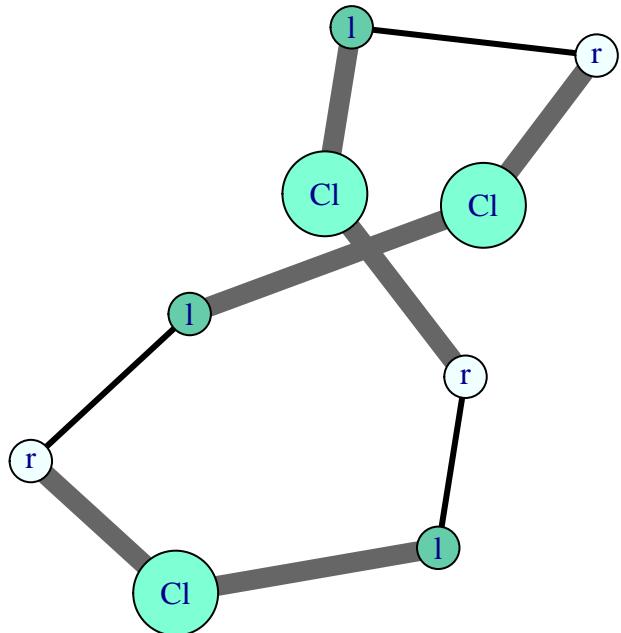
```
l<-layout_with_gem(gLarge)
plot(gLarge,layout=l,main=paste('Large with ',opts_current$get("label")))
```

Large with layout.gem



```
l<-layout_with_gem(gSmall)
plot(gSmall,layout=l,main=paste('Smal with ',opts_current$get("label")))
```

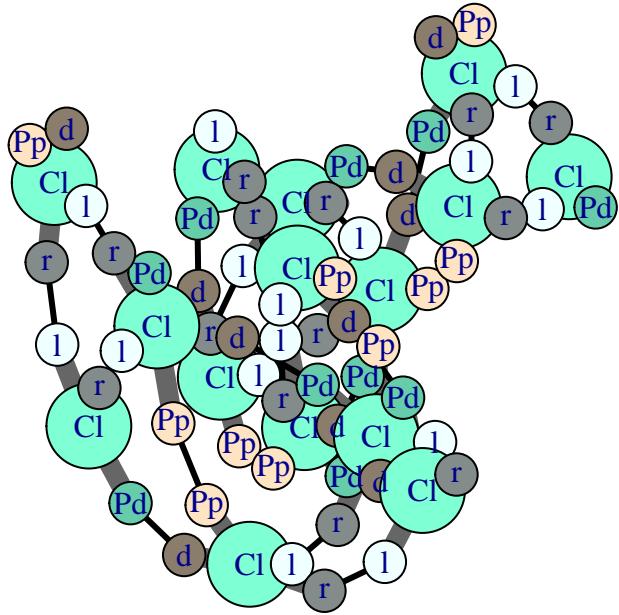
Smal with layout.gem



2.8 GraphOpt

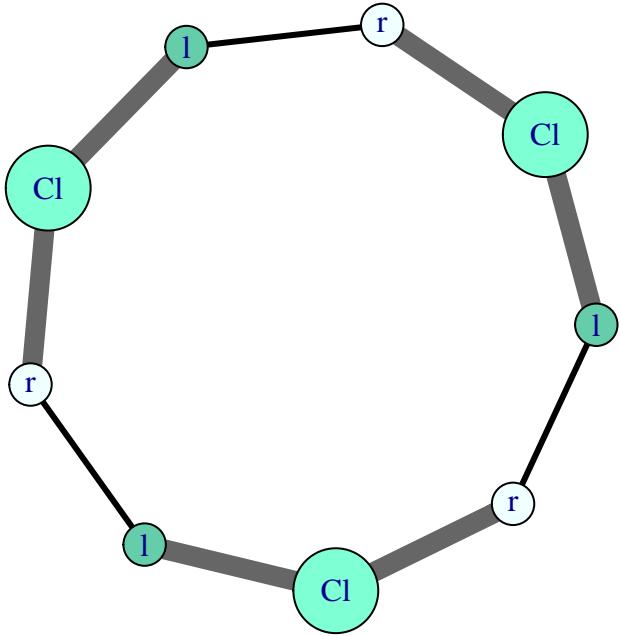
```
l<-layout_with_graphopt(gLarge)
plot(gLarge,layout=l,main= paste('Large with ',opts_current$get("label")))
```

Large with layout.graphopt



```
l<-layout_with_graphopt(gSmall)
plot(gSmall,layout=l,main= paste('Smal with ',opts_current$get("label")))
```

Smal with layout.graphopt



```
l<-layout_with_graphopt(gLarge)
plot(gLarge,layout=l*sc,ylim = c(-1*sc,sc),rescale=FALSE,main=paste('Large with ',opts_current$get("label")))
```

Large with layout.graphopt.scale

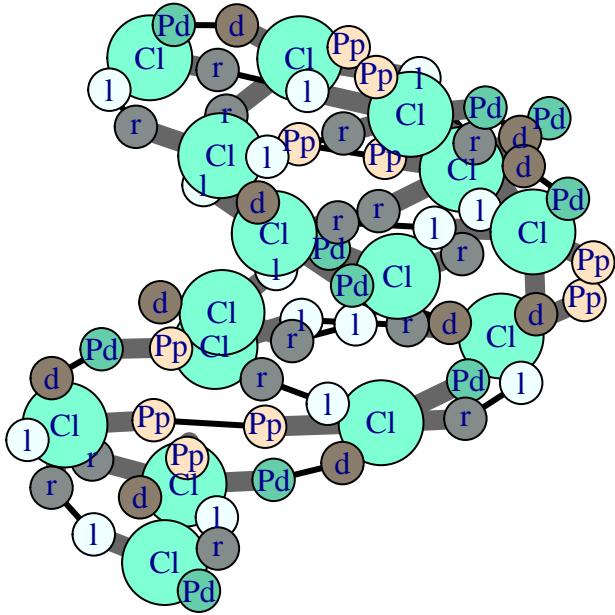
```
l<-layout_with_graphopt(gSmall)
plot(gSmall,layout=l*sc,ylim = c(-1*sc,sc),rescale=FALSE,main=paste('Smal with ',opts_current$get("label")))
```

Smal with layout.graphopt.scale

2.8.1 With spring length

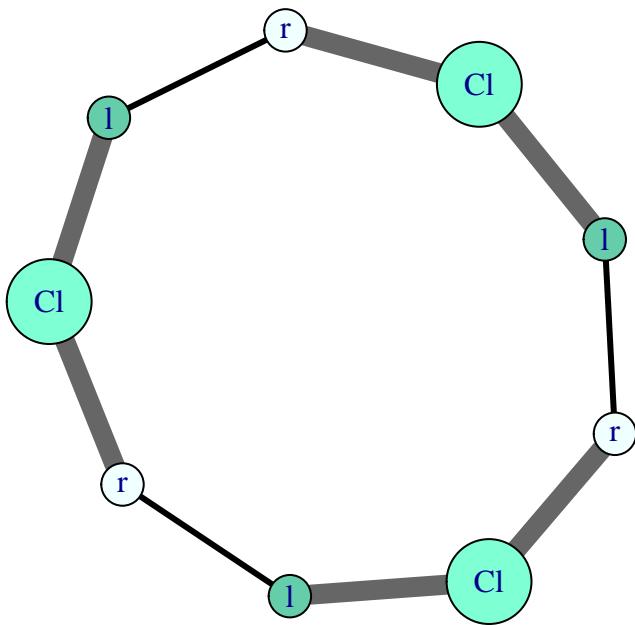
```
l<-layout_with_graphopt(gLarge,spring.length = 1/V(gLarge)$weight)
plot(gLarge,layout=l,main=paste('Large with ',opts_current$get("label")))
```

Large with `layout.graphopt.spring.length`



```
l<-layout_with_graphopt(gSmall,spring.length = 1/V(gSmall)$weight)
plot(gSmall,layout=l,main=paste('Smal with ',opts_current$get("label")))
```

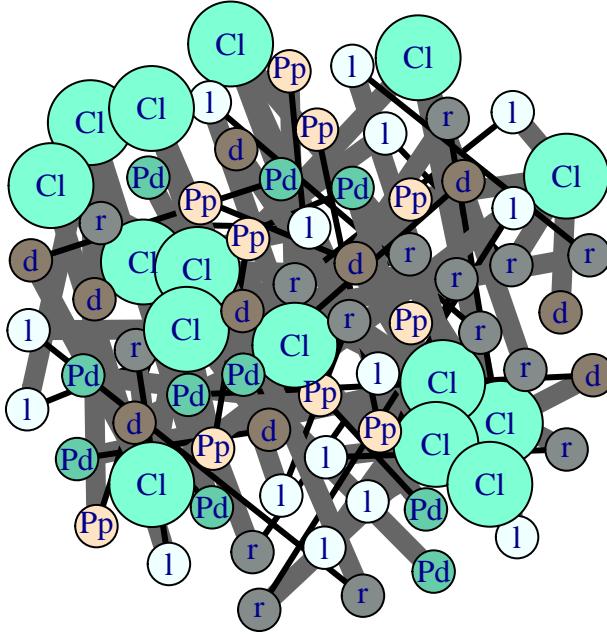
Smal with `layout.graphopt.spring.length`



2.8.2 With spring constant

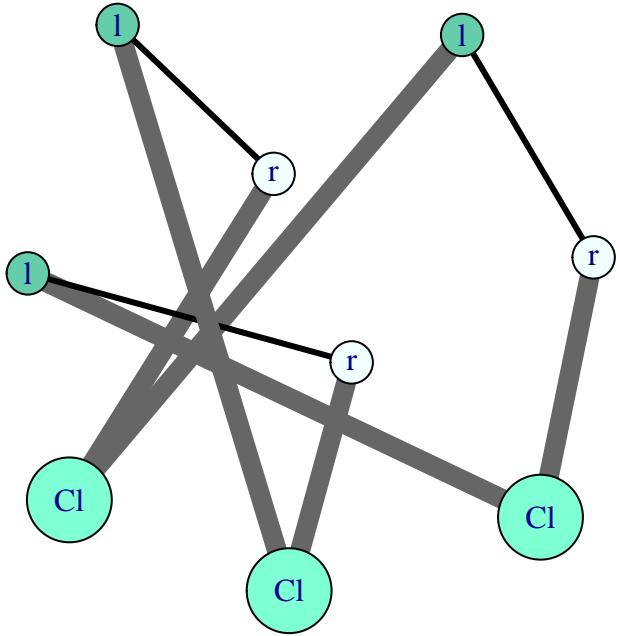
```
l<-layout_with_graphopt(gLarge,spring.constant = V(gLarge)$weight)
plot(gLarge,layout=l,main= paste('Large with ',opts_current$get("label")))
```

