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How to plot a fan (Polar) Dendrogram in R?

 Microsoft

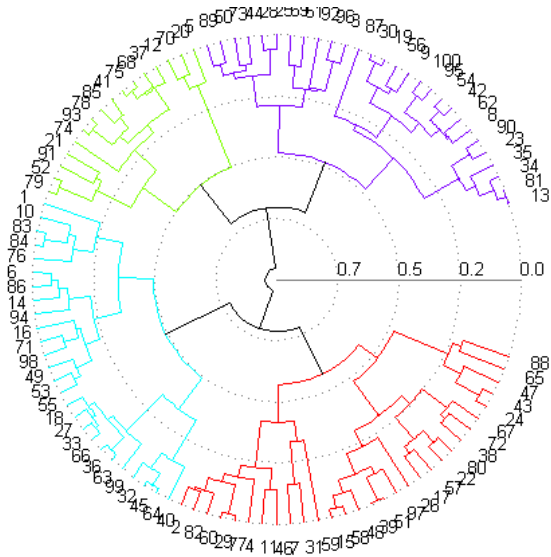
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I'm referring to something like this:



suggested dataset for showing a solutions:

```
data(mtcars)
plot(hclust(dist(mtcars)))
```

r data-visualization dendrogram

edited Oct 29 '10 at 12:24



onestop

15.5k 2 40 70

asked Oct 29 '10 at 8:56



Tal Galili

8,649 22 102 161

locked by whuber ♦ Jul 10 '15 at 14:08

This question exists because it has historical significance, but **it is not considered a good, on-topic question for this site**, so please do not use it as evidence that you can ask similar questions here. This question and its answers are frozen and cannot be changed. More info: [help center](#).

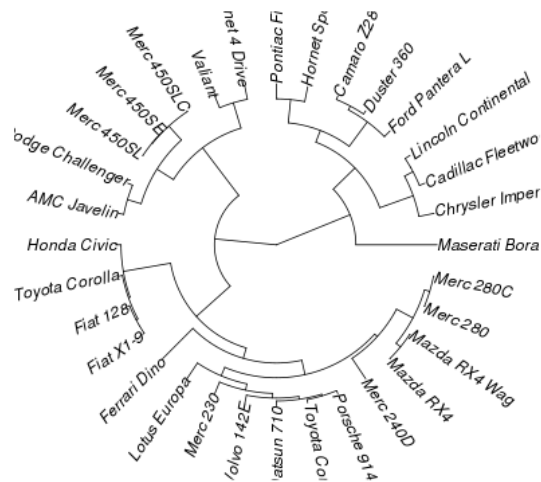
- 1 What is the advantage of a polar representation (aside from saving space)? It looks to me like it is trickier to look at. – nico Oct 29 '10 at 9:56
- 1 @nico It is more cool (-; – mbq Oct 29 '10 at 10:08
- 1 It is also useful when you don't have one stem... – Tal Galili Oct 29 '10 at 10:29
- 3 @mbq: you missed a "good" pun there... you could have said "it's more *fan*" :) – nico Oct 30 '10 at 8:22

3 Answers

In phylogenetics, this is a fan phylogram, so you can convert this to `phylo` and use `ape` :

```
library(ape)
library(cluster)
data(mtcars)
plot(as.phylo(hclust(dist(mtcars))), type="fan")
```

Result:



answered Oct 29 '10 at 9:43



mbq

19.6k 10 59 113

(+1) I looked for this one, but cannot find it in the `ape` package! – chl ♦ Oct 29 '10 at 9:56

Bingo. That's what I was looking for. I wonder if there is something similar in `ggplot2`... – Tal Galili Oct 29 '10 at 10:33

@Tal No official support for tree structures in `ggplot2`. Look at this Google group thread, [j.mp/c8515l](http://j.mp/c8515l) (but it's definitely not circular). – chl ♦ Oct 30 '10 at 12:52

Hello chl, thank you for the link. I'll respond there with reference to this code as well... – Tal Galili Oct 30 '10 at 23:16

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Did you see this post?

