To study the timing of sugar signaling in *Arabidopsis* roots were exposed to 100mM sucrose solution, and then the concentration of starch in leaves was measured at 10 minute intervals.

Assays were done in petri dishes with 5 seedlings.

10 petri dishes were started, and at times 0 (before sucrose), 10, 20, 30 and 40 minutes, one randomly selected seedling was harvested from each plate and subjected to starch analysis.

What is the experimental unit for the effect of sucrose at 10min? 20min?

To study the timing of sugar signaling in *Arabidopsis* roots were exposed to either 0mM or 100mM sucrose solution, and then the concentration of starch in leaves was measured at 10 minute intervals.

Assays were done in petri dishes with 5 seedlings.

5 petri dishes per sucrose level were started, and at times 0 (before sucrose), 10, 20, 30 and 40 minutes, one randomly selected seedling was harvested from each plate and subjected to starch analysis.

What is the experimental unit for the effect of sucrose at 10min? 20min?

What is the experimental unit for the change in the effect of sucrose between 10min and 20min?

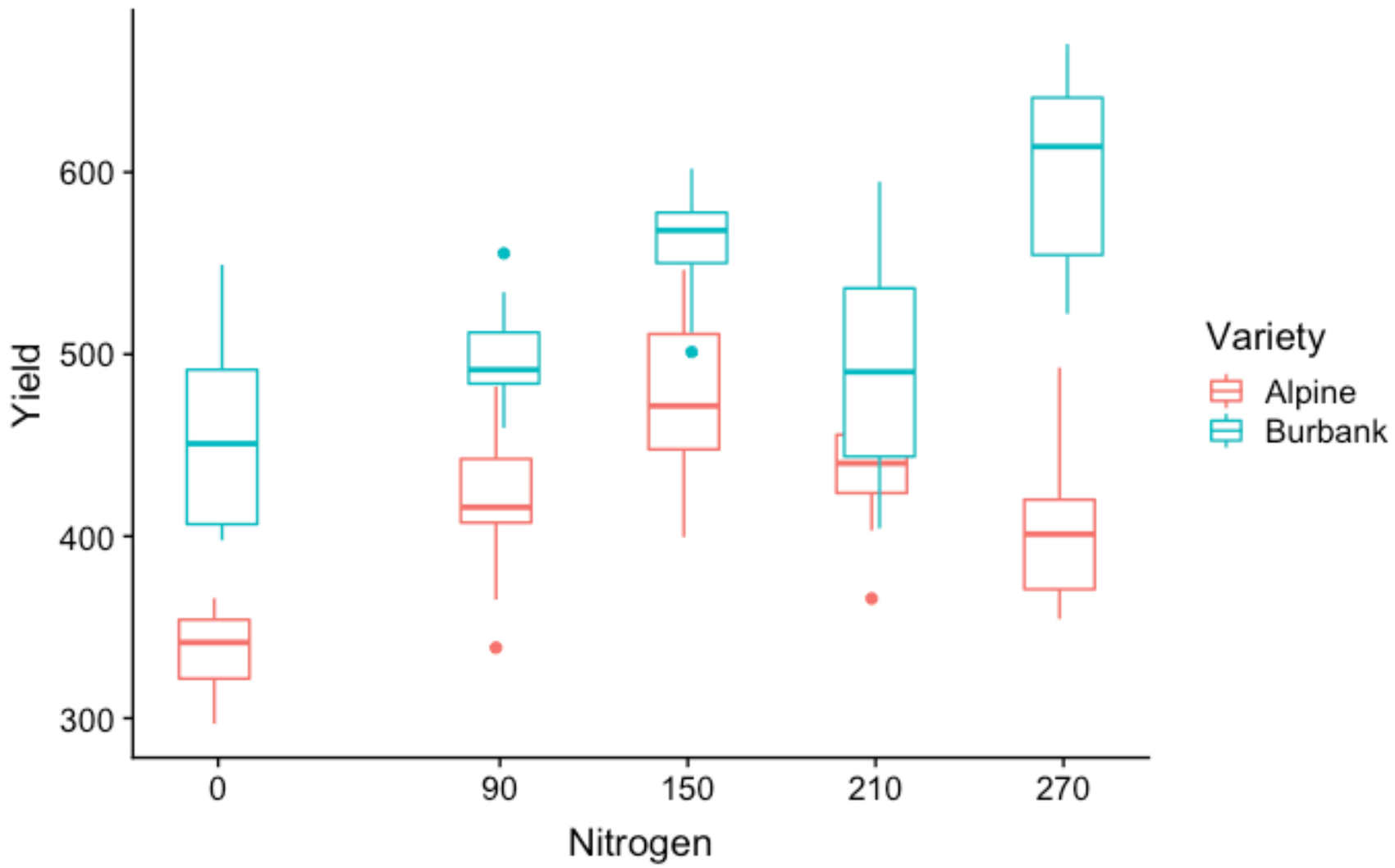
To study the timing of sugar signaling in *Arabidopsis* roots were exposed to either 0mM or 100mM sucrose solution, and then the concentration of starch in leaves was measured at 10 minute intervals.