Large with layout.graphopt.spring.strength



```
l<-layout_with_graphopt(gSmall,spring.constant = V(gSmall)$weight)
plot(gSmall,layout=l,main= paste('Smal with ',opts_current$get("label")))
```

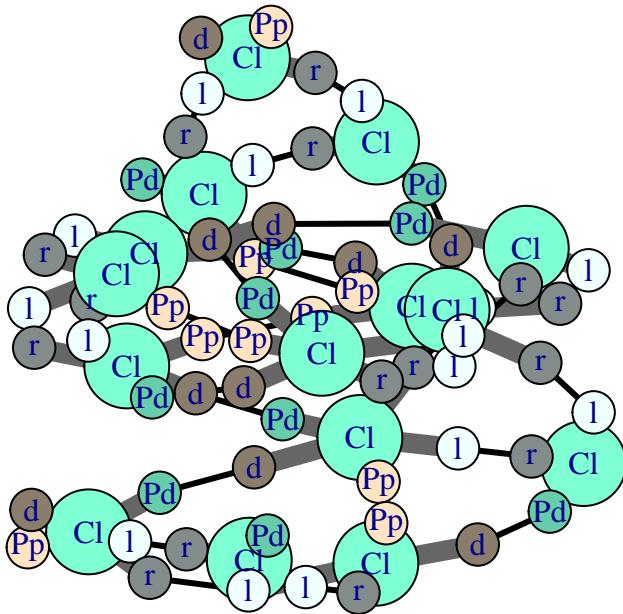
Smal with layout.graphopt.spring.strength



2.8.3 With initial placement

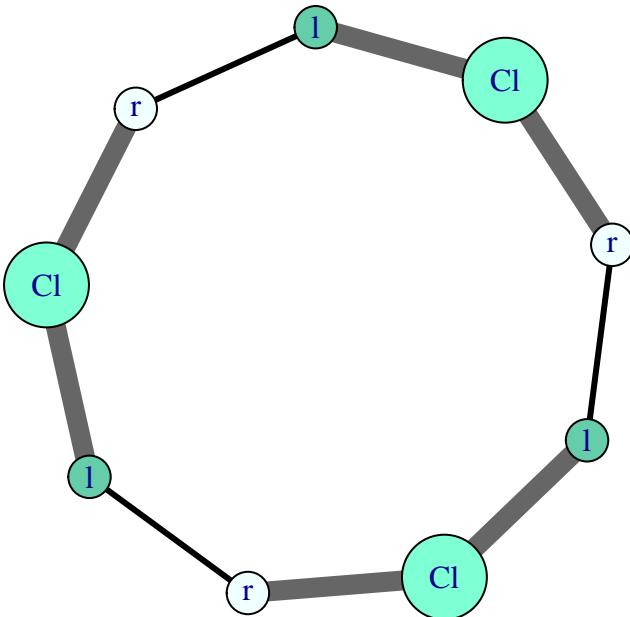
```
lc<-layout_in_circle(gLarge)
l<-layout_with_graphopt(gLarge,start = lc)
plot(gLarge,layout=l,main=paste('Large with ',opts_current$get("label")))
```

Large with `layout.graphopt.init`



```
lc<-layout_in_circle(gSmall)
l<-layout_with_graphopt(gSmall,start = lc)
plot(gSmall,layout=l,main=paste('Smal with ',opts_current$get("label")))
```

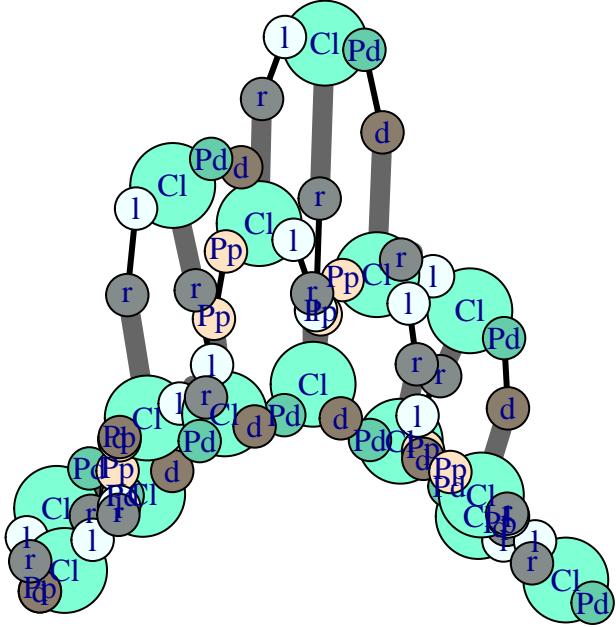
Smal with `layout.graphopt.init`



2.9 MDS

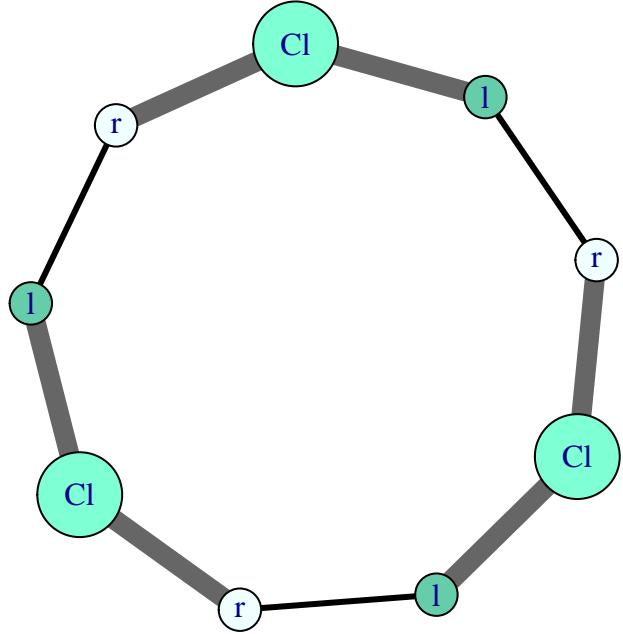
```
l<-layout_with_mds(gLarge)
plot(gLarge,layout=l,main= paste('Large with ',opts_current$get("label")))
```

Large with layout.mds



```
l<-layout_with_mds(gSmall)
plot(gSmall,layout=l,main= paste('Smal with ',opts_current$get("label")))
```

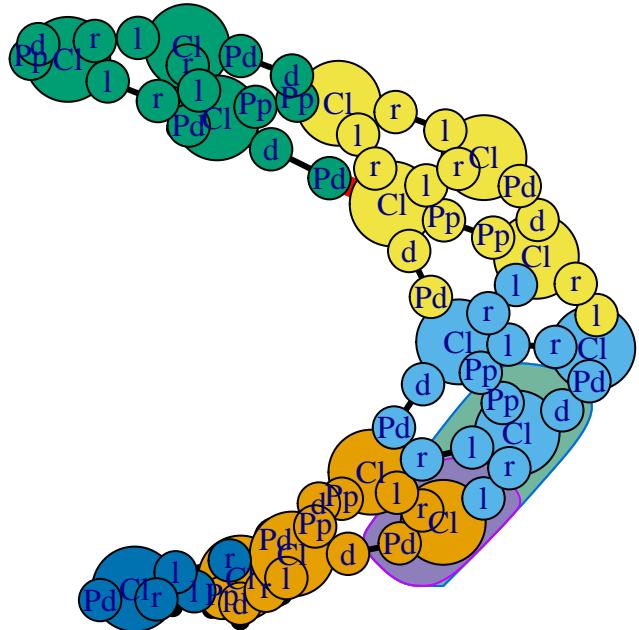
Smal with layout.mds



3 Community

```
g<-gLarge  
x<-cluster_edge_betweenness(g)  
plot(x, g,main=opts_current$get("label"))
```

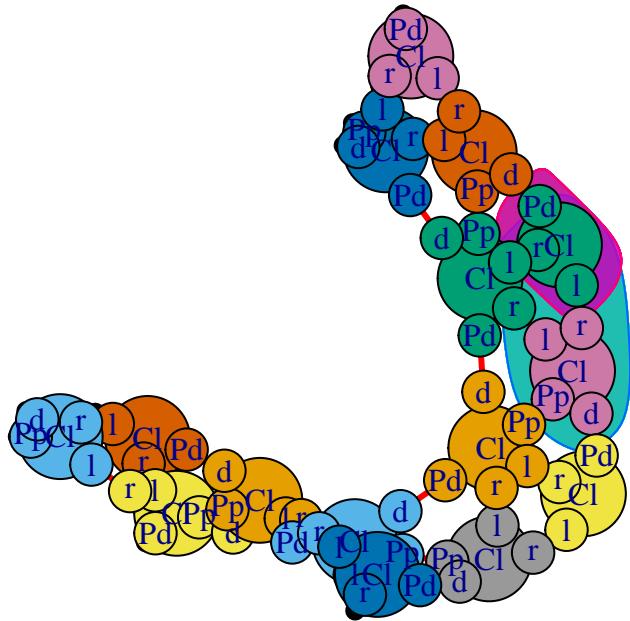
plot.communities.betweenness



```
#, col = membership(x),  
# mark.groups = communities(x), edge.color = c("black", "red")[crossing(x,  
# g) + 1], ...)
```

```
g<-gLarge  
x<-cluster_fast_greedy(g)  
plot(x, g, main=opts_current$get("label"))
```

