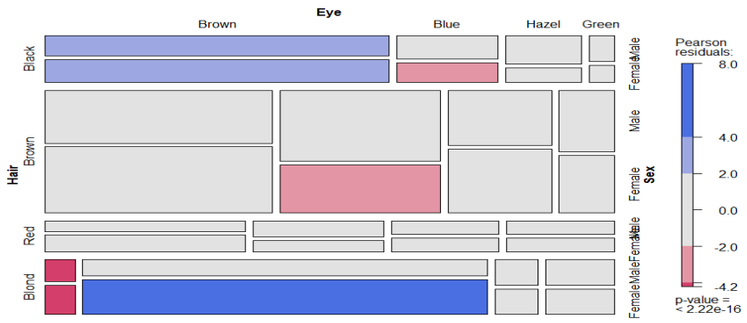
Mosaic Plot with vcd package: : **CHEAT SHEET**

Basics

The vcd package provides a variety of methods for visualizing multivariate categorical data. Mosaic plot is described below. It provides a method of visualizing complex data and evaluating deviations from a specified independence model.

Sample Mosaic Plot:

```
mosaic(HairEyeColor, shade = TRUE)
```



Loading the package

```
library(vcd)
```

Default function

```
mosaic(x, highlighting_fill = c,
       direction = w)
```

`x:` A contingency table in array form, with optional category labels specified

`c:` A color vector or palette function used for a highlighted variable

`w:` A character vector of length `k`, where `k` is the number of margins of x. For each component, **"h"** indicates a horizontal split and **"v"** indicates a vertical split

Function for formula

```
mosaic(formula, data = myData, …)
```

`formula:` A formula specifying the variables used to create a contingency table from myData.

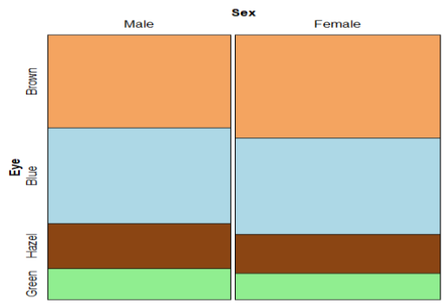
`myData:` Either a data frame, or an object of class **"table"** or **"ftable"**

For more information about mosaic function and vcd package use `help(mosaic)` and visit https://www.rdocumentation.org/packages/vcd/versions/1.4-8

Examples

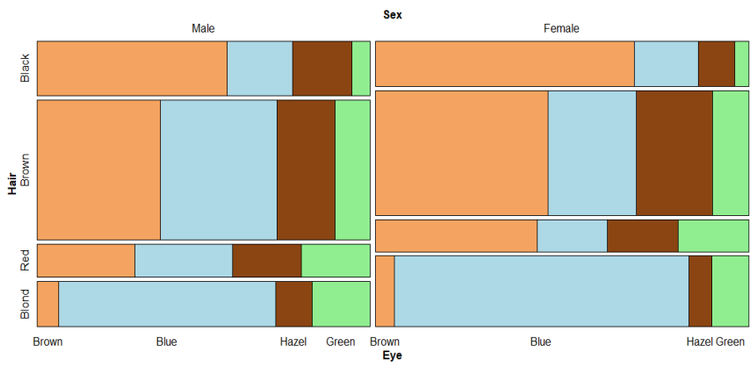
Two Categories with formula:

```
mosaic(Eye~Sex, data = HairEyeColor,
       highlighting_fill = c("sandybrown",
       "lightblue", "saddlebrown",
       "lightgreen"), split_vertical = TRUE)
```



Multiple Categories with formula:

```
mosaic(Eye ~Sex + Hair, data =
       HairEyeColor, highlighting_fill =
       c("sandybrown", "lightblue",
       "saddlebrown", "lightgreen"),
       split_vertical = TRUE)
```



Paired Mosaic Plot:

When we try to analyze the association of each categorical data in the data frame, we can use the `pair()` function in the vcd package to create a matrices of paired mosaics.

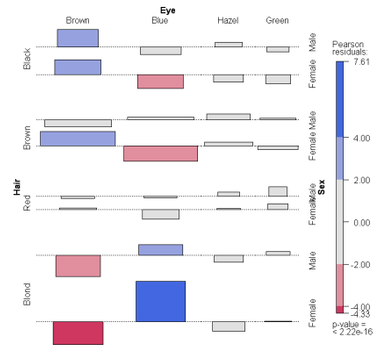
```
pairs(xtabs(Freq ~ ., data), shade = TRUE)
```

We then compare the paired mosaics to grids to find the association.

Further Application

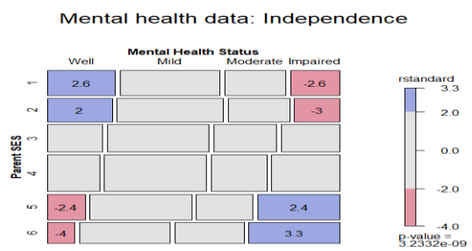
Using `assoc()` to verify the associations between variables:

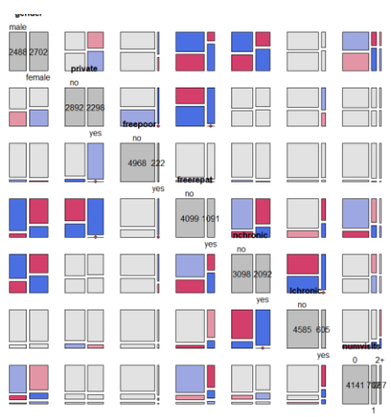
```
assoc(HairEyeColor, shade=TRUE)
```



Using `glm()` to verify the independence of two variables:

```
indep <- glm(Freq ~ mental + ses, family  =
       poisson, data = Mental)
mosaic(indep, ~ ses + mental,
       residuals_type="rstandard",
       labeling = labeling_residuals, main =
       "Mental health data: Independence")
```





In this example, we used `DoctorVisits` dataset from `AER` package.