Assays were done in petri dishes with 5 seedlings.

5 petri dishes per sucrose level were started, and at times 0 (before sucrose), 10, 20, 30 and 40 minutes, one randomly selected seedling was harvested from each plate and subjected to starch analysis.

The whole experiment was replicated 4 times

What is the experimental unit for the change in the effect of sucrose between 10min and 20min?

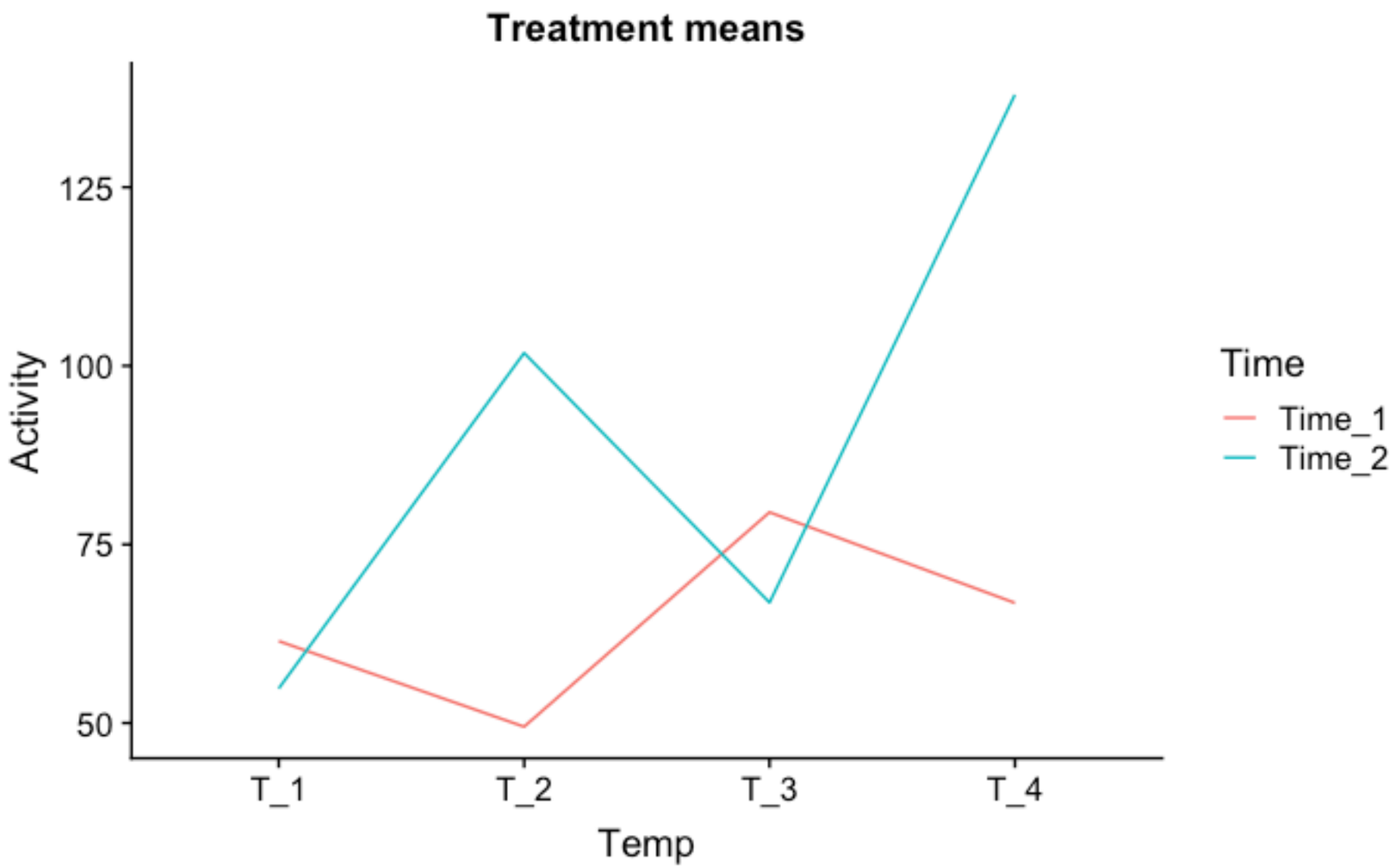

Yield
600
500
400
300
0
90
150
210
270
Nitrogen
Variety
Alpine
Burbank

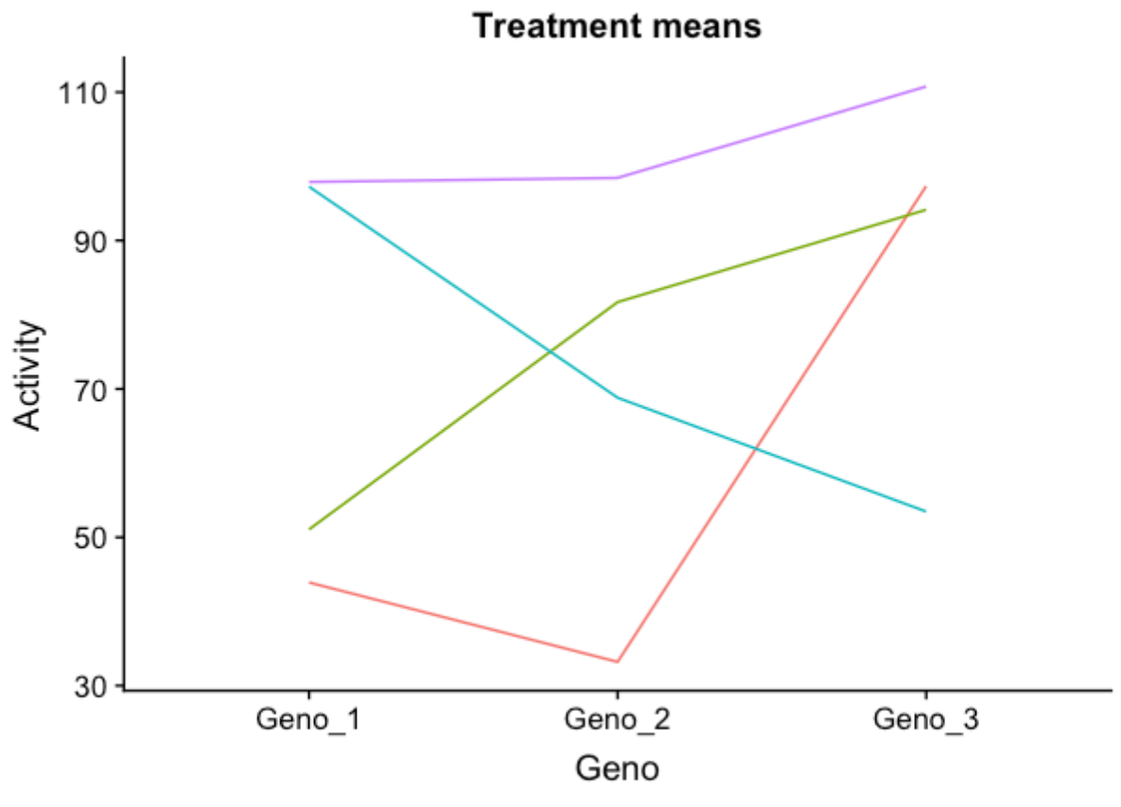
ANOVA table

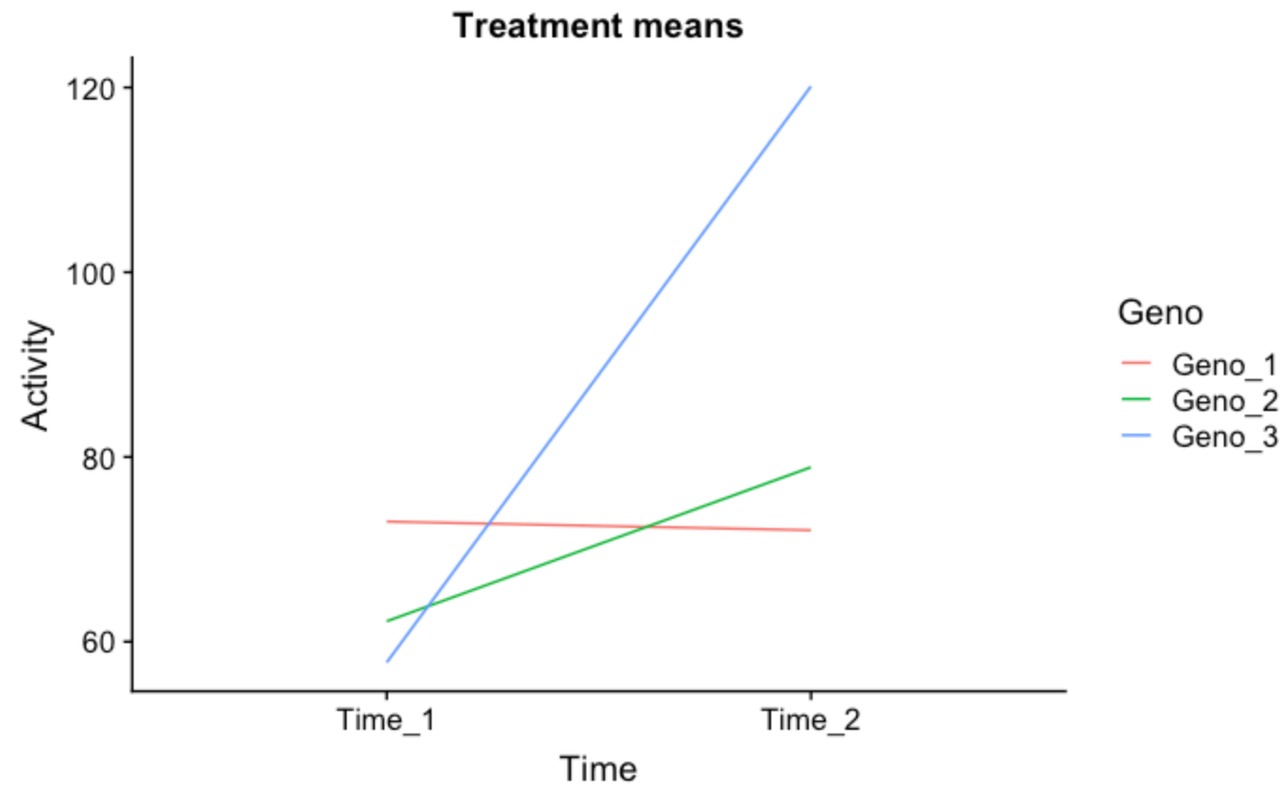
```{r}
full_model = lm(Yield ~ Variety + NitrogenF + Variety:NitrogenF, potato_reps)
anova(full_model)
```