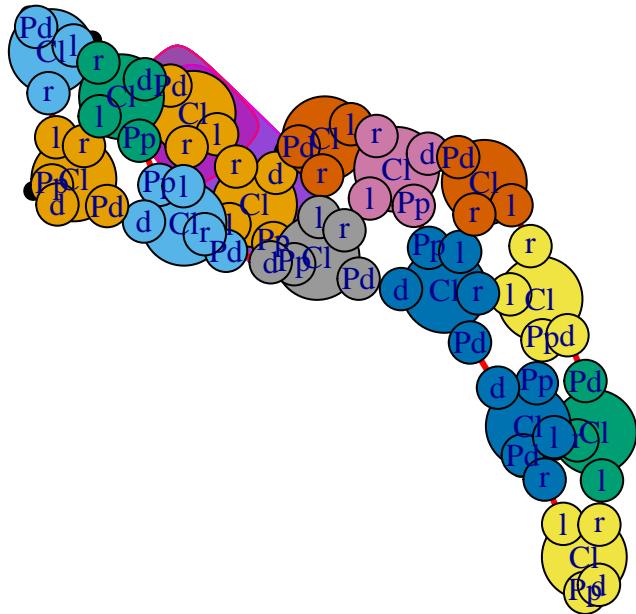
plot.communities.fast.greedy



```
#, col = membership(x),  
# mark.groups = communities(x), edge.color = c("black", "red")[crossing(x,  
# g) + 1], ...)
```

```
g<-gLarge  
x<-cluster_label_prop(g)  
plot(x, g, main=opts_current$get("label"))
```

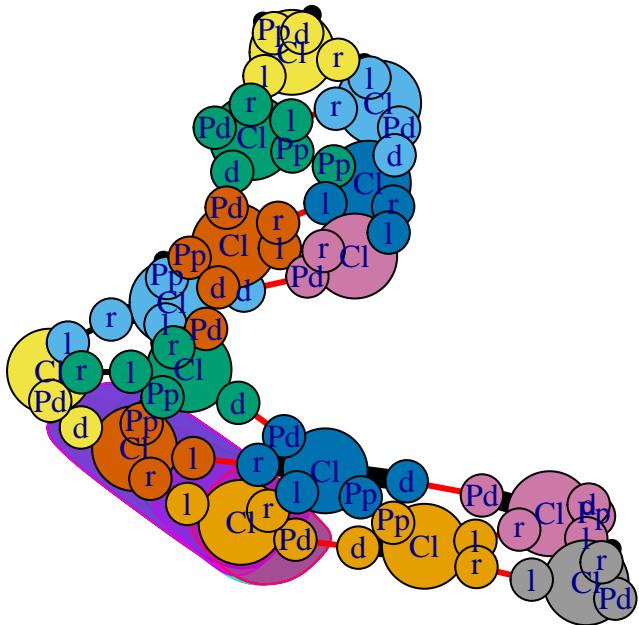
plot.communities.label.propagation



```
#, col = membership(x),  
# mark.groups = communities(x), edge.color = c("black", "red") [crossing(x,  
# g) + 1], ...)
```

```
g<-gLarge  
x<-cluster_leading_eigen(g)  
plot(x, g, main=opts_current$get("label"))
```

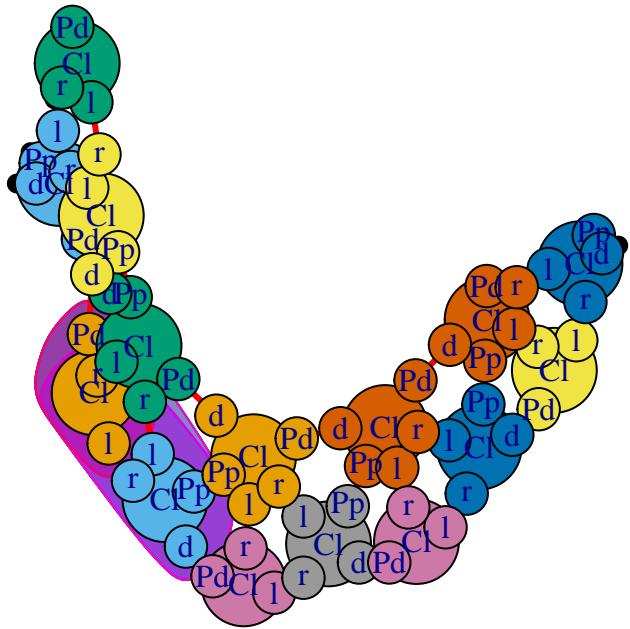
plot.communities.leading.eigenvector



```
#, col = membership(x),  
# mark.groups = communities(x), edge.color = c("black", "red")[crossing(x,  
# g) + 1], ...)
```

```
g<-gLarge  
x<-cluster_louvain(g)  
plot(x, g,main=opts_current$get("label"))
```

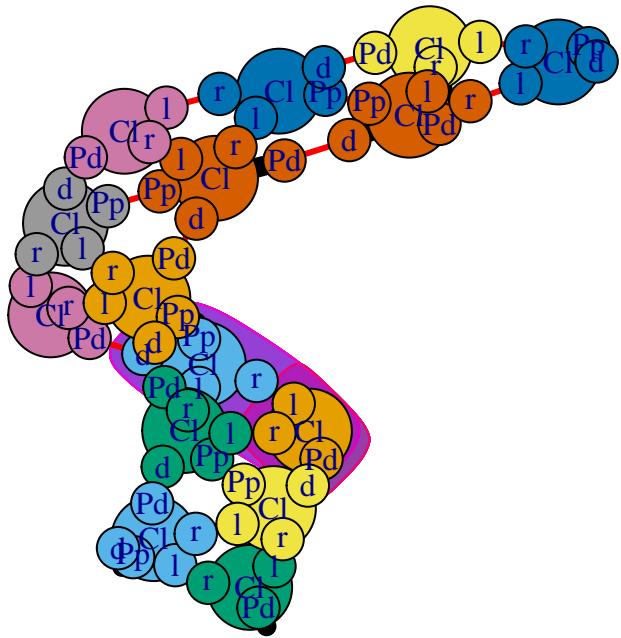
plot.communities.louvain



```
#, col = membership(x),  
# mark.groups = communities(x), edge.color = c("black", "red")[crossing(x,  
# g) + 1], ...)
```

```
g<-gLarge  
x<-cluster_optimal(g)  
plot(x, g,main=opts_current$get("label"))
```

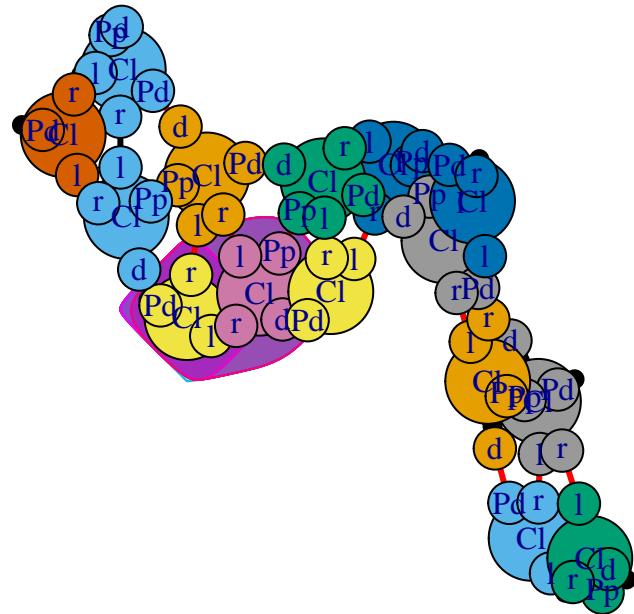
plot.communities.optimal



```
#, col = membership(x),
# mark.groups = communities(x), edge.color = c("black", "red")[crossing(x,
# g) + 1], ...)
```

```
g<-gLarge
x<-cluster_spinglass(g)
plot(x, g,main=opts_current$get("label"))
```

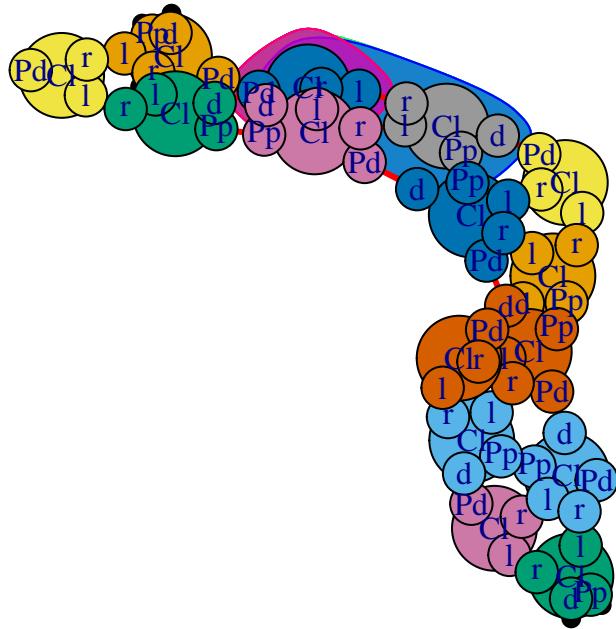
plot.communities.springlass



```
#, col = membership(x),
# mark.groups = communities(x), edge.color = c("black", "red")[crossing(x,
# g) + 1], ...)
```

```
g<-gLarge  
x<-cluster_walktrap(g)  
plot(x, g,main=opts_current$get("label"))
```

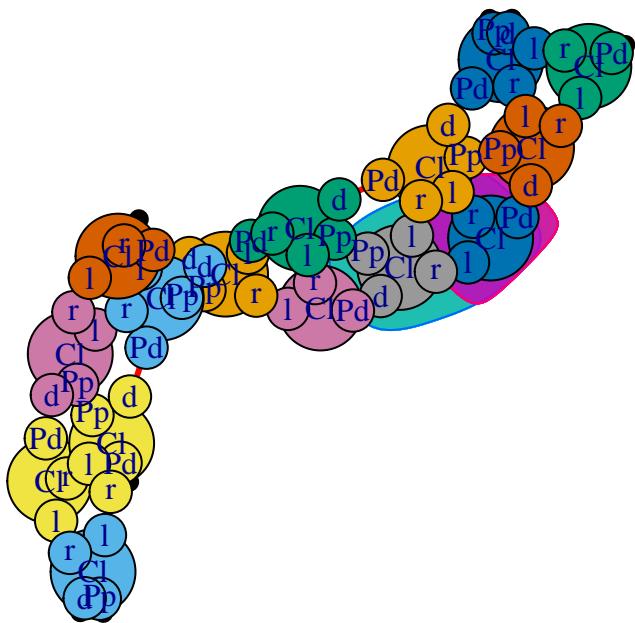
plot.communities.walktrap



```
#, col = membership(x),
# mark.groups = communities(x), edge.color = c("black", "red") [crossing(x,
# g) + 1], ...)
```

```
g<-gLarge  
x<-cluster_infomap(g)  
plot(x, g, main=opts_current$get("label"))
```

plot.communities.infomap

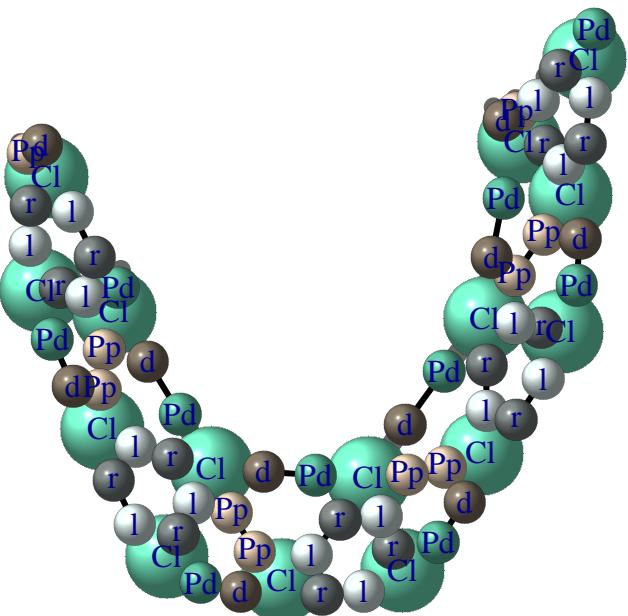


```
#, col = membership(x),
# mark.groups = communities(x), edge.color = c("black", "red")[crossing(x,
# g) + 1], ...)
```

