```r
high_perf_collab <- readRDS("data/surv_object_high.RDS")
REM.data <- readRDS("data/REM_data_high.RDS")

# base model
base_model0 <- coxph(high_perf_collab ~ 1, data = REM.data)
print(summary(base_model0))
```

```
## Call:  coxph(formula = high_perf_collab ~ 1, data = REM.data)
##
## Null model
##   log likelihood= -60467.39
##   n= 515830
```

```r
# sender model
model1 <- coxph(high_perf_collab ~ sender + 1, data = REM.data)
print(summary(model1))
```

```
## Call:
## coxph(formula = high_perf_collab ~ sender + 1, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##             coef exp(coef) se(coef)      z Pr(>|z|)
## sender3 -0.36453   0.69452  0.04100 -8.892  < 2e-16 ***
## sender5 -0.44728   0.63937  0.04780 -9.357  < 2e-16 ***
## sender6 -0.32336   0.72371  0.04259 -7.592 3.14e-14 ***
## sender7 -0.20734   0.81275  0.04067 -5.098 3.44e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## sender3    0.6945      1.440    0.6409    0.7526
## sender5    0.6394      1.564    0.5822    0.7022
## sender6    0.7237      1.382    0.6658    0.7867
## sender7    0.8127      1.230    0.7505    0.8802
##
## Concordance= 0.538  (se = 0.005 )
## Likelihood ratio test= 126.7  on 4 df,   p=<2e-16
## Wald test            = 130  on 4 df,   p=<2e-16
## Score (logrank) test = 131.3  on 4 df,   p=<2e-16
```

```r
# receiver model
model2 <- coxph(high_perf_collab ~ target + 1, data = REM.data)
print(summary(model2))
```

```
## Call:
## coxph(formula = high_perf_collab ~ target + 1, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##             coef exp(coef) se(coef)       z Pr(>|z|)
## target3 -0.12153   0.88556  0.04095  -2.968    0.003 **
```

```
## target5 -0.59370   0.55228  0.04778 -12.425  < 2e-16 ***
## target6 -0.42748   0.65215  0.04259 -10.036  < 2e-16 ***
## target7 -0.27270   0.76132  0.04067  -6.704 2.02e-11 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## target3    0.8856      1.129    0.8173    0.9596
## target5    0.5523      1.811    0.5029    0.6065
## target6    0.6521      1.533    0.5999    0.7089
## target7    0.7613      1.314    0.7030    0.8245
##
## Concordance= 0.555  (se = 0.005 )
## Likelihood ratio test= 212.1  on 4 df,   p=<2e-16
## Wald test            = 207.7  on 4 df,   p=<2e-16
## Score (logrank) test = 211.1  on 4 df,   p=<2e-16
```

```
# sender - receiver model
model3 <- coxph(high_perf_collab ~ sender + target + 1, data = REM.data)
print(summary(model3))
```

```
## Call:
## coxph(formula = high_perf_collab ~ sender + target + 1, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##             coef exp(coef) se(coef)       z Pr(>|z|)
## sender3 -0.36077   0.69714  0.04129  -8.737  < 2e-16 ***
## sender5 -0.50645   0.60263  0.04806 -10.538  < 2e-16 ***
## sender6 -0.35837   0.69881  0.04291  -8.352  < 2e-16 ***
## sender7 -0.22070   0.80196  0.04081  -5.408 6.38e-08 ***
## target3 -0.17615   0.83849  0.04126  -4.269 1.96e-05 ***
## target5 -0.63165   0.53171  0.04798 -13.165  < 2e-16 ***
## target6 -0.47105   0.62435  0.04287 -10.989  < 2e-16 ***
## target7 -0.30487   0.73722  0.04084  -7.465 8.36e-14 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## sender3    0.6971      1.434    0.6429    0.7559
## sender5    0.6026      1.659    0.5485    0.6622
## sender6    0.6988      1.431    0.6424    0.7601
## sender7    0.8020      1.247    0.7403    0.8687
## target3    0.8385      1.193    0.7734    0.9091
## target5    0.5317      1.881    0.4840    0.5841
## target6    0.6243      1.602    0.5740    0.6791
## target7    0.7372      1.356    0.6805    0.7987
##
## Concordance= 0.58  (se = 0.005 )
## Likelihood ratio test= 358.9  on 8 df,   p=<2e-16
## Wald test            = 357.4  on 8 df,   p=<2e-16
## Score (logrank) test = 362.6  on 8 df,   p=<2e-16
```

```r
# dialogue act model
model4 <- coxph(high_perf_collab ~ eventAttribute + 1, data = REM.data)
print(summary(model4))
```

```
## Call:
## coxph(formula = high_perf_collab ~ eventAttribute + 1, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##                                coef exp(coef) se(coef)      z Pr(>|z|)
## eventAttributedisruption    -0.32806   0.72032  0.12885 -2.546   0.0109 *
## eventAttributefloor-grabber  0.12238   1.13018  0.10357  1.182   0.2374
## eventAttributequestion       1.49971   4.48038  0.08143 18.416   <2e-16 ***
## eventAttributestatement      2.29553   9.92965  0.07865 29.188   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                             exp(coef) exp(-coef) lower .95 upper .95
## eventAttributedisruption       0.7203     1.3883    0.5596    0.9273
## eventAttributefloor-grabber    1.1302     0.8848    0.9226    1.3845
## eventAttributequestion         4.4804     0.2232    3.8194    5.2557
## eventAttributestatement        9.9297     0.1007    8.5112   11.5845
##
## Concordance= 0.745  (se = 0.003 )
## Likelihood ratio test= 3465  on 4 df,   p=<2e-16
## Wald test            = 2412  on 4 df,   p=<2e-16
## Score (logrank) test = 3320  on 4 df,   p=<2e-16
```

```r
# sender and dialogue act model
model5 <- coxph(high_perf_collab ~ sender + eventAttribute, data = REM.data)
print(summary(model5))
```

```
## Call:
## coxph(formula = high_perf_collab ~ sender + eventAttribute, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##                                coef exp(coef) se(coef)       z Pr(>|z|)
## sender3                     -0.28592   0.75132  0.04101  -6.972 3.13e-12 ***
## sender5                     -0.63414   0.53039  0.04784 -13.255  < 2e-16 ***
## sender6                     -0.40703   0.66562  0.04260  -9.555  < 2e-16 ***
## sender7                     -0.24203   0.78503  0.04068  -5.949 2.69e-09 ***
## eventAttributedisruption    -0.36673   0.69300  0.12897  -2.844  0.00446 **
## eventAttributefloor-grabber  0.11523   1.12213  0.10358   1.113  0.26590
## eventAttributequestion       1.51066   4.52973  0.08147  18.542  < 2e-16 ***
## eventAttributestatement      2.31378  10.11262  0.07868  29.407  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                             exp(coef) exp(-coef) lower .95 upper .95
## sender3                        0.7513    1.33098    0.6933    0.8142
## sender5                        0.5304    1.88540    0.4829    0.5825
## sender6                        0.6656    1.50235    0.6123    0.7236
```

```
## sender7                         0.7850    1.27383    0.7249    0.8502
## eventAttributedisruption        0.6930    1.44300    0.5382    0.8923
## eventAttributefloor-grabber     1.1221    0.89116    0.9160    1.3747
## eventAttributequestion          4.5297    0.22076    3.8612    5.3140
## eventAttributestatement        10.1126    0.09889    8.6674   11.7988
##
## Concordance= 0.759  (se = 0.003 )
## Likelihood ratio test= 3670  on 8 df,   p=<2e-16
## Wald test            = 2622  on 8 df,   p=<2e-16
## Score (logrank) test = 3541  on 8 df,   p=<2e-16
```

```
# combined model
model6 <- coxph(high_perf_collab ~ sender * eventAttribute, data = REM.data)
print(summary(model6))
```

```