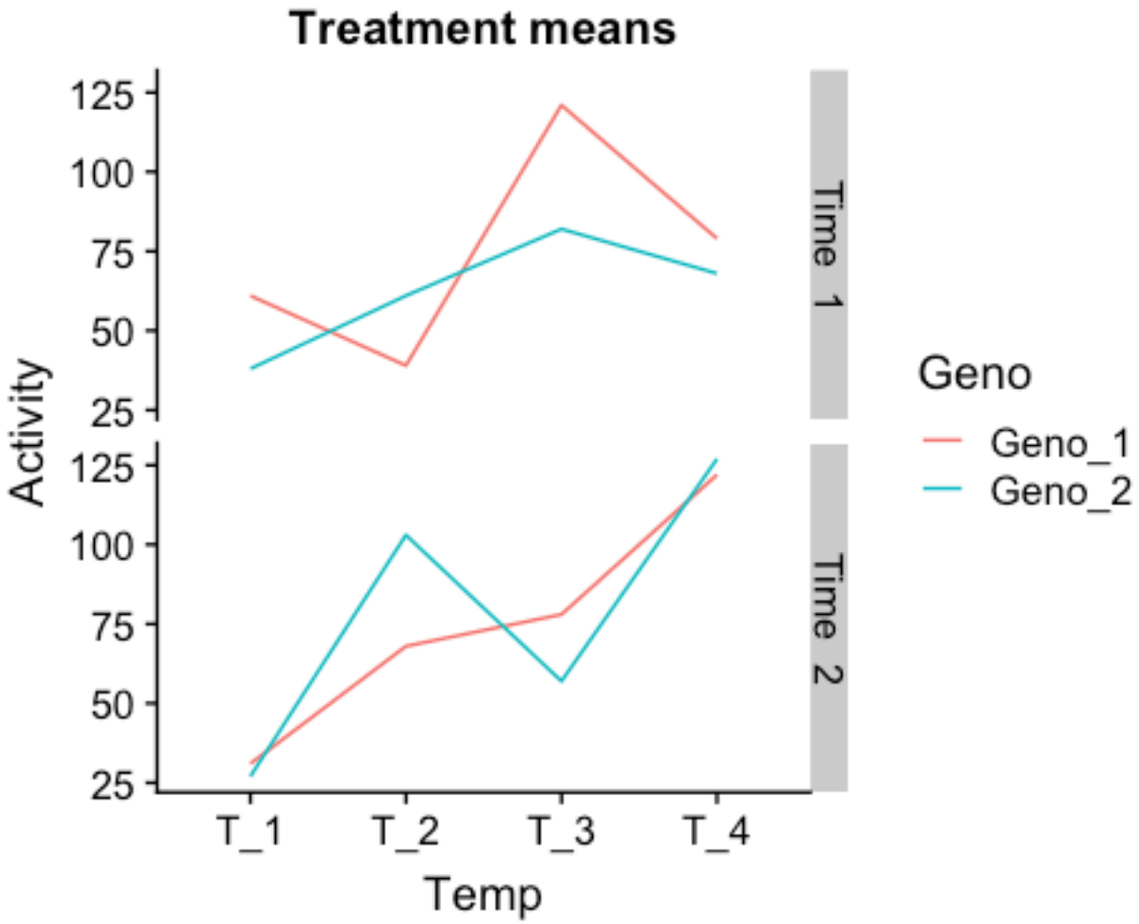
```
Analysis of Variance Table

Response: Yield
                  Df Sum Sq Mean Sq  F value    Pr(>F)
Variety            1 280604  280604 140.7279 < 2.2e-16 ***
NitrogenF          4 167984   41996  21.0617 2.790e-12 ***
