

# Two-way ANOVA

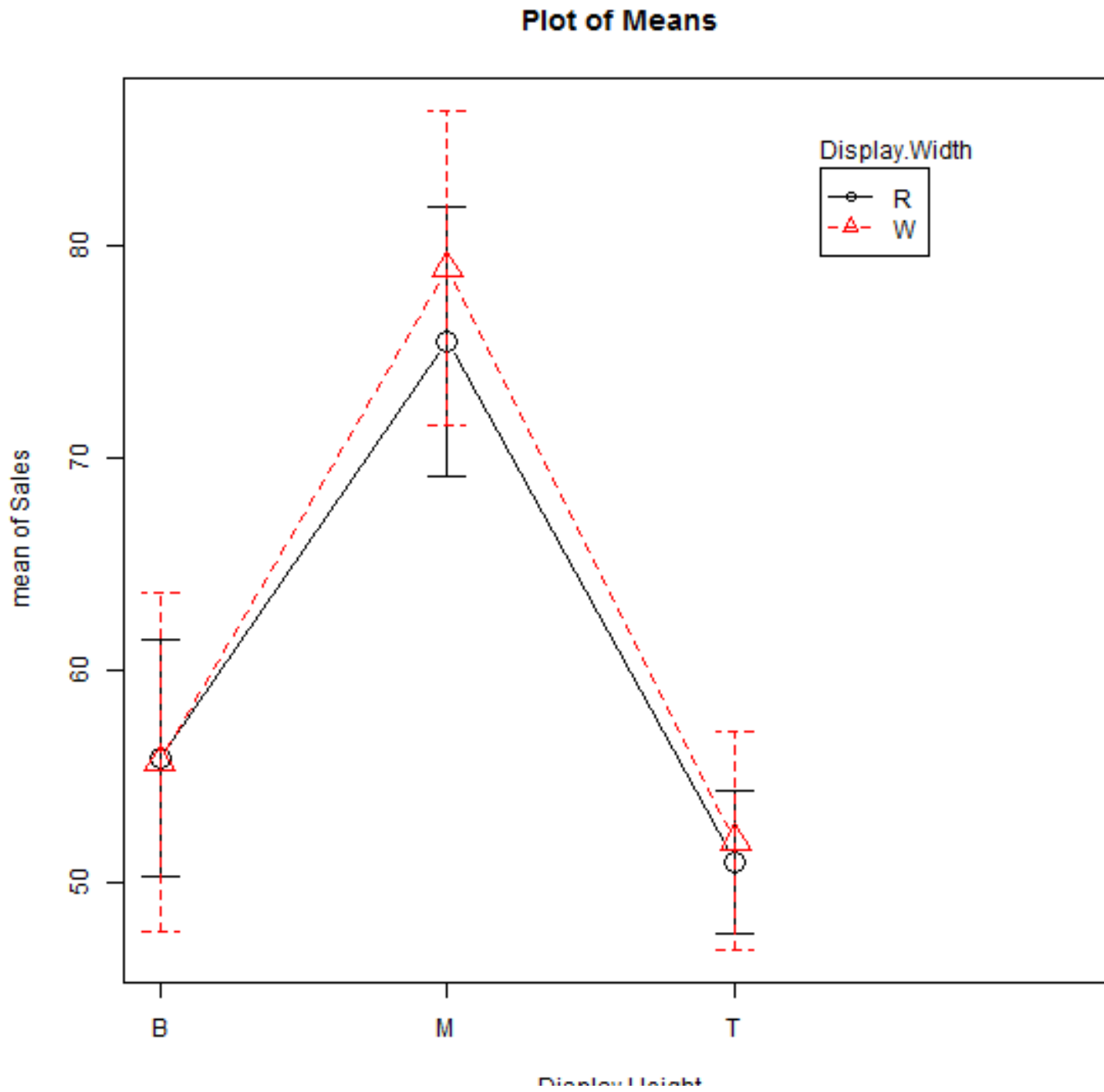
MP

2015-05-17

```
> setwd("D:/Dropbox/R/2015-NUS/Session-1/(b) R-Functions/ANOVA/Two-Way")
```

```
> Dataset <-  
+ read.table("D:/Dropbox/R/2015-NUS/Session-1/(b) R-Functions/ANOVA/Two-Way/BakeSale2-For-R.csv",  
+ header=TRUE, sep=",", na.strings="NA", dec=".", strip.white=TRUE)
```

```
> with(Dataset, plotMeans(Sales, Display.Height, Display.Width,  
+ error.bars="conf.int", level=0.95))
```



```
> AnovaModel.1 <- (lm(Sales ~ Display.Height*Display.Width, data=Dataset))
> Anova(AnovaModel.1)
```

Anova Table (Type II tests)

Response: Sales

	Sum Sq	Df	F value	Pr(>F)
Display.Height	2273.88	2	185.6229	9.424e-10 ***
Display.Width	8.82	1	1.4400	0.2533
Display.Height:Display.Width	10.08	2	0.8229	0.4625
Residuals	73.50	12		

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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

```
> with(Dataset, (tapply(Sales, list(Display.Height, Display.Width), mean,
+ na.rm=TRUE))) # means
```

	R	W
B	55.9	55.7
M	75.5	78.9
T	51.0	52.0

```
> with(Dataset, (tapply(Sales, list(Display.Height, Display.Width), sd,
+ na.rm=TRUE))) # std. deviations
```

	R	W
B	2.251666	3.200000
M	2.551470	2.981610
T	1.352775	2.051828

```
> with(Dataset, (tapply(Sales, list(Display.Height, Display.Width),  
+   function(x) sum(!is.na(x)))) # counts
```

```
  R W  
B 3 3  
M 3 3  
T 3 3
```