## Call:
## coxph(formula = high_perf_collab ~ sender * eventAttribute, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##                                       coef exp(coef) se(coef)      z Pr(>|z|)
## sender3                            -0.44992   0.63768  0.21960 -2.049  0.04048
## sender5                            -0.22835   0.79584  0.23430 -0.975  0.32976
## sender6                            -0.85102   0.42698  0.27027 -3.149  0.00164
## sender7                            -0.44353   0.64177  0.21618 -2.052  0.04020
## eventAttributedisruption           -0.22967   0.79480  0.21785 -1.054  0.29177
## eventAttributefloor-grabber        -0.08712   0.91657  0.19913 -0.438  0.66175
## eventAttributequestion              1.31732   3.73341  0.15344  8.585  < 2e-16
## eventAttributestatement             2.25981   9.58127  0.14693 15.381  < 2e-16
## sender3:eventAttributedisruption   -0.42254   0.65538  0.34457 -1.226  0.22009
## sender5:eventAttributedisruption   -0.27567   0.75906  0.47417 -0.581  0.56099
## sender6:eventAttributedisruption    0.65725   1.92949  0.40330  1.630  0.10316
## sender7:eventAttributedisruption   -0.44679   0.63968  0.41693 -1.072  0.28390
## sender3:eventAttributefloor-grabber 0.27360   1.31469  0.29784  0.919  0.35829
## sender5:eventAttributefloor-grabber 0.13933   1.14951  0.32958  0.423  0.67247
## sender6:eventAttributefloor-grabber 0.53924   1.71470  0.34765  1.551  0.12088
## sender7:eventAttributefloor-grabber 0.24513   1.27779  0.29965  0.818  0.41333
## sender3:eventAttributequestion      0.14283   1.15354  0.23601  0.605  0.54505
## sender5:eventAttributequestion      0.06625   1.06849  0.24982  0.265  0.79087
## sender6:eventAttributequestion      0.57616   1.77919  0.28265  2.038  0.04150
## sender7:eventAttributequestion      0.26770   1.30695  0.23163  1.156  0.24779
## sender3:eventAttributestatement     0.19162   1.21121  0.22520  0.851  0.39485
## sender5:eventAttributestatement    -0.67303   0.51016  0.24255 -2.775  0.00552
## sender6:eventAttributestatement     0.40273   1.49590  0.27540  1.462  0.14365
## sender7:eventAttributestatement     0.19910   1.22031  0.22180  0.898  0.36937
##
## sender3                            *
## sender5
## sender6                            **
## sender7                            *
## eventAttributedisruption
## eventAttributefloor-grabber
## eventAttributequestion             ***
## eventAttributestatement            ***
```

```
## sender3:eventAttributedisruption
## sender5:eventAttributedisruption
## sender6:eventAttributedisruption
## sender7:eventAttributedisruption
## sender3:eventAttributefloor-grabber
## sender5:eventAttributefloor-grabber
## sender6:eventAttributefloor-grabber
## sender7:eventAttributefloor-grabber
## sender3:eventAttributequestion
## sender5:eventAttributequestion
## sender6:eventAttributequestion      *
## sender7:eventAttributequestion
## sender3:eventAttributestatement
## sender5:eventAttributestatement     **
## sender6:eventAttributestatement
## sender7:eventAttributestatement
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                                   exp(coef) exp(-coef) lower .95 upper .95
## sender3                              0.6377     1.5682    0.4147    0.9807
## sender5                              0.7958     1.2565    0.5028    1.2597
## sender6                              0.4270     2.3420    0.2514    0.7252
## sender7                              0.6418     1.5582    0.4201    0.9804
## eventAttributedisruption             0.7948     1.2582    0.5186    1.2181
## eventAttributefloor-grabber          0.9166     1.0910    0.6204    1.3541
## eventAttributequestion               3.7334     0.2679    2.7637    5.0433
## eventAttributestatement              9.5813     0.1044    7.1839   12.7787
## sender3:eventAttributedisruption     0.6554     1.5258    0.3336    1.2876
## sender5:eventAttributedisruption     0.7591     1.3174    0.2997    1.9226
## sender6:eventAttributedisruption     1.9295     0.5183    0.8753    4.2533
## sender7:eventAttributedisruption     0.6397     1.5633    0.2825    1.4483
## sender3:eventAttributefloor-grabber  1.3147     0.7606    0.7333    2.3569
## sender5:eventAttributefloor-grabber  1.1495     0.8699    0.6025    2.1931
## sender6:eventAttributefloor-grabber  1.7147     0.5832    0.8675    3.3893
## sender7:eventAttributefloor-grabber  1.2778     0.7826    0.7102    2.2989
## sender3:eventAttributequestion       1.1535     0.8669    0.7263    1.8320
## sender5:eventAttributequestion       1.0685     0.9359    0.6548    1.7435
## sender6:eventAttributequestion       1.7792     0.5621    1.0224    3.0961
## sender7:eventAttributequestion       1.3070     0.7651    0.8300    2.0579
## sender3:eventAttributestatement      1.2112     0.8256    0.7790    1.8833
## sender5:eventAttributestatement      0.5102     1.9602    0.3171    0.8207
## sender6:eventAttributestatement      1.4959     0.6685    0.8719    2.5664
## sender7:eventAttributestatement      1.2203     0.8195    0.7901    1.8848
##
## Concordance= 0.761  (se = 0.003 )
## Likelihood ratio test= 3757  on 24 df,   p=<2e-16
## Wald test            = 2721  on 24 df,   p=<2e-16
## Score (logrank) test = 3829  on 24 df,   p=<2e-16
```

```r
# format print all model results
for (model in list(base_model0, model1, model2, model3, model4, model5, model6)) {
  print(summary(model))
}
```

```
## Call:  coxph(formula = high_perf_collab ~ 1, data = REM.data)
##
## Null model
##   log likelihood= -60467.39
##   n= 515830
## Call:
## coxph(formula = high_perf_collab ~ sender + 1, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##             coef exp(coef) se(coef)      z Pr(>|z|)
## sender3 -0.36453   0.69452  0.04100 -8.892  < 2e-16 ***
## sender5 -0.44728   0.63937  0.04780 -9.357  < 2e-16 ***
## sender6 -0.32336   0.72371  0.04259 -7.592 3.14e-14 ***
## sender7 -0.20734   0.81275  0.04067 -5.098 3.44e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## sender3    0.6945      1.440    0.6409    0.7526
## sender5    0.6394      1.564    0.5822    0.7022
## sender6    0.7237      1.382    0.6658    0.7867
## sender7    0.8127      1.230    0.7505    0.8802
##
## Concordance= 0.538  (se = 0.005 )
## Likelihood ratio test= 126.7  on 4 df,   p=<2e-16
## Wald test            = 130  on 4 df,   p=<2e-16
## Score (logrank) test = 131.3  on 4 df,   p=<2e-16
##
## Call:
## coxph(formula = high_perf_collab ~ target + 1, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##             coef exp(coef) se(coef)       z Pr(>|z|)
## target3 -0.12153   0.88556  0.04095  -2.968    0.003 **
## target5 -0.59370   0.55228  0.04778 -12.425  < 2e-16 ***
## target6 -0.42748   0.65215  0.04259 -10.036  < 2e-16 ***
## target7 -0.27270   0.76132  0.04067  -6.704 2.02e-11 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## target3    0.8856      1.129    0.8173    0.9596
## target5    0.5523      1.811    0.5029    0.6065
## target6    0.6521      1.533    0.5999    0.7089
## target7    0.7613      1.314    0.7030    0.8245
##
## Concordance= 0.555  (se = 0.005 )
## Likelihood ratio test= 212.1  on 4 df,   p=<2e-16
## Wald test            = 207.7  on 4 df,   p=<2e-16
## Score (logrank) test = 211.1  on 4 df,   p=<2e-16
##
## Call:
```

