

Exp 1 - Control-Response Analysis

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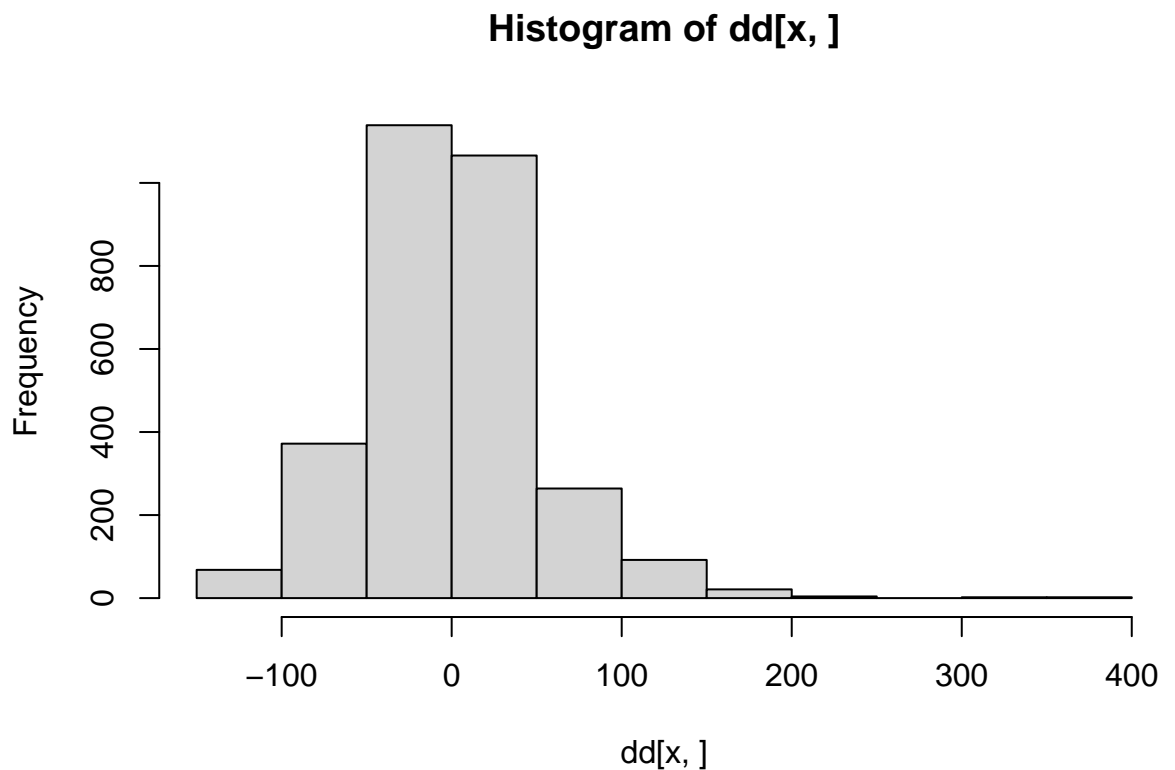
```
## Data: CC1Target
## Models:
## e1.ControlvTarget1: RespRate ~ Phase + ResponseType + (1 | ID)
## e1.ControlvTarget2: RespRate ~ Phase * ResponseType + (1 | ID)
##          npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
## e1.ControlvTarget1     6 48065 48103 -24026    48053
## e1.ControlvTarget2     8 47530 47581 -23757    47514 538.58  2  < 2.2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

## Linear mixed model fit by maximum likelihood ['lmerMod']
## Formula: RespRate ~ Phase * ResponseType + (1 | ID)
## Data: CC1Target
##
##          AIC          BIC    logLik deviance df.resid
## 47530.1 47581.3 -23757.1 47514.1      4436
##
## Scaled residuals:
##      Min       1Q   Median       3Q      Max
## -2.6992 -0.5846 -0.0488  0.4628  9.0842
##
## Random effects:
## Groups Name Variance Std.Dev.
## ID      (Intercept) 725.4 26.93
## Residual 2425.1 49.25
## Number of obs: 4444, groups: ID, 101
##
## Fixed effects:
##              Estimate Std. Error t value
## (Intercept)    14.6376    2.9635  4.939
## Phase2         0.8475    2.5304  0.335
## Phase3         0.0703    3.6887  0.019
## ResponseTypeTarget 95.3393    1.7893 53.284
## Phase2:ResponseTypeTarget -78.8739    3.5785 -22.041
## Phase3:ResponseTypeTarget -67.8195    5.2166 -13.001
##
## Correlation of Fixed Effects:
##              (Intr) Phase2 Phase3 RspnTT P2:RTT
## Phase2      -0.213
## Phase3      -0.146 0.171
## RspnsTypTrg -0.302 0.354 0.243
## Phs2:RspnTT 0.151 -0.707 -0.121 -0.500
## Phs3:RspnTT 0.104 -0.121 -0.707 -0.343 0.171
```