4 Laying out with mark.groups, edge width and layout ranges

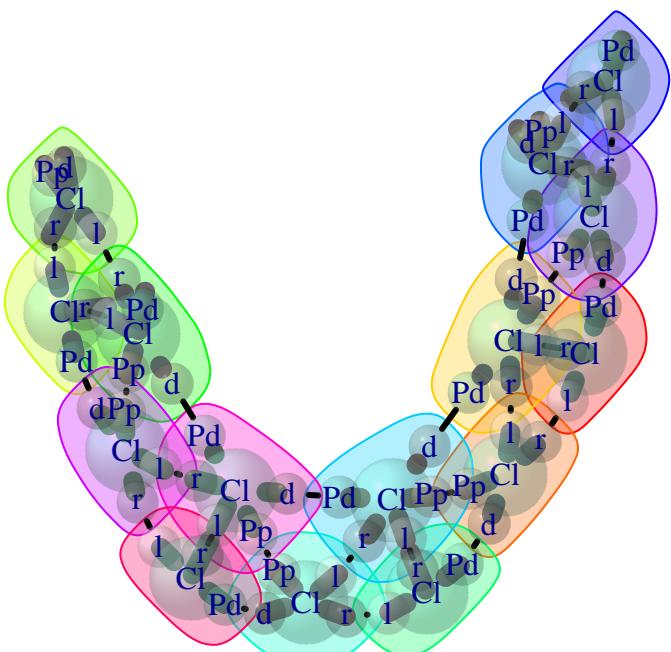
```
gR<-makeSiteGraph(pentagonRHS)
gL<-makeSiteGraph(pentagonLHS)
lR<-layout_with_fr(gR)
lL<-layout_with_fr(gL,coords = lR)
plot(gL,layout=lL,vertex.shape='sphere',main='Plain sphere plot of LHS graph')
```

Plain sphere plot of LHS graph



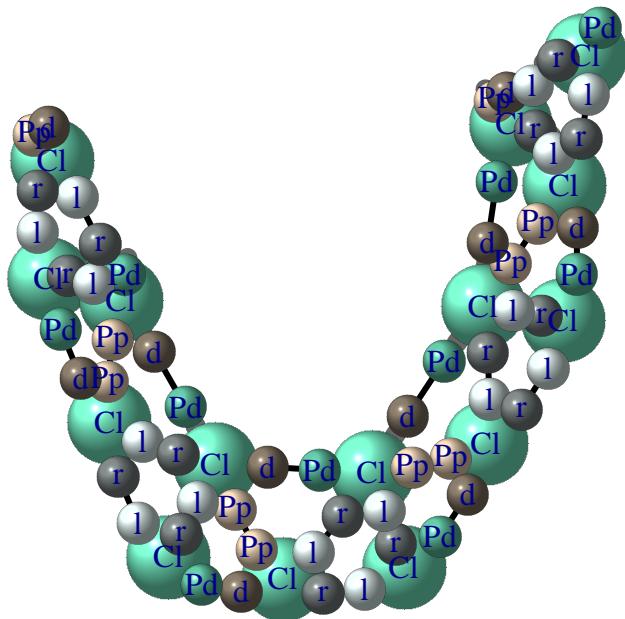
```
plot(gL,layout=ll,vertex.shape='sphere',mark.groups =gL$marks,  
main='Sphere plot of LHS graph with agent marks')
```

Sphere plot of LHS graph with agent marks



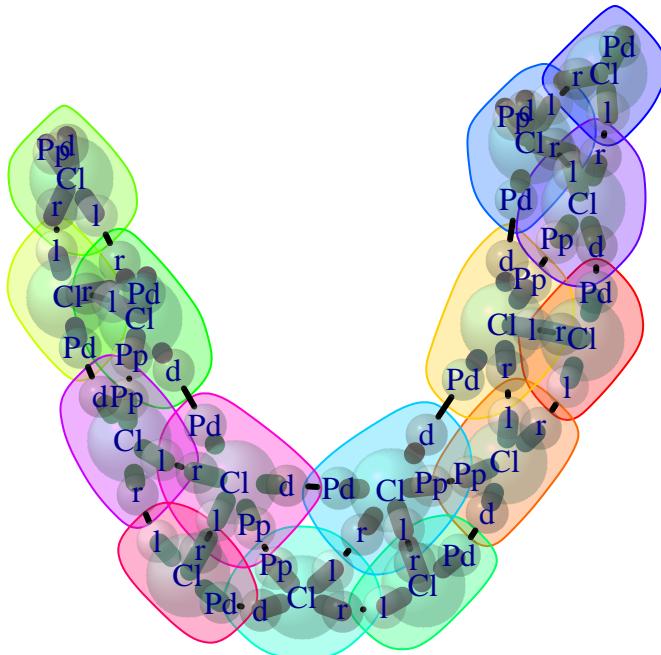
```
lL<-layout_(gL,with_fr(coords = lR),normalize())
plot(gL,layout=lL,vertex.shape='sphere',
     main='Normalized sphere plot of LHS graph')
```

Normalized sphere plot of LHS graph



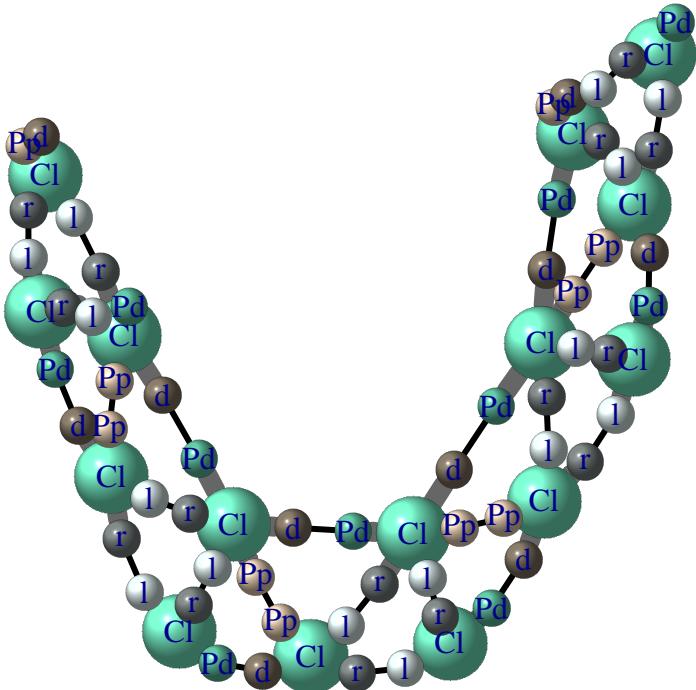
```
plot(gL,layout=lL,vertex.shape='sphere',mark.groups =gL$marks,
      main='Normalized sphere plot of LHS graph with agent marks')
```

Normalized sphere plot of LHS graph with agent marks



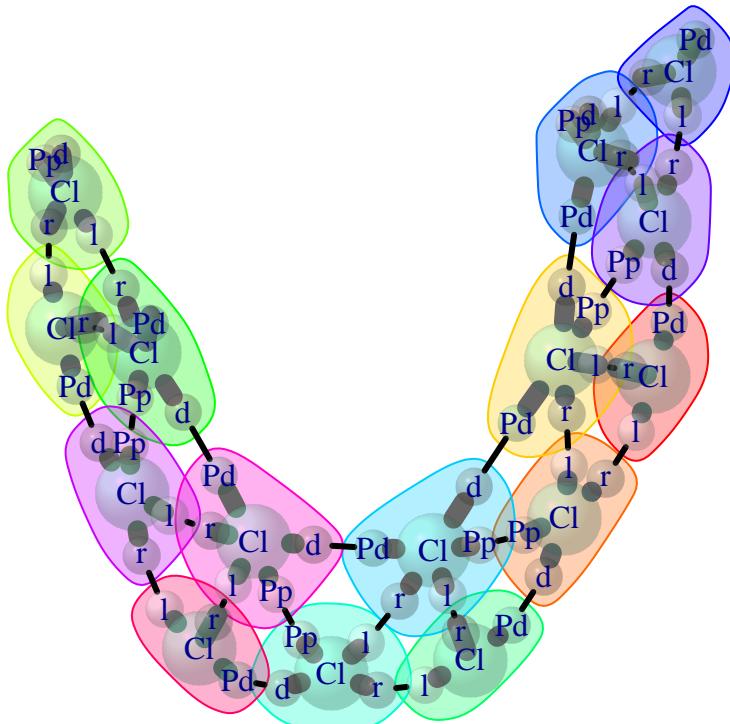
```
plot(gL,layout=IL*1.3,vertex.shape='sphere',
      xlim = c(-1.3,1.3),ylim = c(-1.3,1.3),rescale=FALSE,
      main='Scaled x1.3 normalized sphere plot of LHS graph')
```