```
## coxph(formula = high_perf_collab ~ sender + target + 1, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##             coef exp(coef) se(coef)       z Pr(>|z|)
## sender3 -0.36077   0.69714  0.04129  -8.737  < 2e-16 ***
## sender5 -0.50645   0.60263  0.04806 -10.538  < 2e-16 ***
## sender6 -0.35837   0.69881  0.04291  -8.352  < 2e-16 ***
## sender7 -0.22070   0.80196  0.04081  -5.408 6.38e-08 ***
## target3 -0.17615   0.83849  0.04126  -4.269 1.96e-05 ***
## target5 -0.63165   0.53171  0.04798 -13.165  < 2e-16 ***
## target6 -0.47105   0.62435  0.04287 -10.989  < 2e-16 ***
## target7 -0.30487   0.73722  0.04084  -7.465 8.36e-14 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## sender3    0.6971      1.434    0.6429    0.7559
## sender5    0.6026      1.659    0.5485    0.6622
## sender6    0.6988      1.431    0.6424    0.7601
## sender7    0.8020      1.247    0.7403    0.8687
## target3    0.8385      1.193    0.7734    0.9091
## target5    0.5317      1.881    0.4840    0.5841
## target6    0.6243      1.602    0.5740    0.6791
## target7    0.7372      1.356    0.6805    0.7987
##
## Concordance= 0.58  (se = 0.005 )
## Likelihood ratio test= 358.9  on 8 df,   p=<2e-16
## Wald test            = 357.4  on 8 df,   p=<2e-16
## Score (logrank) test = 362.6  on 8 df,   p=<2e-16
##
## Call:
## coxph(formula = high_perf_collab ~ eventAttribute + 1, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##                                coef exp(coef) se(coef)      z Pr(>|z|)
## eventAttributedisruption    -0.32806   0.72032  0.12885 -2.546   0.0109 *
## eventAttributefloor-grabber  0.12238   1.13018  0.10357  1.182   0.2374
## eventAttributequestion       1.49971   4.48038  0.08143 18.416   <2e-16 ***
## eventAttributestatement      2.29553   9.92965  0.07865 29.188   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                             exp(coef) exp(-coef) lower .95 upper .95
## eventAttributedisruption       0.7203     1.3883    0.5596    0.9273
## eventAttributefloor-grabber    1.1302     0.8848    0.9226    1.3845
## eventAttributequestion         4.4804     0.2232    3.8194    5.2557
## eventAttributestatement        9.9297     0.1007    8.5112   11.5845
##
## Concordance= 0.745  (se = 0.003 )
## Likelihood ratio test= 3465  on 4 df,   p=<2e-16
## Wald test            = 2412  on 4 df,   p=<2e-16
## Score (logrank) test = 3320  on 4 df,   p=<2e-16
```

```
##
## Call:
## coxph(formula = high_perf_collab ~ sender + eventAttribute, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##                                coef exp(coef) se(coef)       z Pr(>|z|)
## sender3                     -0.28592   0.75132  0.04101  -6.972 3.13e-12 ***
## sender5                     -0.63414   0.53039  0.04784 -13.255  < 2e-16 ***
## sender6                     -0.40703   0.66562  0.04260  -9.555  < 2e-16 ***
## sender7                     -0.24203   0.78503  0.04068  -5.949 2.69e-09 ***
## eventAttributedisruption    -0.36673   0.69300  0.12897  -2.844  0.00446 **
## eventAttributefloor-grabber  0.11523   1.12213  0.10358   1.113  0.26590
## eventAttributequestion       1.51066   4.52973  0.08147  18.542  < 2e-16 ***
## eventAttributestatement      2.31378  10.11262  0.07868  29.407  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                             exp(coef) exp(-coef) lower .95 upper .95
## sender3                        0.7513    1.33098    0.6933    0.8142
## sender5                        0.5304    1.88540    0.4829    0.5825
## sender6                        0.6656    1.50235    0.6123    0.7236
## sender7                        0.7850    1.27383    0.7249    0.8502
## eventAttributedisruption       0.6930    1.44300    0.5382    0.8923
## eventAttributefloor-grabber    1.1221    0.89116    0.9160    1.3747
## eventAttributequestion         4.5297    0.22076    3.8612    5.3140
## eventAttributestatement       10.1126    0.09889    8.6674   11.7988
##
## Concordance= 0.759  (se = 0.003 )
## Likelihood ratio test= 3670  on 8 df,   p=<2e-16
## Wald test            = 2622  on 8 df,   p=<2e-16
## Score (logrank) test = 3541  on 8 df,   p=<2e-16
##
## Call:
## coxph(formula = high_perf_collab ~ sender * eventAttribute, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##                                           coef exp(coef) se(coef)      z Pr(>|z|)
## sender3                                -0.44992   0.63768  0.21960 -2.049  0.04048
## sender5                                -0.22835   0.79584  0.23430 -0.975  0.32976
## sender6                                -0.85102   0.42698  0.27027 -3.149  0.00164
## sender7                                -0.44353   0.64177  0.21618 -2.052  0.04020
## eventAttributedisruption               -0.22967   0.79480  0.21785 -1.054  0.29177
## eventAttributefloor-grabber            -0.08712   0.91657  0.19913 -0.438  0.66175
## eventAttributequestion                  1.31732   3.73341  0.15344  8.585  < 2e-16
## eventAttributestatement                 2.25981   9.58127  0.14693 15.381  < 2e-16
## sender3:eventAttributedisruption       -0.42254   0.65538  0.34457 -1.226  0.22009
## sender5:eventAttributedisruption       -0.27567   0.75906  0.47417 -0.581  0.56099
## sender6:eventAttributedisruption        0.65725   1.92949  0.40330  1.630  0.10316
## sender7:eventAttributedisruption       -0.44679   0.63968  0.41693 -1.072  0.28390
## sender3:eventAttributefloor-grabber     0.27360   1.31469  0.29784  0.919  0.35829
## sender5:eventAttributefloor-grabber     0.13933   1.14951  0.32958  0.423  0.67247
## sender6:eventAttributefloor-grabber     0.53924   1.71470  0.34765  1.551  0.12088
```

```
## sender7:eventAttributefloor-grabber  0.24513   1.27779  0.29965  0.818  0.41333
## sender3:eventAttributequestion       0.14283   1.15354  0.23601  0.605  0.54505
## sender5:eventAttributequestion       0.06625   1.06849  0.24982  0.265  0.79087
## sender6:eventAttributequestion       0.57616   1.77919  0.28265  2.038  0.04150
## sender7:eventAttributequestion       0.26770   1.30695  0.23163  1.156  0.24779
## sender3:eventAttributestatement      0.19162   1.21121  0.22520  0.851  0.39485
## sender5:eventAttributestatement     -0.67303   0.51016  0.24255 -2.775  0.00552
## sender6:eventAttributestatement      0.40273   1.49590  0.27540  1.462  0.14365
## sender7:eventAttributestatement      0.19910   1.22031  0.22180  0.898  0.36937
##
## sender3                             *
## sender5
## sender6                             **
## sender7                             *
## eventAttributedisruption
## eventAttributefloor-grabber
## eventAttributequestion              ***
## eventAttributestatement             ***
## sender3:eventAttributedisruption
## sender5:eventAttributedisruption
## sender6:eventAttributedisruption
## sender7:eventAttributedisruption
## sender3:eventAttributefloor-grabber
## sender5:eventAttributefloor-grabber
## sender6:eventAttributefloor-grabber
## sender7:eventAttributefloor-grabber
## sender3:eventAttributequestion
## sender5:eventAttributequestion
## sender6:eventAttributequestion      *
## sender7:eventAttributequestion
## sender3:eventAttributestatement
## sender5:eventAttributestatement     **
## sender6:eventAttributestatement
## sender7:eventAttributestatement
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                                    exp(coef) exp(-coef) lower .95 upper .95