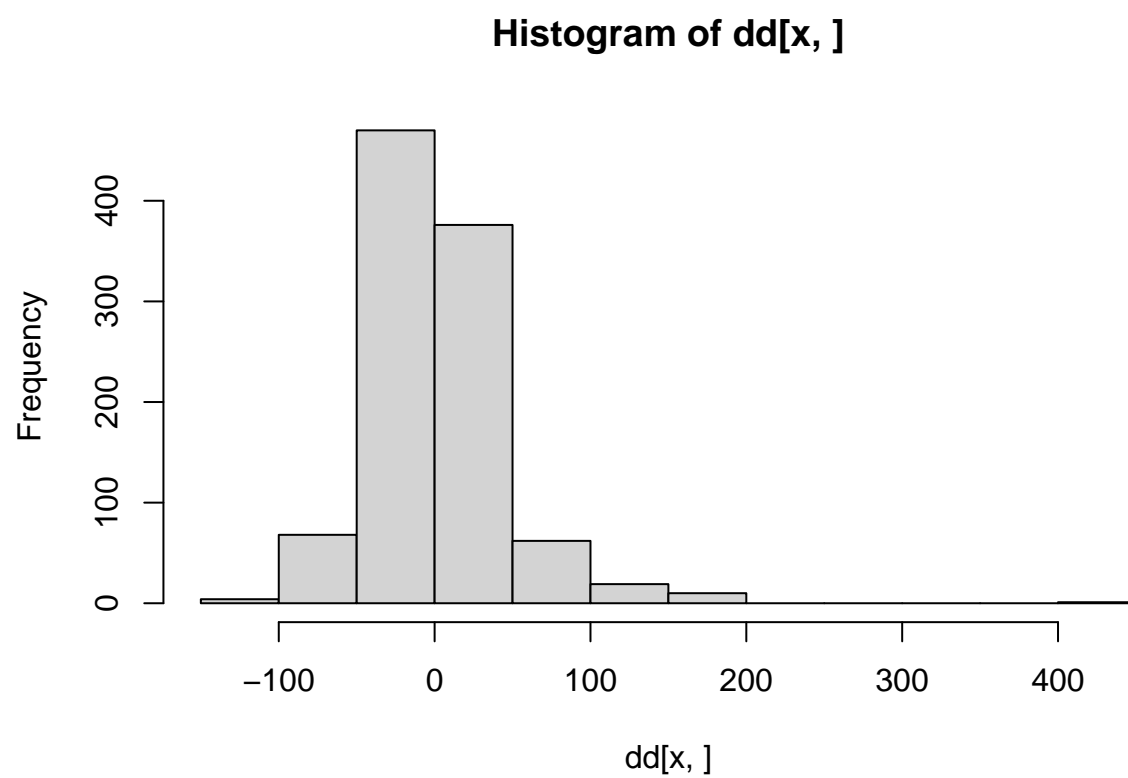
Fixed effects

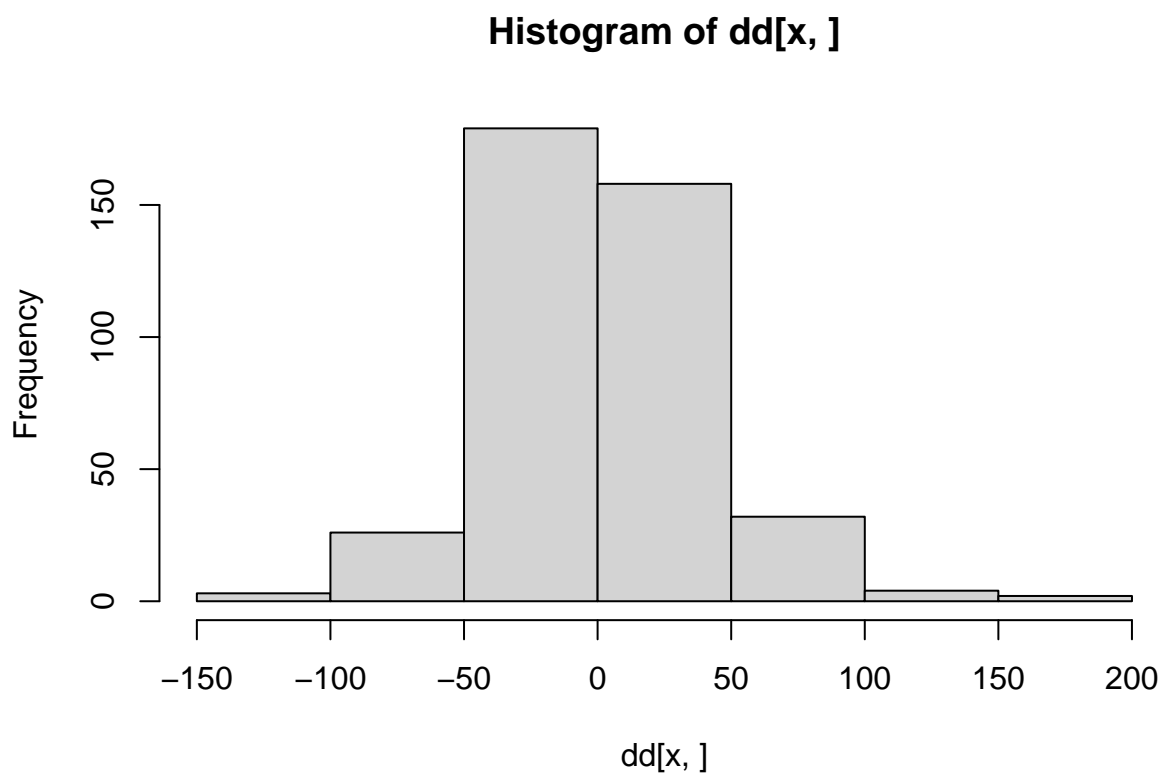
```
## Registered S3 methods overwritten by 'car':
##   method                from
##   influence.merMod       lme4
##   cooks.distance.influence.merMod lme4
##   dfbeta.influence.merMod lme4
##   dfbetas.influence.merMod lme4

## Analysis of Deviance