Scaled x1.3 normalized sphere plot of LHS graph



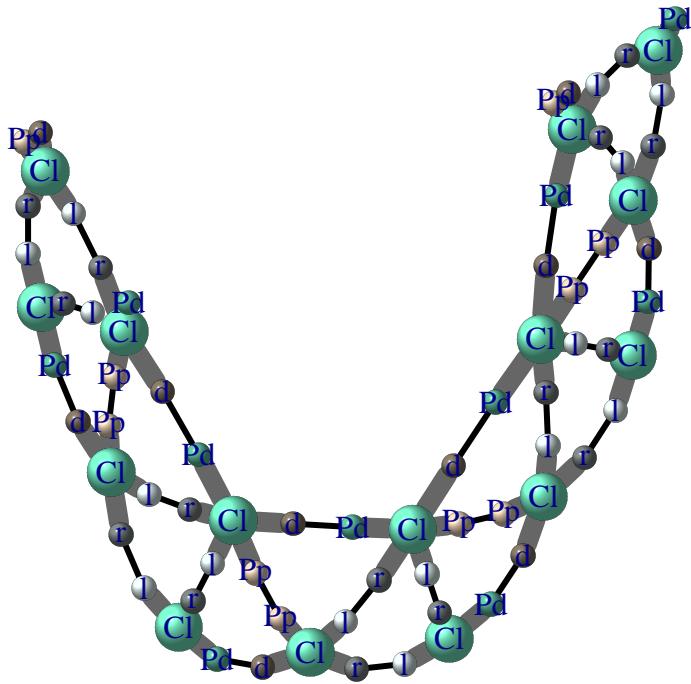
```
plot(gL,layout=IL*1.3,vertex.shape='sphere',mark.groups =gL$marks,  
      xlim = c(-1.3,1.3),ylim = c(-1.3,1.3),rescale=FALSE,  
      main='Scaled x1.3 normalized sphere plot of LHS graph with agent marks')
```

Scaled x1.3 normalized sphere plot of LHS graph with agent marks



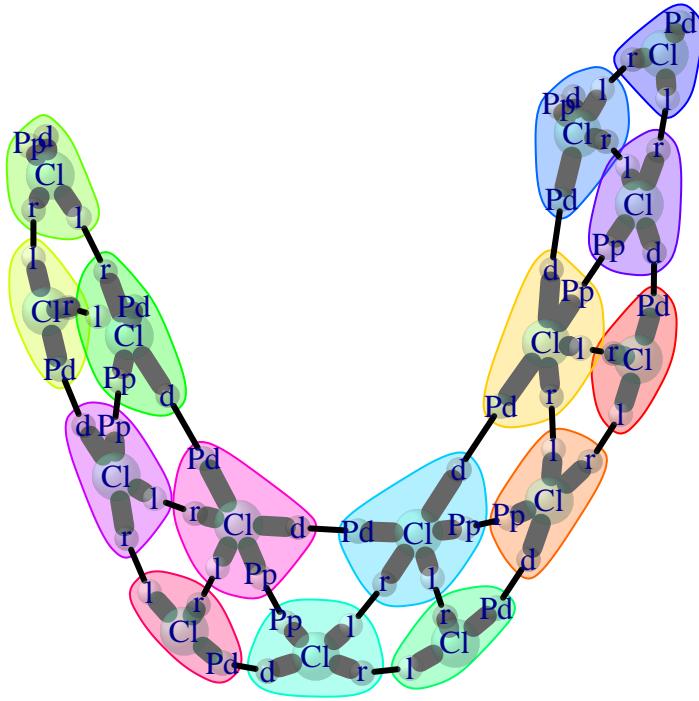
```
plot(gL,layout=IL*2,vertex.shape='sphere',
      xlim = c(-2,2),ylim = c(-2,2),rescale=FALSE,
      main='Scaled x2 normalized sphere plot of LHS graph')
```

Scaled x2 normalized sphere plot of LHS graph



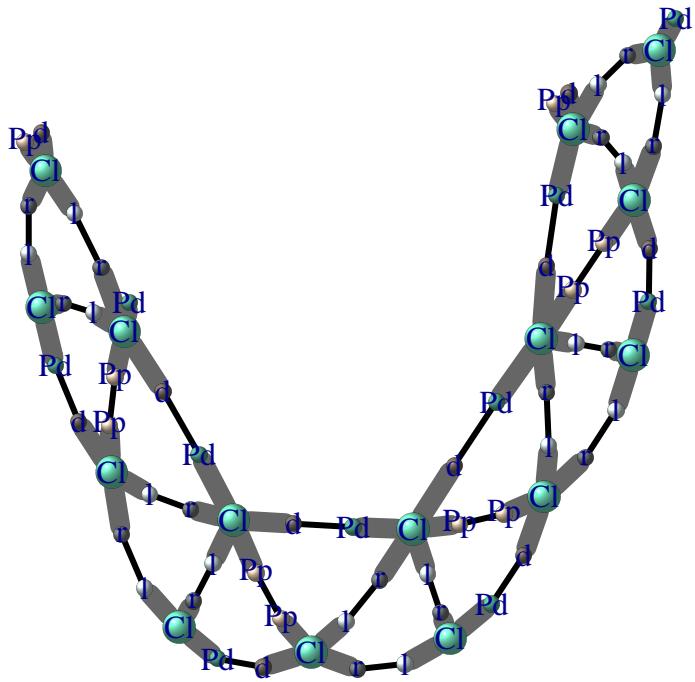
```
plot(gL,layout=IL*2,vertex.shape = 'sphere',mark.groups =gL$marks,  
      xlim = c(-2,2),ylim = c(-2,2),rescale=FALSE,  
      main='Scaled x2 normalized sphere plot of LHS graph with agent marks')
```

Scaled x2 normalized sphere plot of LHS graph with agent marks



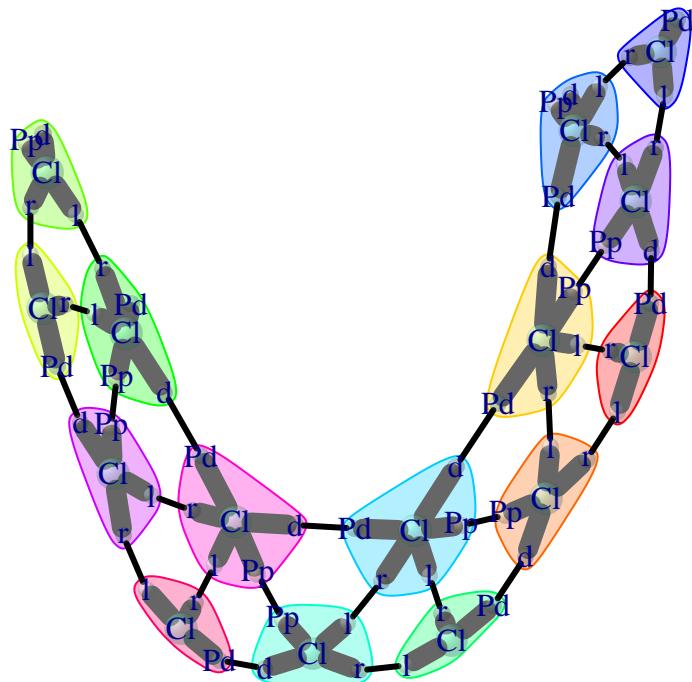
```
plot(gL,layout=IL*3,vertex.shape= 'sphere',
      xlim = c(-3,3),ylim = c(-3,3),rescale=FALSE,
      main= 'Scaled x3 normalized sphere plot of LHS graph ')
```

Scaled x3 normalized sphere plot of LHS graph



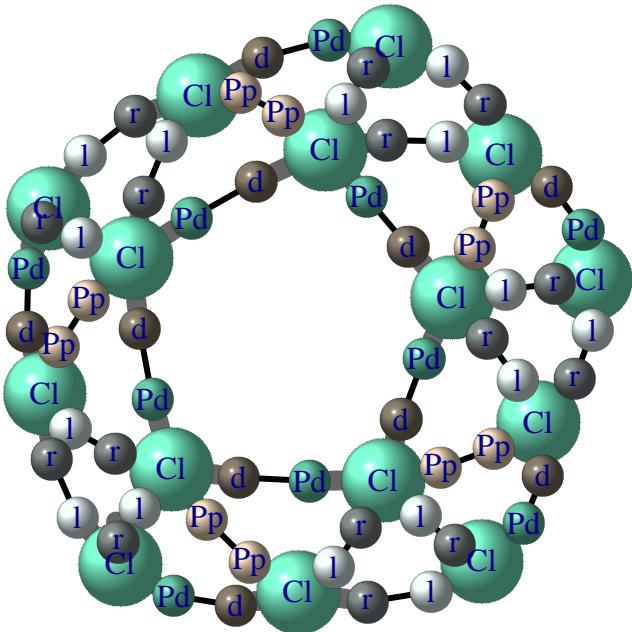
```
plot(gL,layout=ll*3,vertex.shape= 'sphere' ,mark.groups =gL$marks,
      xlim = c(-3,3),ylim = c(-3,3),rescale=FALSE,
      main='Scaled x3 normalized sphere plot of LHS graph with agent marks' )
```

Scaled x3 normalized sphere plot of LHS graph with agent marks



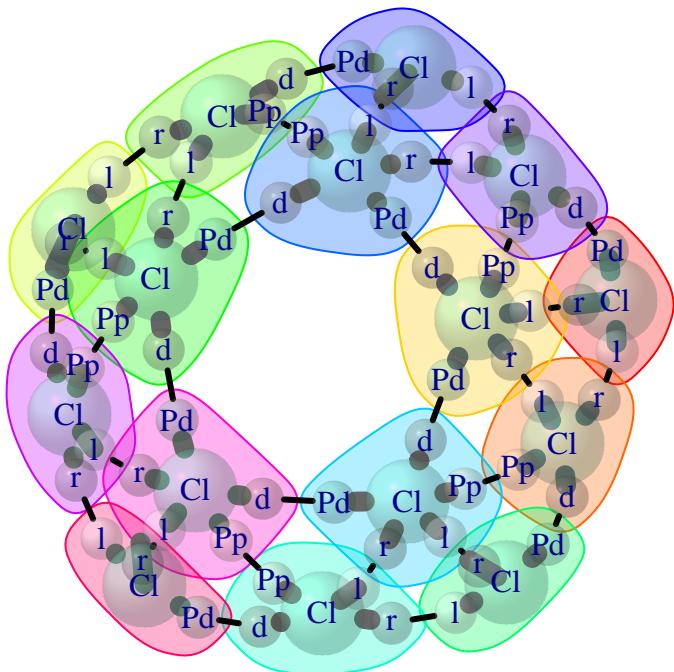
```
plot(gR,layout=lR,vertex.shape='sphere',main='Plain sphere plot of RHS graph')
```