## sender3                               0.6377     1.5682    0.4147    0.9807
## sender5                               0.7958     1.2565    0.5028    1.2597
## sender6                               0.4270     2.3420    0.2514    0.7252
## sender7                               0.6418     1.5582    0.4201    0.9804
## eventAttributedisruption              0.7948     1.2582    0.5186    1.2181
## eventAttributefloor-grabber           0.9166     1.0910    0.6204    1.3541
## eventAttributequestion                3.7334     0.2679    2.7637    5.0433
## eventAttributestatement               9.5813     0.1044    7.1839   12.7787
## sender3:eventAttributedisruption      0.6554     1.5258    0.3336    1.2876
## sender5:eventAttributedisruption      0.7591     1.3174    0.2997    1.9226
## sender6:eventAttributedisruption      1.9295     0.5183    0.8753    4.2533
## sender7:eventAttributedisruption      0.6397     1.5633    0.2825    1.4483
## sender3:eventAttributefloor-grabber   1.3147     0.7606    0.7333    2.3569
## sender5:eventAttributefloor-grabber   1.1495     0.8699    0.6025    2.1931
## sender6:eventAttributefloor-grabber   1.7147     0.5832    0.8675    3.3893
## sender7:eventAttributefloor-grabber   1.2778     0.7826    0.7102    2.2989
```

```
## sender3:eventAttributequestion         1.1535     0.8669    0.7263    1.8320
## sender5:eventAttributequestion         1.0685     0.9359    0.6548    1.7435
## sender6:eventAttributequestion         1.7792     0.5621    1.0224    3.0961
## sender7:eventAttributequestion         1.3070     0.7651    0.8300    2.0579
## sender3:eventAttributestatement        1.2112     0.8256    0.7790    1.8833
## sender5:eventAttributestatement        0.5102     1.9602    0.3171    0.8207
## sender6:eventAttributestatement        1.4959     0.6685    0.8719    2.5664
## sender7:eventAttributestatement        1.2203     0.8195    0.7901    1.8848
##
## Concordance= 0.761  (se = 0.003 )
## Likelihood ratio test= 3757  on 24 df,   p=<2e-16
## Wald test            = 2721  on 24 df,   p=<2e-16
## Score (logrank) test = 3829  on 24 df,   p=<2e-16
```

```
low_perf_collab <- readRDS("data/surv_object_low.RDS")
REM.data <- readRDS("data/REM_data_low.RDS")

# base model
base_model0 <- coxph(low_perf_collab ~ 1, data = REM.data)
print(summary(base_model0))
```

```
## Call:  coxph(formula = low_perf_collab ~ 1, data = REM.data)
##
## Null model
##   log likelihood= -72477.67
##   n= 642212
```

```
# sender model
model1 <- coxph(low_perf_collab ~ sender + 1, data = REM.data)
print(summary(model1))
```

```
## Call:
## coxph(formula = low_perf_collab ~ sender + 1, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##             coef exp(coef) se(coef)       z Pr(>|z|)
## sender3 -0.20117   0.81777  0.03736  -5.385 7.24e-08 ***
## sender5 -0.62725   0.53406  0.04533 -13.837  < 2e-16 ***
## sender6 -0.21457   0.80689  0.03934  -5.454 4.92e-08 ***
## sender7 -0.06602   0.93611  0.03827  -1.725   0.0845 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## sender3    0.8178      1.223    0.7600    0.8799
## sender5    0.5341      1.872    0.4887    0.5837
## sender6    0.8069      1.239    0.7470    0.8716
## sender7    0.9361      1.068    0.8685    1.0090
##
## Concordance= 0.55  (se = 0.004 )
## Likelihood ratio test= 229.9  on 4 df,   p=<2e-16
## Wald test            = 210.6  on 4 df,   p=<2e-16
## Score (logrank) test = 215.1  on 4 df,   p=<2e-16
```

```r
# receiver model
model2 <- coxph(low_perf_collab ~ target + 1, data = REM.data)
print(summary(model2))
```

```
## Call:
## coxph(formula = low_perf_collab ~ target + 1, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##             coef exp(coef) se(coef)       z Pr(>|z|)
## target3 -0.27388   0.76042  0.03735  -7.333 2.25e-13 ***
## target5 -0.65684   0.51849  0.04535 -14.483  < 2e-16 ***
## target6 -0.29591   0.74386  0.03926  -7.536 4.84e-14 ***
## target7 -0.20253   0.81666  0.03822  -5.299 1.17e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## target3    0.7604      1.315    0.7067    0.8182
## target5    0.5185      1.929    0.4744    0.5667
## target6    0.7439      1.344    0.6888    0.8034
## target7    0.8167      1.225    0.7577    0.8802
##
## Concordance= 0.554  (se = 0.004 )
## Likelihood ratio test= 229  on 4 df,   p=<2e-16
## Wald test            = 218.5  on 4 df,   p=<2e-16
## Score (logrank) test = 222.8  on 4 df,   p=<2e-16
```

```r
# sender - receiver model
model3 <- coxph(low_perf_collab ~ sender + target + 1, data = REM.data)
print(summary(model3))
```

```
## Call:
## coxph(formula = low_perf_collab ~ sender + target + 1, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##             coef exp(coef) se(coef)       z Pr(>|z|)
## sender3 -0.21308   0.80809  0.03749  -5.683 1.32e-08 ***
## sender5 -0.71029   0.49150  0.04556 -15.591  < 2e-16 ***
## sender6 -0.23585   0.78990  0.03963  -5.951 2.66e-09 ***
## sender7 -0.08766   0.91607  0.03871  -2.265   0.0235 *
## target3 -0.26953   0.76373  0.03746  -7.196 6.21e-13 ***
## target5 -0.73247   0.48072  0.04557 -16.072  < 2e-16 ***
## target6 -0.29613   0.74369  0.03962  -7.475 7.72e-14 ***
## target7 -0.17823   0.83675  0.03863  -4.613 3.96e-06 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## sender3    0.8081      1.237    0.7508    0.8697
## sender5    0.4915      2.035    0.4495    0.5374
## sender6    0.7899      1.266    0.7309    0.8537
```

```
## sender7    0.9161      1.092    0.8491    0.9883
## target3    0.7637      1.309    0.7097    0.8219
## target5    0.4807      2.080    0.4396    0.5256
## target6    0.7437      1.345    0.6881    0.8037
## target7    0.8368      1.195    0.7757    0.9026
##
## Concordance= 0.59  (se = 0.004 )
## Likelihood ratio test= 518  on 8 df,   p=<2e-16
## Wald test            = 488.3  on 8 df,   p=<2e-16
## Score (logrank) test = 500.2  on 8 df,   p=<2e-16
```

```
# dialogue act model
model4 <- coxph(low_perf_collab ~ eventAttribute + 1, data = REM.data)
print(summary(model4))
```

```
## Call:
## coxph(formula = low_perf_collab ~ eventAttribute + 1, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##                                coef exp(coef) se(coef)      z Pr(>|z|)
## eventAttributedisruption    -0.38652   0.67941  0.10827 -3.570 0.000357 ***
## eventAttributefloor-grabber  0.13058   1.13949  0.09223  1.416 0.156816
## eventAttributequestion       1.42539   4.15948  0.07320 19.474  < 2e-16 ***
## eventAttributestatement      2.36037  10.59485  0.07003 33.706  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                             exp(coef) exp(-coef) lower .95 upper .95
## eventAttributedisruption       0.6794    1.47185    0.5495     0.840
## eventAttributefloor-grabber    1.1395    0.87758    0.9511     1.365
## eventAttributequestion         4.1595    0.24041    3.6036     4.801
## eventAttributestatement       10.5948    0.09439    9.2360    12.154
##
## Concordance= 0.753  (se = 0.003 )
## Likelihood ratio test= 4836  on 4 df,   p=<2e-16
## Wald test            = 3439  on 4 df,   p=<2e-16
## Score (logrank) test = 4890  on 4 df,   p=<2e-16
```