Table (Type II Wald chisquare tests)
##
## Response: RespRate
##               Chisq Df Pr(>Chisq)
## Phase          553.78  2 < 2.2e-16 ***
## ResponseType    2325.55  1 < 2.2e-16 ***
## Phase:ResponseType 573.40  2 < 2.2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```



Checking residuals



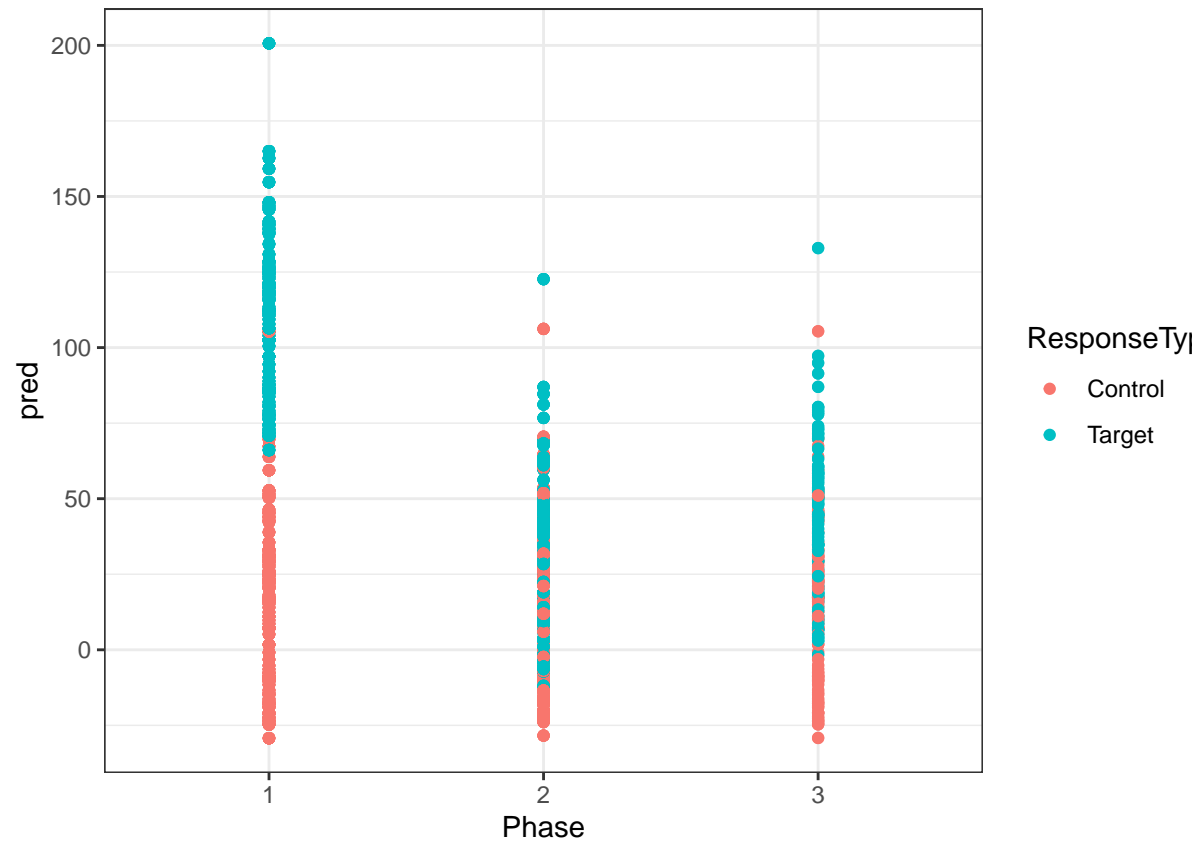