Plain sphere plot of RHS graph



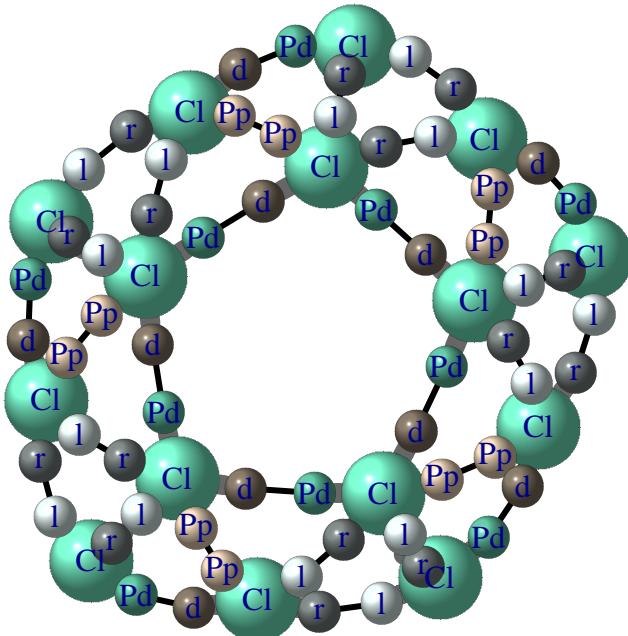
```
plot(gR,layout=lR,vertex.shape='sphere',mark.groups=gR$marks,  
main='Sphere plot of RHS graph with agent marks')
```

Sphere plot of RHS graph with agent marks



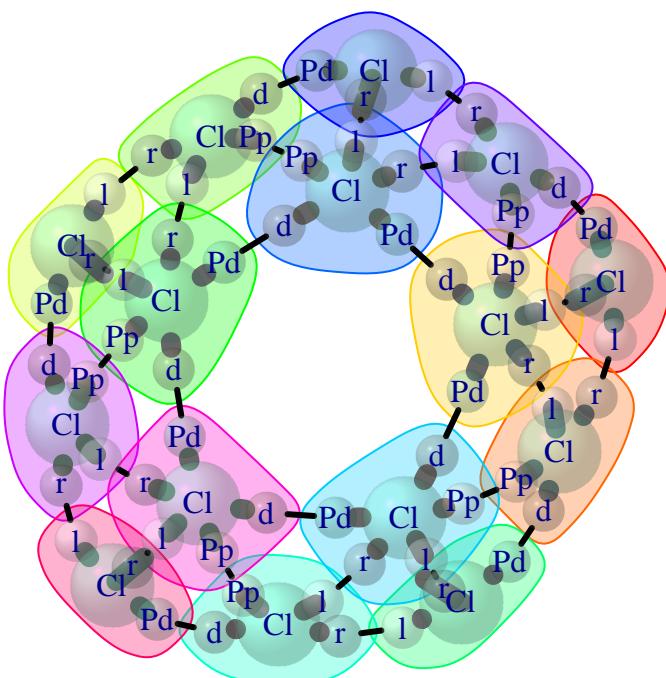
```
IR<-layout_(gR,with_fr(coords = IR),normalize())  
  
plot(gR,layout=lR,vertex.shape='sphere',  
     main='Normalized sphere plot of RHS graph')
```

Normalized sphere plot of RHS graph



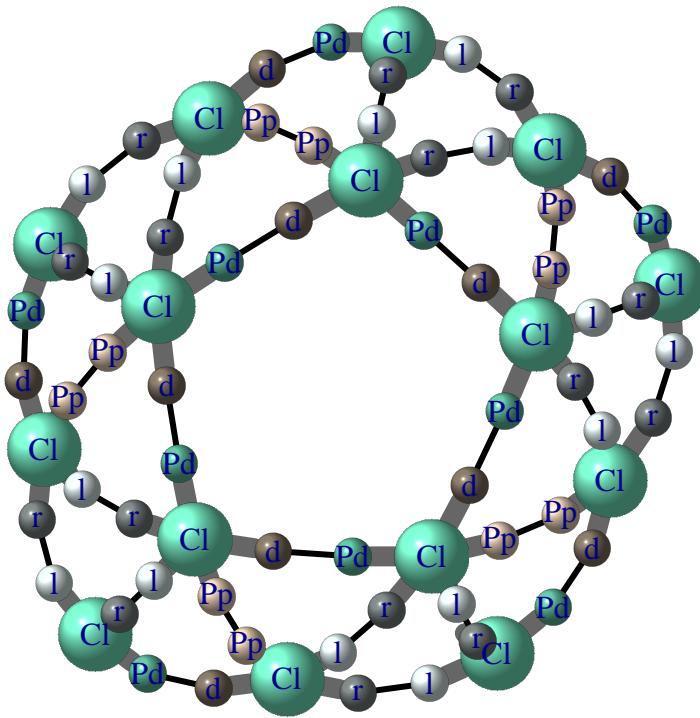
```
plot(gR,layout=lR,vertex.shape='sphere',mark.groups=gR$marks,  
main='Normalized sphere plot of RHS graph with agent marks')
```

Normalized sphere plot of RHS graph with agent marks



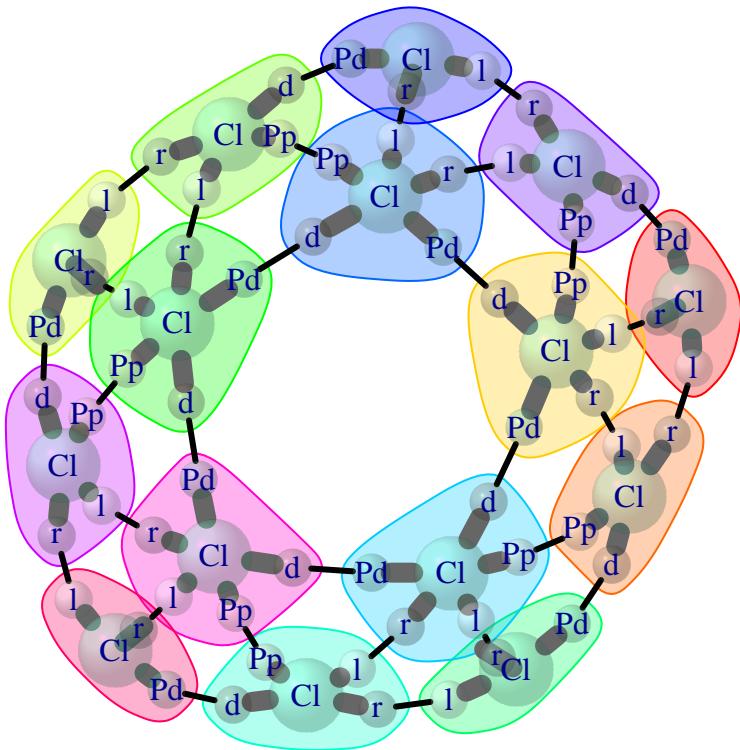
```
plot(gR,layout=lR*1.3,vertex.shape= 'sphere',
  xlim = c(-1.3,1.3),ylim = c(-1.3,1.3),rescale=FALSE,
  main='Scaled x1.3 normalized sphere plot of RHS graph')
```

Scaled x1.3 normalized sphere plot of RHS graph



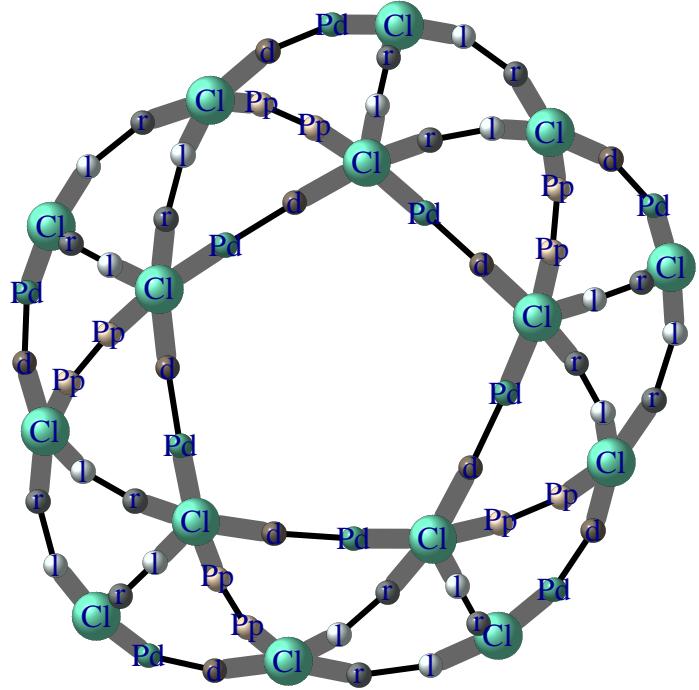
```
plot(gR,layout=lR*1.3,vertex.shape= 'sphere',mark.groups =gR$marks,
  xlim = c(-1.3,1.3),ylim = c(-1.3,1.3),rescale=FALSE,
  main='Scaled x1.3 normalized sphere plot of RHS graph with agent marks')
```

Scaled x1.3 normalized sphere plot of RHS graph with agent marks



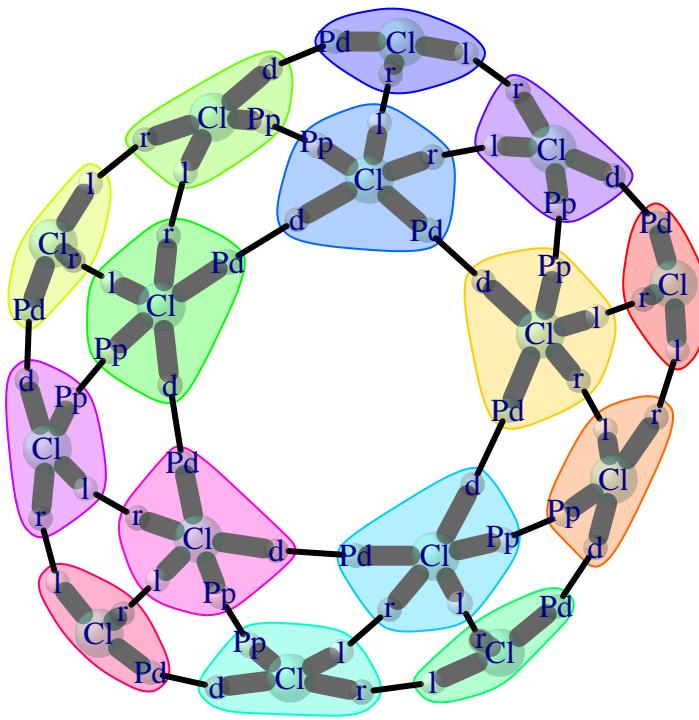
```
plot(gR,layout=lR*2,vertex.shape='sphere',
      xlim = c(-2,2),ylim = c(-2,2),rescale=FALSE,
      main='Scaled x2 normalized sphere plot of RHS graph')
```