```
# sender and dialogue act model
model5 <- coxph(low_perf_collab ~ sender + eventAttribute, data = REM.data)
print(summary(model5))
```

```
## Call:
## coxph(formula = low_perf_collab ~ sender + eventAttribute, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##                                coef exp(coef) se(coef)       z Pr(>|z|)
## sender3                    -0.15445   0.85689  0.03736  -4.134 3.57e-05 ***
## sender5                    -0.59018   0.55422  0.04536 -13.012  < 2e-16 ***
## sender6                    -0.28040   0.75548  0.03933  -7.130 1.00e-12 ***
## sender7                    -0.17634   0.83833  0.03827  -4.608 4.06e-06 ***
```

```
## eventAttributedisruption    -0.37951   0.68419  0.10829  -3.505 0.000457 ***
## eventAttributefloor-grabber  0.13002   1.13885  0.09224   1.410 0.158643
## eventAttributequestion       1.43486   4.19904  0.07321  19.599  < 2e-16 ***
## eventAttributestatement      2.36035  10.59468  0.07006  33.692  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                              exp(coef) exp(-coef) lower .95 upper .95
## sender3                         0.8569    1.16701    0.7964    0.9220
## sender5                         0.5542    1.80432    0.5071    0.6058
## sender6                         0.7555    1.32366    0.6994    0.8160
## sender7                         0.8383    1.19285    0.7778    0.9036
## eventAttributedisruption        0.6842    1.46157    0.5534    0.8460
## eventAttributefloor-grabber     1.1389    0.87808    0.9505    1.3645
## eventAttributequestion          4.1990    0.23815    3.6378    4.8469
## eventAttributestatement        10.5947    0.09439    9.2354   12.1540
##
## Concordance= 0.766  (se = 0.003 )
## Likelihood ratio test= 5027  on 8 df,   p=<2e-16
## Wald test            = 3612  on 8 df,   p=<2e-16
## Score (logrank) test = 5061  on 8 df,   p=<2e-16
```

```r
# combined model
model6 <- coxph(low_perf_collab ~ sender * eventAttribute, data = REM.data)
print(summary(model6))
```

```
## Call:
## coxph(formula = low_perf_collab ~ sender * eventAttribute, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##                                        coef exp(coef) se(coef)      z Pr(>|z|)
## sender3                             0.21356   1.23808  0.19484  1.096 0.273034
## sender5                             0.04636   1.04745  0.20897  0.222 0.824431
## sender6                            -0.57702   0.56157  0.26083 -2.212 0.026950
## sender7                             0.29328   1.34081  0.20533  1.428 0.153209
## eventAttributedisruption            0.04620   1.04729  0.20898  0.221 0.825015
## eventAttributefloor-grabber         0.37273   1.45170  0.18741  1.989 0.046711
## eventAttributequestion              1.64283   5.16977  0.15332 10.715  < 2e-16
## eventAttributestatement             2.63092  13.88650  0.14626 17.988  < 2e-16
## sender3:eventAttributedisruption   -0.45298   0.63573  0.28978 -1.563 0.118003
## sender5:eventAttributedisruption   -1.27414   0.27967  0.38765 -3.287 0.001013
## sender6:eventAttributedisruption    0.11312   1.11976  0.35822  0.316 0.752174
## sender7:eventAttributedisruption   -0.85408   0.42568  0.36342 -2.350 0.018768
## sender3:eventAttributefloor-grabber -0.39006   0.67701  0.26182 -1.490 0.136266
## sender5:eventAttributefloor-grabber -1.10363   0.33167  0.32557 -3.390 0.000699
## sender6:eventAttributefloor-grabber  0.62074   1.86030  0.31875  1.947 0.051486
## sender7:eventAttributefloor-grabber -0.44849   0.63859  0.27525 -1.629 0.103231
## sender3:eventAttributequestion      -0.58318   0.55812  0.21187 -2.753 0.005914
## sender5:eventAttributequestion      -0.43221   0.64907  0.22661 -1.907 0.056482
## sender6:eventAttributequestion       0.56140   1.75313  0.27241  2.061 0.039317
## sender7:eventAttributequestion      -0.45394   0.63512  0.22127 -2.052 0.040217
## sender3:eventAttributestatement     -0.31324   0.73107  0.20000 -1.566 0.117298
## sender5:eventAttributestatement     -0.71841   0.48753  0.21679 -3.314 0.000920
```

```
## sender6:eventAttributestatement      0.18942   1.20855  0.26537  0.714 0.475349
## sender7:eventAttributestatement     -0.48958   0.61289  0.21045 -2.326 0.020004
##
## sender3
## sender5
## sender6                             *
## sender7
## eventAttributedisruption
## eventAttributefloor-grabber         *
## eventAttributequestion              ***
## eventAttributestatement             ***
## sender3:eventAttributedisruption
## sender5:eventAttributedisruption    **
## sender6:eventAttributedisruption
## sender7:eventAttributedisruption    *
## sender3:eventAttributefloor-grabber
## sender5:eventAttributefloor-grabber ***
## sender6:eventAttributefloor-grabber .
## sender7:eventAttributefloor-grabber
## sender3:eventAttributequestion      **
## sender5:eventAttributequestion      .
## sender6:eventAttributequestion      *
## sender7:eventAttributequestion      *
## sender3:eventAttributestatement
## sender5:eventAttributestatement     ***
## sender6:eventAttributestatement
## sender7:eventAttributestatement     *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                                     exp(coef) exp(-coef) lower .95 upper .95
## sender3                                1.2381    0.80770    0.8451    1.8138
## sender5                                1.0475    0.95470    0.6954    1.5776
## sender6                                0.5616    1.78072    0.3368    0.9363
## sender7                                1.3408    0.74582    0.8966    2.0052
## eventAttributedisruption               1.0473    0.95485    0.6953    1.5774
## eventAttributefloor-grabber            1.4517    0.68885    1.0054    2.0960
## eventAttributequestion                 5.1698    0.19343    3.8280    6.9819
## eventAttributestatement               13.8865    0.07201   10.4255   18.4965
## sender3:eventAttributedisruption       0.6357    1.57300    0.3603    1.1218
## sender5:eventAttributedisruption       0.2797    3.57564    0.1308    0.5979
## sender6:eventAttributedisruption       1.1198    0.89305    0.5549    2.2597
## sender7:eventAttributedisruption       0.4257    2.34921    0.2088    0.8678
## sender3:eventAttributefloor-grabber    0.6770    1.47708    0.4053    1.1310
## sender5:eventAttributefloor-grabber    0.3317    3.01508    0.1752    0.6278
## sender6:eventAttributefloor-grabber    1.8603    0.53755    0.9960    3.4746
## sender7:eventAttributefloor-grabber    0.6386    1.56595    0.3723    1.0953
## sender3:eventAttributequestion         0.5581    1.79173    0.3685    0.8454
## sender5:eventAttributequestion         0.6491    1.54066    0.4163    1.0120
## sender6:eventAttributequestion         1.7531    0.57041    1.0279    2.9901
## sender7:eventAttributequestion         0.6351    1.57451    0.4116    0.9799
## sender3:eventAttributestatement        0.7311    1.36785    0.4940    1.0819
## sender5:eventAttributestatement        0.4875    2.05117    0.3188    0.7456
## sender6:eventAttributestatement        1.2085    0.82744    0.7184    2.0330
```