```
## CC1Target$Phase: 1
## $breaks
## [1] -150 -100 -50  0  50  100  150  200  250  300  350  400
##
## $counts
## [1] 68 372 1139 1066 264 92 21 4 0 2 2
##
## $density
## [1] 4.488449e-04 2.455446e-03 7.518152e-03 7.036304e-03 1.742574e-03
## [6] 6.072607e-04 1.386139e-04 2.640264e-05 0.000000e+00 1.320132e-05
## [11] 1.320132e-05
##
## $mids
## [1] -125 -75 -25 25 75 125 175 225 275 325 375
##
## $xname
## [1] "dd[x, ]"
##
## $equidist
## [1] TRUE
##
## attr(,"class")
## [1] "histogram"
## -----
## CC1Target$Phase: 2
## $breaks
```

```

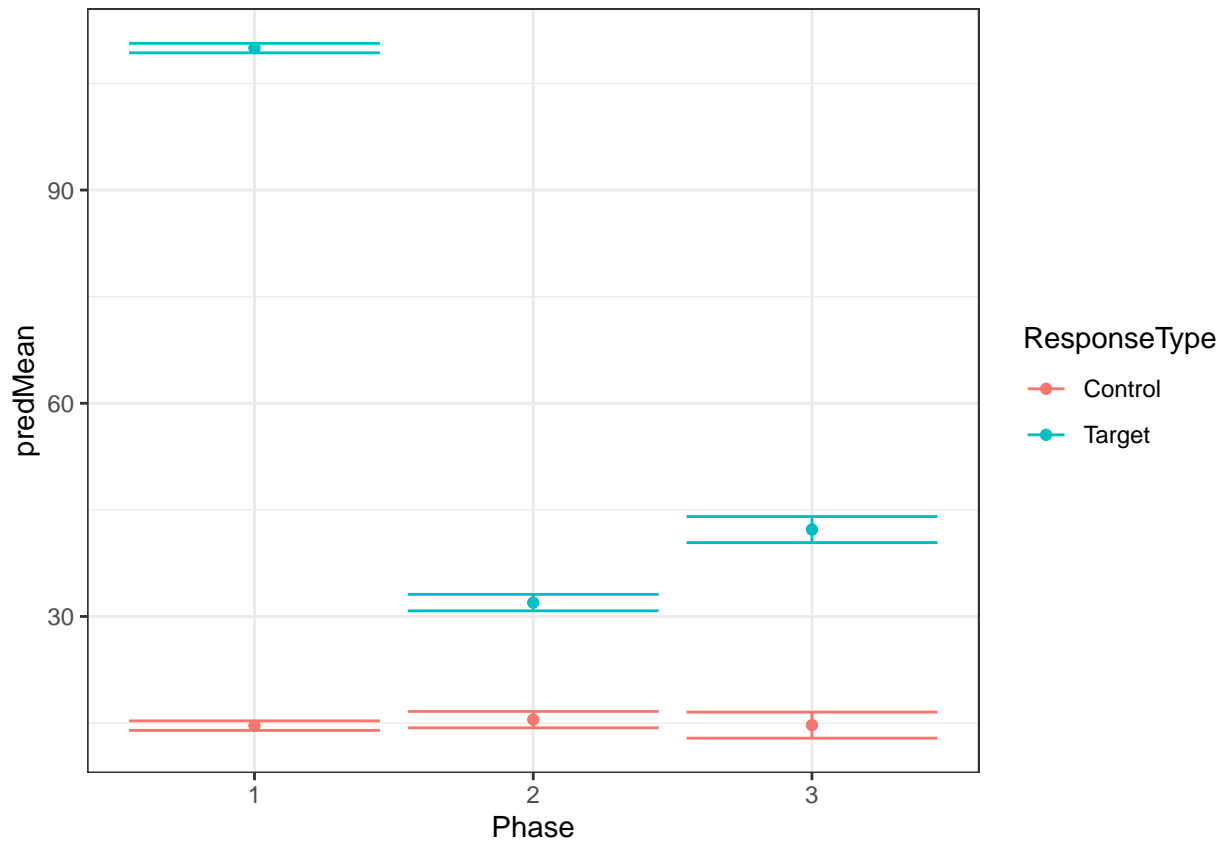
## [1] -150 -100 -50 0 50 100 150 200 250 300 350 400 450
##
## $counts
## [1] 4 68 470 376 62 19 10 0 0 0 0 1
##
## $density
## [1] 7.920792e-05 1.346535e-03 9.306931e-03 7.445545e-03 1.227723e-03
## [6] 3.762376e-04 1.980198e-04 0.000000e+00 0.000000e+00 0.000000e+00
## [11] 0.000000e+00 1.980198e-05
##
## $mids
## [1] -125 -75 -25 25 75 125 175 225 275 325 375 425
##
## $xname
## [1] "dd[x, ]"
##
## $equidist
## [1] TRUE
##
## attr("class")
## [1] "histogram"
## -----
## CC1Target$Phase: 3
## $breaks
## [1] -150 -100 -50 0 50 100 150 200
##
## $counts
## [1] 3 26 179 158 32 4 2
##
## $density
## [1] 0.0001485149 0.0012871287 0.0088613861 0.0078217822 0.0015841584
## [6] 0.0001980198 0.0000990099
##
## $mids
## [1] -125 -75 -25 25 75 125 175
##
## $xname
## [1] "dd[x, ]"
##
## $equidist
## [1] TRUE
##
## attr("class")
## [1] "histogram"

```



looking @ predictions

'summarise()' has grouped output by 'Phase'. You can override using the '.groups' argument.



specific comparisons

