

Q9

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```
paint = data.frame(
  type=factor(c(rep(1,9), rep(2,9))),
  time=factor(rep(c(rep(20,3), rep(25,3), rep(30,3)), 2)), y=c(74,64,50, 73,61,44, 78,85,92, 92,86,68, 98

fit = lm(y ~ type * time, paint)
summary(fit)
```

```
##
## Call:
## lm(formula = y ~ type * time, data = paint)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -20.33 -11.25   1.50   9.25  19.67
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    62.667     7.893   7.940 4.06e-06 ***
## type2           19.333     11.162   1.732  0.1089
## time25          -3.333     11.162  -0.299  0.7703
## time30          22.333     11.162   2.001  0.0686 .
## type2:time25     7.667     15.786   0.486  0.6359
## type2:time30   -39.000     15.786  -2.471  0.0295 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.67 on 12 degrees of freedom
## Multiple R-squared:  0.5021, Adjusted R-squared:  0.2947
## F-statistic: 2.42 on 5 and 12 DF, p-value: 0.09735
```

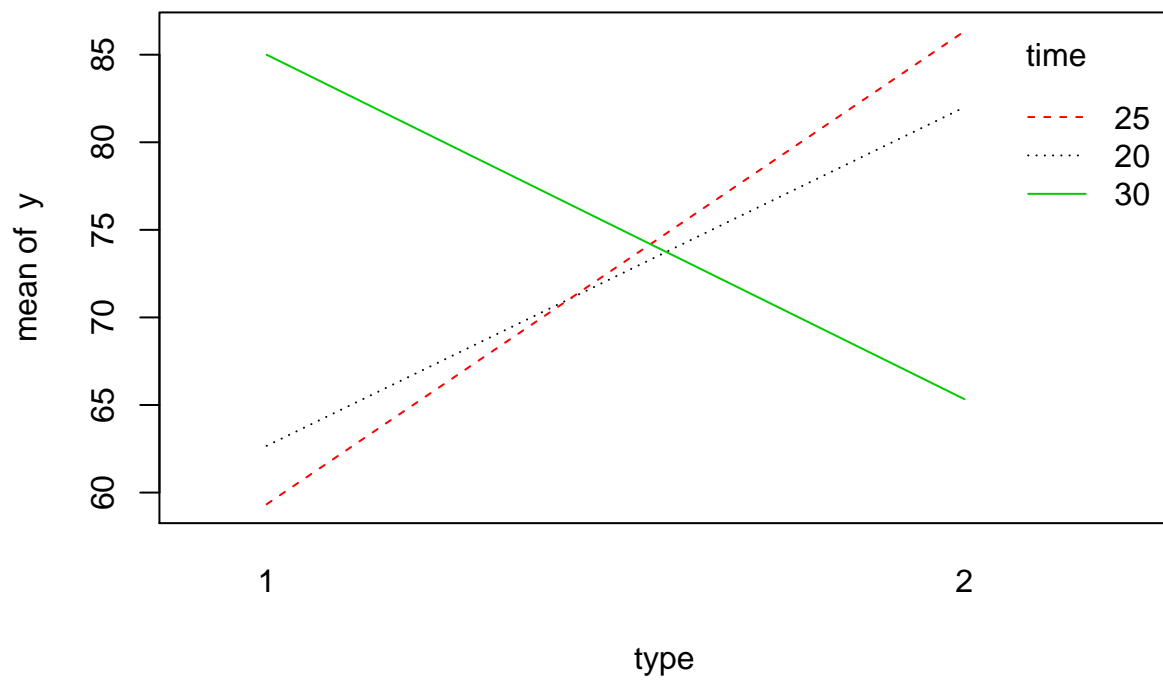
```
drop1(fit, test="F")
```

```
## Single term deletions
##
## Model:
## y ~ type * time
##           Df Sum of Sq    RSS    AIC F value  Pr(>F)
## <none>                 2242.7  98.851
## type:time  2      1878.8 4121.4 105.805  5.0265 0.02596 *
## ---
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```

```
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```

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```

```
with(paint, interaction.plot(type, time, y, col=1:3))
```



```
with(paint, interaction.plot(time, type, y, col=1:2))
```