```
## sender7:eventAttributestatement        0.6129    1.63162    0.4057    0.9258
##
## Concordance= 0.769  (se = 0.003 )
## Likelihood ratio test= 5115  on 24 df,   p=<2e-16
## Wald test            = 3644  on 24 df,   p=<2e-16
## Score (logrank) test = 5334  on 24 df,   p=<2e-16
```

```
# format print all model results
for (model in list(base_model0, model1, model2, model3, model4, model5, model6)) {
  print(summary(model))
}
```

```
## Call:  coxph(formula = low_perf_collab ~ 1, data = REM.data)
##
## Null model
##   log likelihood= -72477.67
##   n= 642212
## Call:
## coxph(formula = low_perf_collab ~ sender + 1, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##             coef exp(coef) se(coef)       z Pr(>|z|)
## sender3 -0.20117   0.81777  0.03736  -5.385 7.24e-08 ***
## sender5 -0.62725   0.53406  0.04533 -13.837  < 2e-16 ***
## sender6 -0.21457   0.80689  0.03934  -5.454 4.92e-08 ***
## sender7 -0.06602   0.93611  0.03827  -1.725   0.0845 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## sender3    0.8178      1.223    0.7600    0.8799
## sender5    0.5341      1.872    0.4887    0.5837
## sender6    0.8069      1.239    0.7470    0.8716
## sender7    0.9361      1.068    0.8685    1.0090
##
## Concordance= 0.55  (se = 0.004 )
## Likelihood ratio test= 229.9  on 4 df,   p=<2e-16
## Wald test            = 210.6  on 4 df,   p=<2e-16
## Score (logrank) test = 215.1  on 4 df,   p=<2e-16
##
## Call:
## coxph(formula = low_perf_collab ~ target + 1, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##             coef exp(coef) se(coef)       z Pr(>|z|)
## target3 -0.27388   0.76042  0.03735  -7.333 2.25e-13 ***
## target5 -0.65684   0.51849  0.04535 -14.483  < 2e-16 ***
## target6 -0.29591   0.74386  0.03926  -7.536 4.84e-14 ***
## target7 -0.20253   0.81666  0.03822  -5.299 1.17e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
```

```
##         exp(coef) exp(-coef) lower .95 upper .95
## target3    0.7604      1.315    0.7067    0.8182
## target5    0.5185      1.929    0.4744    0.5667
## target6    0.7439      1.344    0.6888    0.8034
## target7    0.8167      1.225    0.7577    0.8802
##
## Concordance= 0.554  (se = 0.004 )
## Likelihood ratio test= 229  on 4 df,   p=<2e-16
## Wald test            = 218.5  on 4 df,   p=<2e-16
## Score (logrank) test = 222.8  on 4 df,   p=<2e-16
##
## Call:
## coxph(formula = low_perf_collab ~ sender + target + 1, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##             coef exp(coef) se(coef)       z Pr(>|z|)
## sender3 -0.21308   0.80809  0.03749  -5.683 1.32e-08 ***
## sender5 -0.71029   0.49150  0.04556 -15.591  < 2e-16 ***
## sender6 -0.23585   0.78990  0.03963  -5.951 2.66e-09 ***
## sender7 -0.08766   0.91607  0.03871  -2.265   0.0235 *
## target3 -0.26953   0.76373  0.03746  -7.196 6.21e-13 ***
## target5 -0.73247   0.48072  0.04557 -16.072  < 2e-16 ***
## target6 -0.29613   0.74369  0.03962  -7.475 7.72e-14 ***
## target7 -0.17823   0.83675  0.03863  -4.613 3.96e-06 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## sender3    0.8081      1.237    0.7508    0.8697
## sender5    0.4915      2.035    0.4495    0.5374
## sender6    0.7899      1.266    0.7309    0.8537
## sender7    0.9161      1.092    0.8491    0.9883
## target3    0.7637      1.309    0.7097    0.8219
## target5    0.4807      2.080    0.4396    0.5256
## target6    0.7437      1.345    0.6881    0.8037
## target7    0.8368      1.195    0.7757    0.9026
##
## Concordance= 0.59  (se = 0.004 )
## Likelihood ratio test= 518  on 8 df,   p=<2e-16
## Wald test            = 488.3  on 8 df,   p=<2e-16
## Score (logrank) test = 500.2  on 8 df,   p=<2e-16
##
## Call:
## coxph(formula = low_perf_collab ~ eventAttribute + 1, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##                                coef exp(coef) se(coef)      z Pr(>|z|)
## eventAttributedisruption    -0.38652   0.67941  0.10827 -3.570 0.000357 ***
## eventAttributefloor-grabber  0.13058   1.13949  0.09223  1.416 0.156816
## eventAttributequestion       1.42539   4.15948  0.07320 19.474  < 2e-16 ***
## eventAttributestatement      2.36037  10.59485  0.07003 33.706  < 2e-16 ***
## ---
```

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                             exp(coef) exp(-coef) lower .95 upper .95
## eventAttributedisruption       0.6794    1.47185    0.5495     0.840
## eventAttributefloor-grabber    1.1395    0.87758    0.9511     1.365
## eventAttributequestion         4.1595    0.24041    3.6036     4.801
## eventAttributestatement       10.5948    0.09439    9.2360    12.154
##
## Concordance= 0.753  (se = 0.003 )
## Likelihood ratio test= 4836  on 4 df,   p=<2e-16
## Wald test            = 3439  on 4 df,   p=<2e-16
## Score (logrank) test = 4890  on 4 df,   p=<2e-16
##
## Call:
## coxph(formula = low_perf_collab ~ sender + eventAttribute, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##                                coef exp(coef) se(coef)       z Pr(>|z|)
## sender3                     -0.15445   0.85689  0.03736  -4.134 3.57e-05 ***
## sender5                     -0.59018   0.55422  0.04536 -13.012  < 2e-16 ***
## sender6                     -0.28040   0.75548  0.03933  -7.130 1.00e-12 ***
## sender7                     -0.17634   0.83833  0.03827  -4.608 4.06e-06 ***
## eventAttributedisruption    -0.37951   0.68419  0.10829  -3.505 0.000457 ***
## eventAttributefloor-grabber  0.13002   1.13885  0.09224   1.410 0.158643
## eventAttributequestion       1.43486   4.19904  0.07321  19.599  < 2e-16 ***
## eventAttributestatement      2.36035  10.59468  0.07006  33.692  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                             exp(coef) exp(-coef) lower .95 upper .95
## sender3                        0.8569    1.16701    0.7964    0.9220
## sender5                        0.5542    1.80432    0.5071    0.6058
## sender6                        0.7555    1.32366    0.6994    0.8160
## sender7                        0.8383    1.19285    0.7778    0.9036
## eventAttributedisruption       0.6842    1.46157    0.5534    0.8460
## eventAttributefloor-grabber    1.1389    0.87808    0.9505    1.3645
## eventAttributequestion         4.1990    0.23815    3.6378    4.8469
## eventAttributestatement       10.5947    0.09439    9.2354   12.1540
##
## Concordance= 0.766  (se = 0.003 )
## Likelihood ratio test= 5027  on 8 df,   p=<2e-16
## Wald test            = 3612  on 8 df,   p=<2e-16
## Score (logrank) test = 5061  on 8 df,   p=<2e-16
##
## Call:
## coxph(formula = low_perf_collab ~ sender * eventAttribute, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##                                     coef exp(coef) se(coef)      z Pr(>|z|)
## sender3                          0.21356   1.23808  0.19484  1.096 0.273034
## sender5                          0.04636   1.04745  0.20897  0.222 0.824431
## sender6                         -0.57702   0.56157  0.26083 -2.212 0.026950
```