Variety:NitrogenF  4  60001   15000   7.5229 2.831e-05 ***
Residuals         90 179456    1994
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

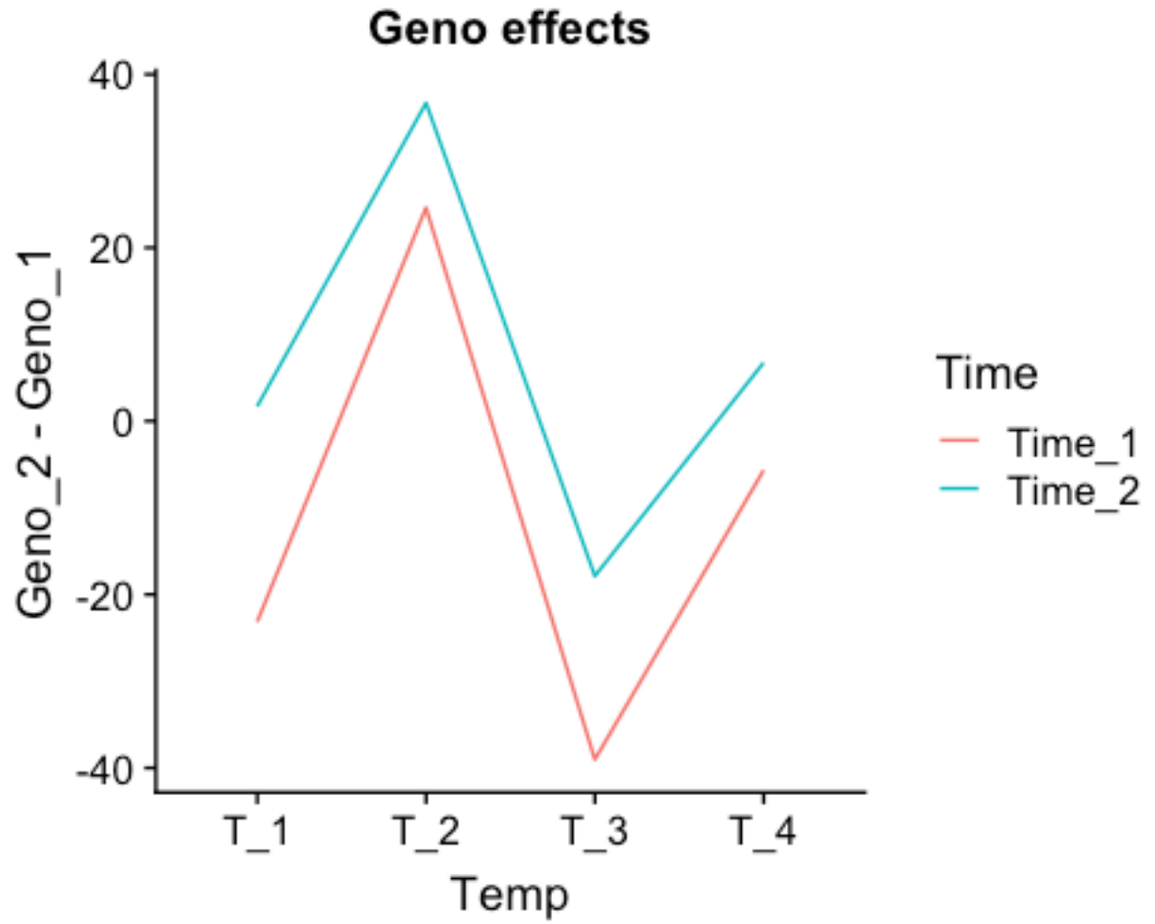
```
Analysis of Variance Table