Scaled x2 normalized sphere plot of RHS graph



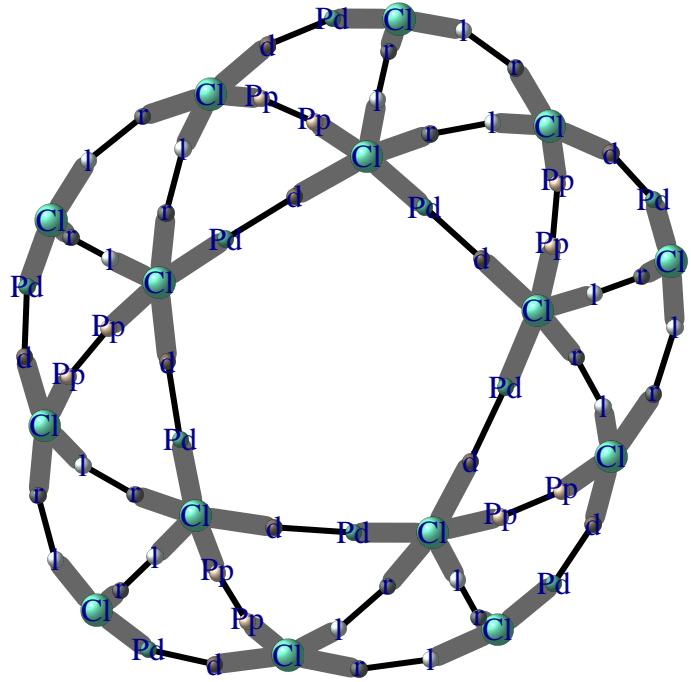
```
plot(gR,layout=lR*2,vertex.shape = 'sphere',mark.groups = gR$marks,  
      xlim = c(-2,2),ylim = c(-2,2),rescale=FALSE,  
      main='Scaled x2 normalized sphere plot of RHS graph with agent marks')
```

Scaled x2 normalized sphere plot of RHS graph with agent marks



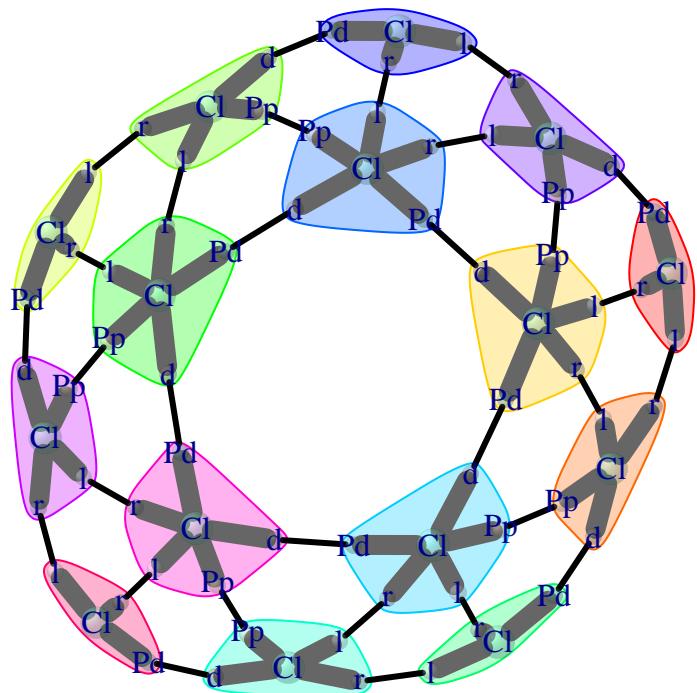
```
plot(gR,layout=lR*3,vertex.shape='sphere',
      xlim = c(-3,3),ylim = c(-3,3),rescale=FALSE,
      main='Scaled x3 normalized sphere plot of RHS graph')
```

Scaled x3 normalized sphere plot of RHS graph



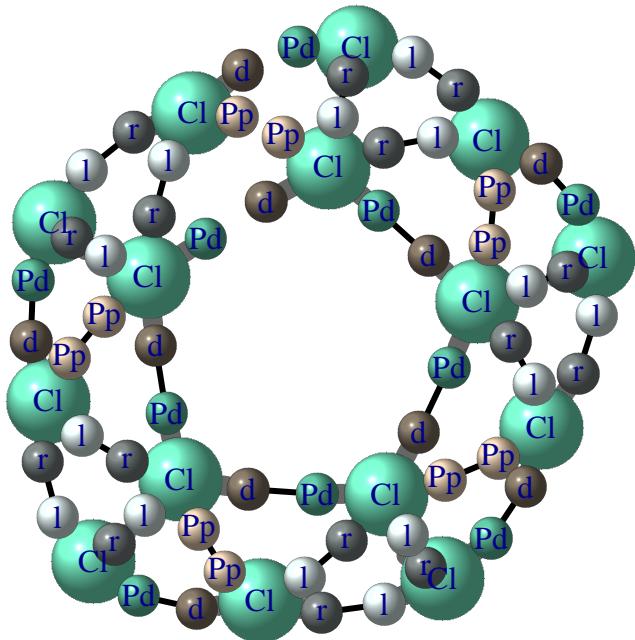
```
plot(gR,layout=lr*3,vertex.shape='sphere',mark.groups=gR$marks,  
xlim = c(-3,3),ylim = c(-3,3),rescale=FALSE,  
main='Scaled x3 normalized sphere plot of RHS graph with agent marks')
```

Scaled x3 normalized sphere plot of RHS graph with agent marks



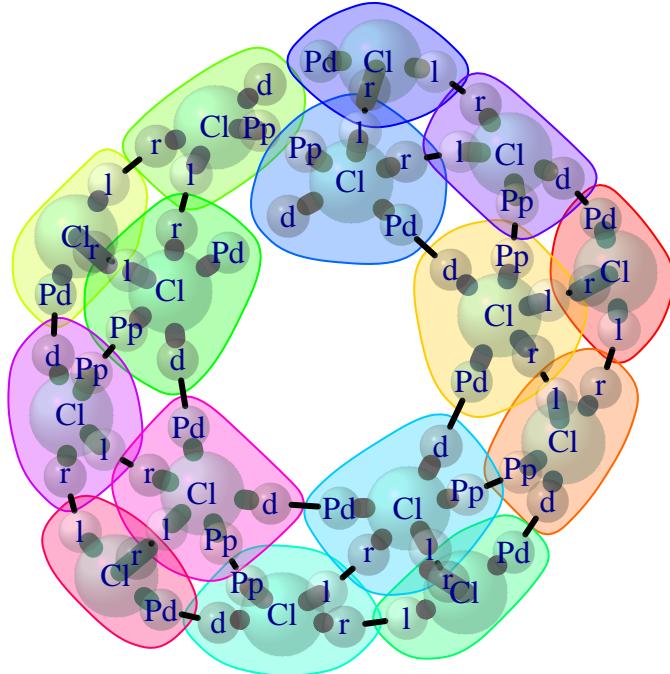
```
plot(gL,layout=IR,vertex.shape='sphere',
     main='Normalized sphere plot of LHS gLaph')
```

Normalized sphere plot of LHS gLaph



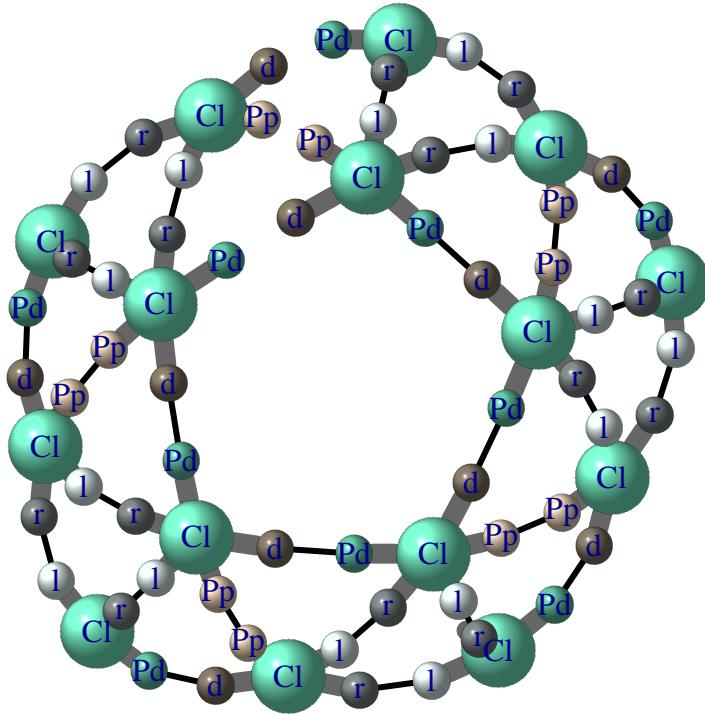
```
plot(gL,layout=IR,vertex.shape='sphere',mark.groups =gL$marks,
     main='Normalized sphere plot of LHS gLaph with agent marks')
```