```
## sender7                                0.29328   1.34081  0.20533  1.428 0.153209
## eventAttributedisruption               0.04620   1.04729  0.20898  0.221 0.825015
## eventAttributefloor-grabber            0.37273   1.45170  0.18741  1.989 0.046711
## eventAttributequestion                 1.64283   5.16977  0.15332 10.715  < 2e-16
## eventAttributestatement                2.63092  13.88650  0.14626 17.988  < 2e-16
## sender3:eventAttributedisruption      -0.45298   0.63573  0.28978 -1.563 0.118003
## sender5:eventAttributedisruption      -1.27414   0.27967  0.38765 -3.287 0.001013
## sender6:eventAttributedisruption       0.11312   1.11976  0.35822  0.316 0.752174
## sender7:eventAttributedisruption      -0.85408   0.42568  0.36342 -2.350 0.018768
## sender3:eventAttributefloor-grabber -0.39006   0.67701  0.26182 -1.490 0.136266
## sender5:eventAttributefloor-grabber -1.10363   0.33167  0.32557 -3.390 0.000699
## sender6:eventAttributefloor-grabber  0.62074   1.86030  0.31875  1.947 0.051486
## sender7:eventAttributefloor-grabber -0.44849   0.63859  0.27525 -1.629 0.103231
## sender3:eventAttributequestion       -0.58318   0.55812  0.21187 -2.753 0.005914
## sender5:eventAttributequestion       -0.43221   0.64907  0.22661 -1.907 0.056482
## sender6:eventAttributequestion        0.56140   1.75313  0.27241  2.061 0.039317
## sender7:eventAttributequestion       -0.45394   0.63512  0.22127 -2.052 0.040217
## sender3:eventAttributestatement      -0.31324   0.73107  0.20000 -1.566 0.117298
## sender5:eventAttributestatement      -0.71841   0.48753  0.21679 -3.314 0.000920
## sender6:eventAttributestatement       0.18942   1.20855  0.26537  0.714 0.475349
## sender7:eventAttributestatement      -0.48958   0.61289  0.21045 -2.326 0.020004
##
## sender3
## sender5
## sender6                               *
## sender7
## eventAttributedisruption
## eventAttributefloor-grabber           *
## eventAttributequestion                ***
## eventAttributestatement               ***
## sender3:eventAttributedisruption
## sender5:eventAttributedisruption      **
## sender6:eventAttributedisruption
## sender7:eventAttributedisruption      *
## sender3:eventAttributefloor-grabber
## sender5:eventAttributefloor-grabber ***
## sender6:eventAttributefloor-grabber .
## sender7:eventAttributefloor-grabber
## sender3:eventAttributequestion       **
## sender5:eventAttributequestion       .
## sender6:eventAttributequestion       *
## sender7:eventAttributequestion       *
## sender3:eventAttributestatement
## sender5:eventAttributestatement      ***
## sender6:eventAttributestatement
## sender7:eventAttributestatement      *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                                     exp(coef) exp(-coef) lower .95 upper .95
## sender3                                1.2381    0.80770    0.8451    1.8138
## sender5                                1.0475    0.95470    0.6954    1.5776
## sender6                                0.5616    1.78072    0.3368    0.9363
## sender7                                1.3408    0.74582    0.8966    2.0052
```

```
## eventAttributedisruption               1.0473    0.95485    0.6953    1.5774
## eventAttributefloor-grabber            1.4517    0.68885    1.0054    2.0960
## eventAttributequestion                 5.1698    0.19343    3.8280    6.9819
## eventAttributestatement               13.8865    0.07201   10.4255   18.4965
## sender3:eventAttributedisruption       0.6357    1.57300    0.3603    1.1218
## sender5:eventAttributedisruption       0.2797    3.57564    0.1308    0.5979
## sender6:eventAttributedisruption       1.1198    0.89305    0.5549    2.2597
## sender7:eventAttributedisruption       0.4257    2.34921    0.2088    0.8678
## sender3:eventAttributefloor-grabber    0.6770    1.47708    0.4053    1.1310
## sender5:eventAttributefloor-grabber    0.3317    3.01508    0.1752    0.6278
## sender6:eventAttributefloor-grabber    1.8603    0.53755    0.9960    3.4746
## sender7:eventAttributefloor-grabber    0.6386    1.56595    0.3723    1.0953
## sender3:eventAttributequestion         0.5581    1.79173    0.3685    0.8454
## sender5:eventAttributequestion         0.6491    1.54066    0.4163    1.0120
## sender6:eventAttributequestion         1.7531    0.57041    1.0279    2.9901
## sender7:eventAttributequestion         0.6351    1.57451    0.4116    0.9799
## sender3:eventAttributestatement        0.7311    1.36785    0.4940    1.0819
## sender5:eventAttributestatement        0.4875    2.05117    0.3188    0.7456
## sender6:eventAttributestatement        1.2085    0.82744    0.7184    2.0330
## sender7:eventAttributestatement        0.6129    1.63162    0.4057    0.9258
##
## Concordance= 0.769  (se = 0.003 )
## Likelihood ratio test= 5115  on 24 df,   p=<2e-16
## Wald test            = 3644  on 24 df,   p=<2e-16
## Score (logrank) test = 5334  on 24 df,   p=<2e-16
```

```r
# code to fetch and comapre lwo and high for each ondel and print one by one

low_models <- readRDS("data/low_perf_models.RDS")
high_models <- readRDS("data/high_perf_models.RDS")

# highlight model in yellow
for (i in 1:length(low_models)) {
  cat("\n############ \t Model ", i-1, "\t ############\n")
  cat("----------- Low -----------\n")
  print(summary(low_models[[i]]))
  cat("----------- High -----------\n")
  print(summary(high_models[[i]]))
}
```

```
##
## ############      Model  0    ############
## ----------- Low -----------
## Call:  coxph(formula = low_perf_collab ~ 1, data = REM.data)
##
## Null model
##   log likelihood= -72477.67
##   n= 642212
## ----------- High -----------
## Call:  coxph(formula = high_perf_collab ~ 1, data = REM.data)
##
## Null model
##   log likelihood= -60467.39
##   n= 515830
```

```
##
## #############      Model  1    #############
## ----------- Low -----------
## Call:
## coxph(formula = low_perf_collab ~ sender + 1, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##             coef exp(coef) se(coef)       z Pr(>|z|)
## sender3 -0.20117   0.81777  0.03736  -5.385 7.24e-08 ***
## sender5 -0.62725   0.53406  0.04533 -13.837  < 2e-16 ***
## sender6 -0.21457   0.80689  0.03934  -5.454 4.92e-08 ***
## sender7 -0.06602   0.93611  0.03827  -1.725   0.0845 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## sender3    0.8178      1.223    0.7600    0.8799
## sender5    0.5341      1.872    0.4887    0.5837
## sender6    0.8069      1.239    0.7470    0.8716
## sender7    0.9361      1.068    0.8685    1.0090
##
## Concordance= 0.55  (se = 0.004 )
## Likelihood ratio test= 229.9  on 4 df,   p=<2e-16
## Wald test            = 210.6  on 4 df,   p=<2e-16
## Score (logrank) test = 215.1  on 4 df,   p=<2e-16
##
## ----------- High -----------
## Call:
## coxph(formula = high_perf_collab ~ sender + 1, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##             coef exp(coef) se(coef)      z Pr(>|z|)
## sender3 -0.36453   0.69452  0.04100 -8.892  < 2e-16 ***
## sender5 -0.44728   0.63937  0.04780 -9.357  < 2e-16 ***
## sender6 -0.32336   0.72371  0.04259 -7.592 3.14e-14 ***
## sender7 -0.20734   0.81275  0.04067 -5.098 3.44e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## sender3    0.6945      1.440    0.6409    0.7526
## sender5    0.6394      1.564    0.5822    0.7022
## sender6    0.7237      1.382    0.6658    0.7867
## sender7    0.8127      1.230    0.7505    0.8802
##
## Concordance= 0.538  (se = 0.005 )
## Likelihood ratio test= 126.7  on 4 df,   p=<2e-16
## Wald test            = 130  on 4 df,   p=<2e-16
## Score (logrank) test = 131.3  on 4 df,   p=<2e-16
##
##
## #############      Model  2    #############
```