Response: Activity2
               Df Sum Sq Mean Sq F value    Pr(>F)
Geno            2   4887  2443.6  2.9984 0.0592877 .
Temp            3  18275  6091.6  7.4748 0.0003332 ***
Time            1  12206 12205.7 14.9770 0.0003280 ***
Geno:Temp       6  21740  3623.3  4.4460 0.0011840 **
Geno:Time       2  12818  6408.8  7.8639 0.0011115 **
Temp:Time       3  23796  7931.9  9.7329 3.971e-05 ***
Geno:Temp:Time  6    109    18.2  0.0224 0.9999461
Residuals      48  39118   815.0
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```


Treatment means
Activity
125
100
75
50
T_1
T_2
T_3
T_4
Temp
Time
Time_1
Time_2


Treatment means
110
90
70
50
30
Activity
Geno_1
Geno_2
Geno_3
Geno
Temp
T_1
T_2
T_3
T_4


Treatment means
120
100
80
60
Activity
Time_1
Time_2
Time
Geno
Geno_1
Geno_2
Geno_3


Treatment means
Activity
125
100
75
50
25
Time 1
Time 2
T_1
T_2
T_3
T_4
Temp
Geno
Geno_1
Geno_2


Geno effects
Geno_2 - Geno_1
40
20
0
-20
-40
T_1
T_2
T_3
T_4
Temp
Time
Time_1
Time_2