```
## $emmeans
## ResponseType = Control:
## Phase emmean SE df lower.CL upper.CL
## 1 14.6 2.98 132 8.75 20.5
## 2 15.5 3.47 244 8.64 22.3
## 3 14.7 4.39 598 6.08 23.3
##
## ResponseType = Target:
## Phase emmean SE df lower.CL upper.CL
## 1 110.0 2.98 132 104.09 115.9
## 2 32.0 3.47 244 25.11 38.8
## 3 42.2 4.39 598 33.60 50.9
##
## Degrees-of-freedom method: kenward-roger
## Confidence level used: 0.95
##
## $contrasts
## ResponseType = Control:
## contrast estimate SE df t.ratio p.value
## 1 - 2 -0.8475 2.53 4348 -0.335 0.7378
## 1 - 3 -0.0703 3.69 4348 -0.019 0.9848
## 2 - 3 0.7772 4.10 4348 0.189 0.8497
##
## ResponseType = Target:
## contrast estimate SE df t.ratio p.value
```

```

## 1 - 2      78.0264 2.53 4348 30.818 <.0001
## 1 - 3      67.7492 3.69 4348 18.356 <.0001
## 2 - 3     -10.2772 4.10 4348 -2.505 0.0123
##
## Degrees-of-freedom method: kenward-roger

## $emmeans
## Phase = 1:
## ResponseType emmean    SE   df lower.CL upper.CL
## Control      14.6 2.98 132     8.75    20.5
## Target       110.0 2.98 132    104.09    115.9
##
## Phase = 2:
## ResponseType emmean    SE   df lower.CL upper.CL
## Control      15.5 3.47 244     8.64    22.3
## Target       32.0 3.47 244    25.11    38.8
##
## Phase = 3:
## ResponseType emmean    SE   df lower.CL upper.CL
## Control      14.7 4.39 598     6.08    23.3
## Target       42.2 4.39 598    33.60    50.9
##
## Degrees-of-freedom method: kenward-roger
## Confidence level used: 0.95
##
## $contrasts
## Phase = 1:
## contrast      estimate    SE   df t.ratio p.value
## Control - Target    -95.3 1.79 4348 -53.253 <.0001
##
## Phase = 2:
## contrast      estimate    SE   df t.ratio p.value
## Control - Target    -16.5 3.10 4348  -5.310 <.0001
##
## Phase = 3:
## contrast      estimate    SE   df t.ratio p.value
## Control - Target    -27.5 4.90 4348  -5.613 <.0001
##
## Degrees-of-freedom method: kenward-roger

```

Conclusion: No statistically significant increases in control responses from Phase 2 to Phase 3. Control responses remained low throughout the experiment.