Normalized sphere plot of LHS gLaph with agent marks



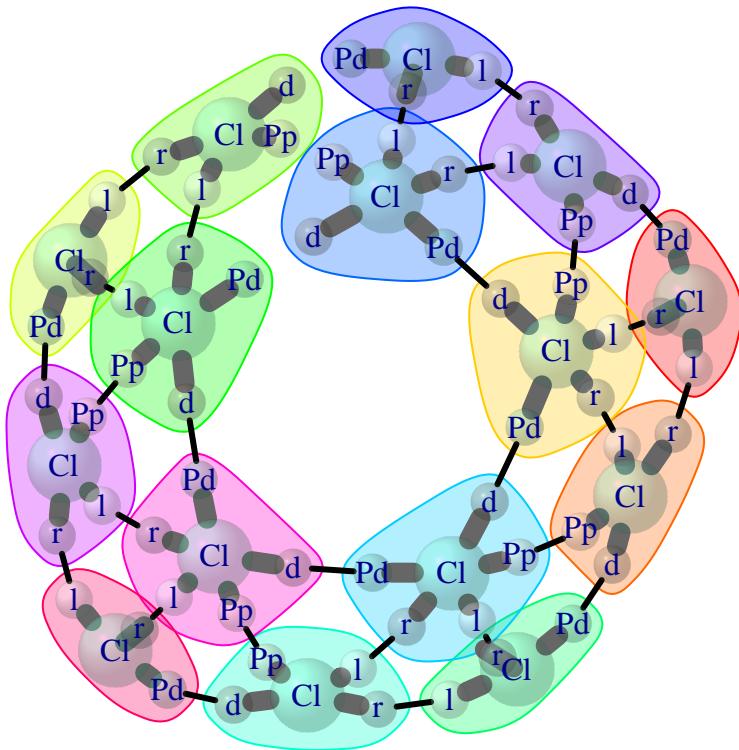
```
plot(gL,layout=IR*1.3,vertex.shape= 'sphere',
      xlim = c(-1.3,1.3),ylim = c(-1.3,1.3),rescale=FALSE,
      main= 'Scaled x1.3 normalized sphere plot of LHS gLaph ')
```

Scaled x1.3 normalized sphere plot of LHS gLaph



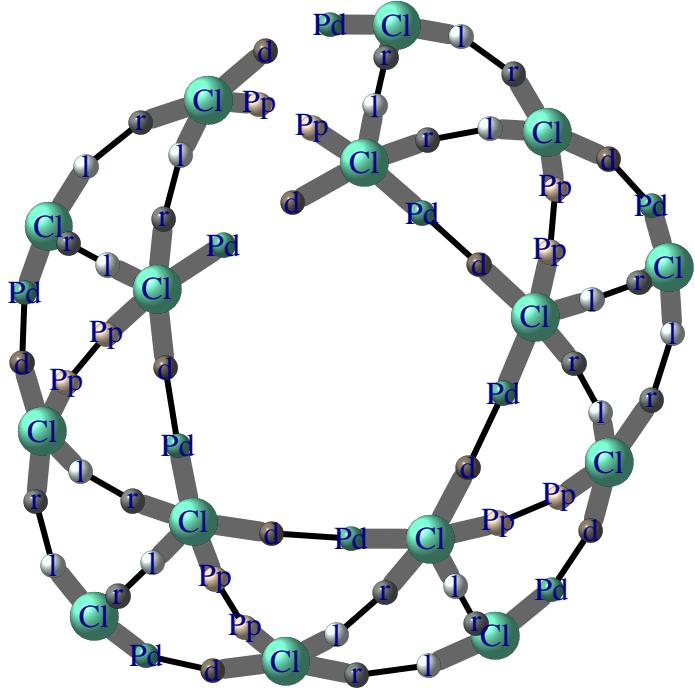
```
plot(gL,layout=lR*1.3,vertex.shape= 'sphere',mark.groups =gL$marks,  
      xlim = c(-1.3,1.3),ylim = c(-1.3,1.3),rescale=FALSE,  
      main= 'Scaled x1.3 normalized sphere plot of LHS gLaph with agent marks')
```

Scaled x1.3 normalized sphere plot of LHS gLaph with agent marks



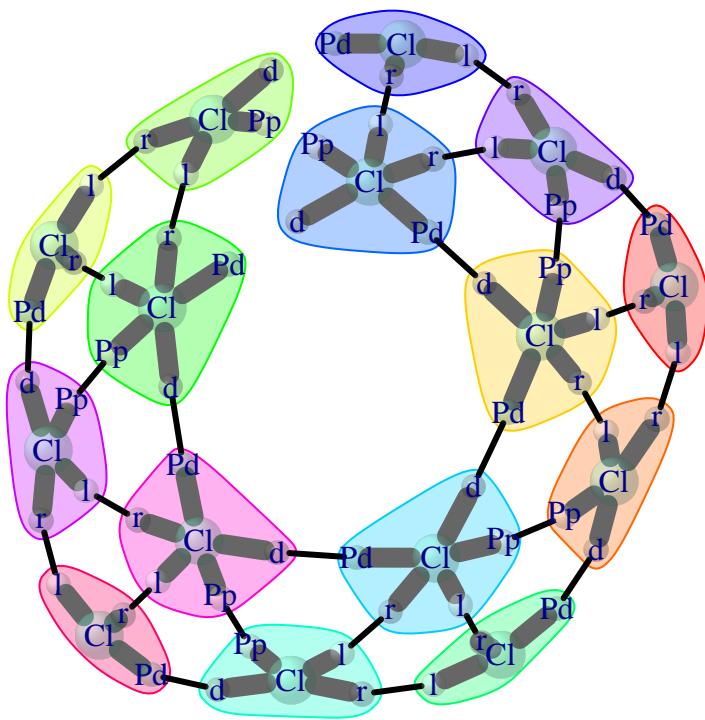
```
plot(gL,layout=lr*2,vertex.shape='sphere',
      xlim = c(-2,2),ylim = c(-2,2),rescale=FALSE,
      main='Scaled x2 normalized sphere plot of LHS gLaph')
```

Scaled x2 normalized sphere plot of LHS gLaph



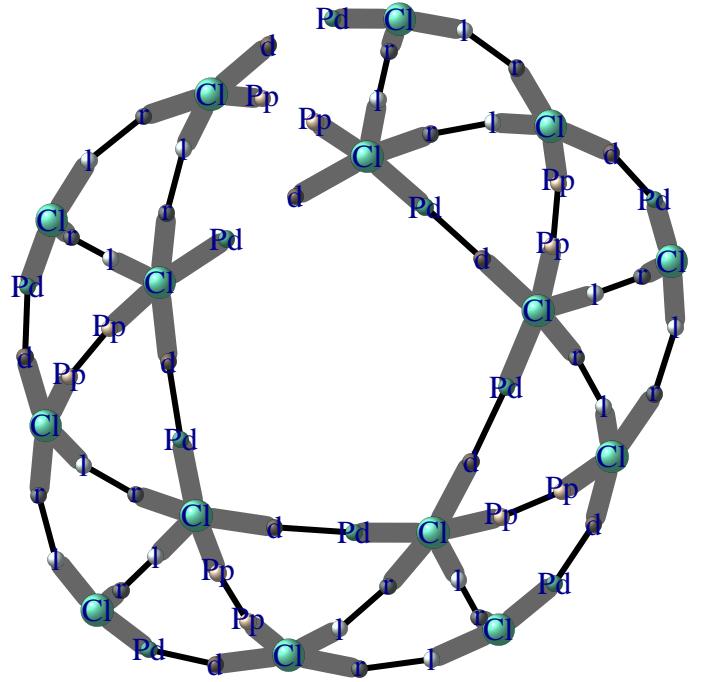
```
plot(gL,layout=IR*2,vertex.shape='sphere',mark.groups =gL$marks,  
      xlim = c(-2,2),ylim = c(-2,2),rescale=FALSE,  
      main='Scaled x2 normalized sphere plot of LHS gLaph with agent marks')
```

Scaled x2 normalized sphere plot of LHS gLaph with agent marks



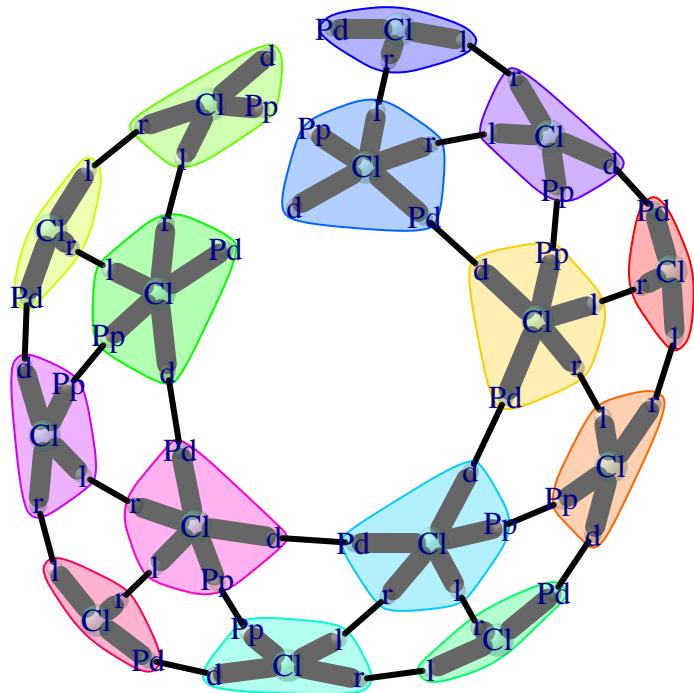
```
plot(gL,layout=lR*3,vertex.shape='sphere',
      xlim = c(-3,3),ylim = c(-3,3),rescale=FALSE,
      main='Scaled x3 normalized sphere plot of LHS gLaph')
```

Scaled x3 normalized sphere plot of LHS gLaph



```
plot(gL,layout=IR^3,vertex.shape='sphere',mark.groups =gL$marks,  
xlim = c(-3,3),ylim = c(-3,3),rescale=FALSE,  
main='Scaled x3 normalized sphere plot of LHS gLaph with agent marks')
```

Scaled x3 normalized sphere plot of LHS gLaph with agent marks



5 SessionInfo

```
sessionInfo()
```

```
## R version 3.2.2 (2015-08-14)
## Platform: x86_64-apple-darwin13.4.0 (64-bit)
## Running under: OS X 10.10.5 (Yosemite)
##
## locale:
## [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8
##
## attached base packages:
## [1] stats      graphics   grDevices  utils      datasets   methods    base
##
## other attached packages:
## [1] rkappa_1.1.150305  futile.logger_1.4.1  plyr_1.8.3
## [4] gdata_2.17.0       randtoolbox_1.17   rngWELL_0.10-4
## [7] igraph_1.0.1       knitr_1.11
##
## loaded via a namespace (and not attached):
## [1] Rcpp_0.12.1        gtools_3.5.0      digest_0.6.8
## [4] futile.options_1.0.0 formatR_1.2.1     magrittr_1.5
## [7] evaluate_0.8       stringi_0.5-5    rmarkdown_0.8
## [10] lambda.r_1.1.7     tools_3.2.2      stringr_1.0.0
## [13] yaml_2.1.13        htmltools_0.2.6
```