[http://groups.google.com/group/ggplot2/browse\\_thread/thread/8e1efd0e7793c1bb](http://groups.google.com/group/ggplot2/browse_thread/thread/8e1efd0e7793c1bb)

Take the example, add `coord_polar()` and reverse the axes and you get pretty close:

```
library(cluster)
data(mtcars)
x <- as.phylo(hclust(dist(mtcars)))

p <- ggplot(data=x)
p <- p + geom_segment(aes(y=x,x=y,yend=xend,xend=yend), colour="blue",alpha=1)
p <- p + geom_text(data=label.phylo(x), aes(x=y, y=x, label=label),family=3, size=3) +
xlim(0, xlim) + coord_polar()

theme <- theme_update( axis.text.x = theme_blank(),
                        axis.ticks = theme_blank(),
                        axis.title.x = theme_blank(),
                        axis.title.y = theme_blank(),
                        legend.position = "none"
                      )
p <- p + theme_set(theme)
print(p)
```

answered Nov 5 '10 at 3:17



Charlotte Wickham

51 1

Dear Charlotte, this is very helpful, thank you! – Tal Galili Nov 5 '10 at 4:36

1 p <- ggplot(data=x) I get this error: ggplot2 doesn't know how to deal with data of class phylo .What am I missing? – GaBorgulya Apr 14 '11 at 23:42

Four years later, I am now able to answer this question. It can be done by combining two new

packages: `circlize` and `dendextend`.

The plot can be made using the `circlize_dendrogram` function (allowing for a much more refined control over the "fan" layout of the `plot.phylo` function).

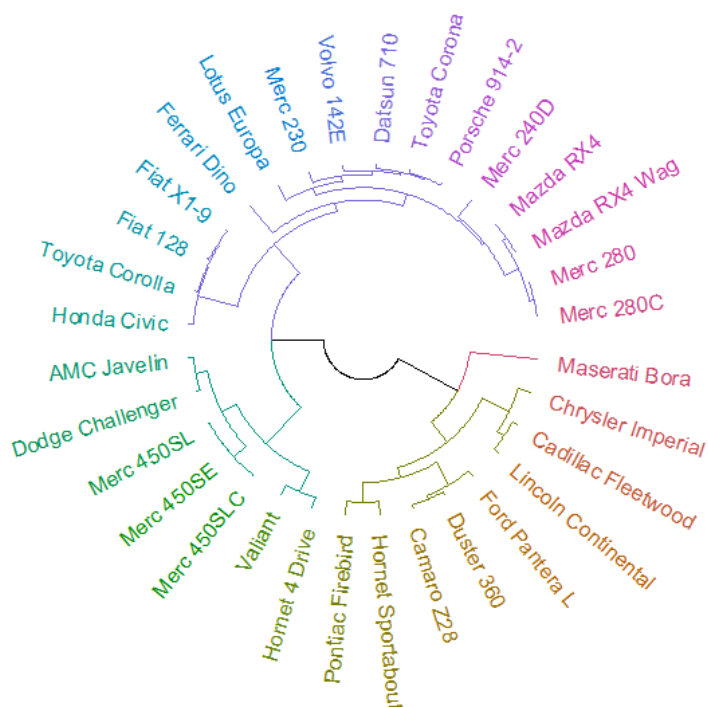
```
# install.packages("dendextend")
# install.packages("circlize")
library(dendextend)
library(circlize)

# create a dendrogram
hc <- hclust(dist(datasets::mtcars))
dend <- as.dendrogram(hc)

# modify the dendrogram to have some colors in the branches and labels
dend <- dend %>%
  color_branches(k=4) %>%
  color_labels

# plot the radial plot
par(mar = rep(0,4))
# circlize_dendrogram(dend, dend_track_height = 0.8)
circlize_dendrogram(dend, labels_track_height = NA, dend_track_height = .4)
```

And the result is:



answered Jul 10 '15 at 14:05



Tal Galili

8,649

22

102

161