```
## ----------- Low -----------
## Call:
## coxph(formula = low_perf_collab ~ target + 1, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##             coef exp(coef) se(coef)       z Pr(>|z|)
## target3 -0.27388   0.76042  0.03735  -7.333 2.25e-13 ***
## target5 -0.65684   0.51849  0.04535 -14.483  < 2e-16 ***
## target6 -0.29591   0.74386  0.03926  -7.536 4.84e-14 ***
## target7 -0.20253   0.81666  0.03822  -5.299 1.17e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## target3    0.7604      1.315    0.7067    0.8182
## target5    0.5185      1.929    0.4744    0.5667
## target6    0.7439      1.344    0.6888    0.8034
## target7    0.8167      1.225    0.7577    0.8802
##
## Concordance= 0.554  (se = 0.004 )
## Likelihood ratio test= 229  on 4 df,   p=<2e-16
## Wald test            = 218.5  on 4 df,   p=<2e-16
## Score (logrank) test = 222.8  on 4 df,   p=<2e-16
##
## ----------- High -----------
## Call:
## coxph(formula = high_perf_collab ~ target + 1, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##             coef exp(coef) se(coef)       z Pr(>|z|)
## target3 -0.12153   0.88556  0.04095  -2.968    0.003 **
## target5 -0.59370   0.55228  0.04778 -12.425  < 2e-16 ***
## target6 -0.42748   0.65215  0.04259 -10.036  < 2e-16 ***
## target7 -0.27270   0.76132  0.04067  -6.704 2.02e-11 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## target3    0.8856      1.129    0.8173    0.9596
## target5    0.5523      1.811    0.5029    0.6065
## target6    0.6521      1.533    0.5999    0.7089
## target7    0.7613      1.314    0.7030    0.8245
##
## Concordance= 0.555  (se = 0.005 )
## Likelihood ratio test= 212.1  on 4 df,   p=<2e-16
## Wald test            = 207.7  on 4 df,   p=<2e-16
## Score (logrank) test = 211.1  on 4 df,   p=<2e-16
##
##
## ############      Model  3    ############
## ----------- Low -----------
## Call:
```

```
## coxph(formula = low_perf_collab ~ sender + target + 1, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##             coef exp(coef) se(coef)       z Pr(>|z|)
## sender3 -0.21308   0.80809  0.03749  -5.683 1.32e-08 ***
## sender5 -0.71029   0.49150  0.04556 -15.591  < 2e-16 ***
## sender6 -0.23585   0.78990  0.03963  -5.951 2.66e-09 ***
## sender7 -0.08766   0.91607  0.03871  -2.265   0.0235 *
## target3 -0.26953   0.76373  0.03746  -7.196 6.21e-13 ***
## target5 -0.73247   0.48072  0.04557 -16.072  < 2e-16 ***
## target6 -0.29613   0.74369  0.03962  -7.475 7.72e-14 ***
## target7 -0.17823   0.83675  0.03863  -4.613 3.96e-06 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## sender3    0.8081      1.237    0.7508    0.8697
## sender5    0.4915      2.035    0.4495    0.5374
## sender6    0.7899      1.266    0.7309    0.8537
## sender7    0.9161      1.092    0.8491    0.9883
## target3    0.7637      1.309    0.7097    0.8219
## target5    0.4807      2.080    0.4396    0.5256
## target6    0.7437      1.345    0.6881    0.8037
## target7    0.8368      1.195    0.7757    0.9026
##
## Concordance= 0.59  (se = 0.004 )
## Likelihood ratio test= 518  on 8 df,   p=<2e-16
## Wald test            = 488.3  on 8 df,   p=<2e-16
## Score (logrank) test = 500.2  on 8 df,   p=<2e-16
##
## ----------- High -----------
## Call:
## coxph(formula = high_perf_collab ~ sender + target + 1, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##             coef exp(coef) se(coef)       z Pr(>|z|)
## sender3 -0.36077   0.69714  0.04129  -8.737  < 2e-16 ***
## sender5 -0.50645   0.60263  0.04806 -10.538  < 2e-16 ***
## sender6 -0.35837   0.69881  0.04291  -8.352  < 2e-16 ***
## sender7 -0.22070   0.80196  0.04081  -5.408 6.38e-08 ***
## target3 -0.17615   0.83849  0.04126  -4.269 1.96e-05 ***
## target5 -0.63165   0.53171  0.04798 -13.165  < 2e-16 ***
## target6 -0.47105   0.62435  0.04287 -10.989  < 2e-16 ***
## target7 -0.30487   0.73722  0.04084  -7.465 8.36e-14 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##         exp(coef) exp(-coef) lower .95 upper .95
## sender3    0.6971      1.434    0.6429    0.7559
## sender5    0.6026      1.659    0.5485    0.6622
## sender6    0.6988      1.431    0.6424    0.7601
## sender7    0.8020      1.247    0.7403    0.8687
```

```
## target3    0.8385      1.193    0.7734    0.9091
## target5    0.5317      1.881    0.4840    0.5841
## target6    0.6243      1.602    0.5740    0.6791
## target7    0.7372      1.356    0.6805    0.7987
##
## Concordance= 0.58  (se = 0.005 )
## Likelihood ratio test= 358.9  on 8 df,   p=<2e-16
## Wald test            = 357.4  on 8 df,   p=<2e-16
## Score (logrank) test = 362.6  on 8 df,   p=<2e-16
##
##
## ############      Model  4    ############
## ----------- Low -----------
## Call:
## coxph(formula = low_perf_collab ~ eventAttribute + 1, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##                                coef exp(coef) se(coef)      z Pr(>|z|)
## eventAttributedisruption    -0.38652   0.67941  0.10827 -3.570 0.000357 ***
## eventAttributefloor-grabber  0.13058   1.13949  0.09223  1.416 0.156816
## eventAttributequestion       1.42539   4.15948  0.07320 19.474  < 2e-16 ***
## eventAttributestatement      2.36037  10.59485  0.07003 33.706  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                             exp(coef) exp(-coef) lower .95 upper .95
## eventAttributedisruption       0.6794    1.47185    0.5495     0.840
## eventAttributefloor-grabber    1.1395    0.87758    0.9511     1.365
## eventAttributequestion         4.1595    0.24041    3.6036     4.801
## eventAttributestatement       10.5948    0.09439    9.2360    12.154
##
## Concordance= 0.753  (se = 0.003 )
## Likelihood ratio test= 4836  on 4 df,   p=<2e-16
## Wald test            = 3439  on 4 df,   p=<2e-16
## Score (logrank) test = 4890  on 4 df,   p=<2e-16
##
## ----------- High -----------
## Call:
## coxph(formula = high_perf_collab ~ eventAttribute + 1, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##                                coef exp(coef) se(coef)      z Pr(>|z|)
## eventAttributedisruption    -0.32806   0.72032  0.12885 -2.546   0.0109 *
## eventAttributefloor-grabber  0.12238   1.13018  0.10357  1.182   0.2374
## eventAttributequestion       1.49971   4.48038  0.08143 18.416   <2e-16 ***
## eventAttributestatement      2.29553   9.92965  0.07865 29.188   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                             exp(coef) exp(-coef) lower .95 upper .95
## eventAttributedisruption       0.7203     1.3883    0.5596    0.9273
## eventAttributefloor-grabber    1.1302     0.8848    0.9226    1.3845
```

```
## eventAttributequestion         4.4804     0.2232    3.8194    5.2557
## eventAttributestatement        9.9297     0.1007    8.5112   11.5845
##
## Concordance= 0.745  (se = 0.003 )
## Likelihood ratio test= 3465  on 4 df,   p=<2e-16
## Wald test            = 2412  on 4 df,   p=<2e-16
## Score (logrank) test = 3320  on 4 df,   p=<2e-16
##
##
## ############      Model  5    ############
## ----------- Low -----------
## Call:
## coxph(formula = low_perf_collab ~ sender + eventAttribute, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##                                coef exp(coef) se(coef)       z Pr(>|z|)
## sender3                     -0.15445   0.85689  0.03736  -4.134 3.57e-05 ***
## sender5                     -0.59018   0.55422  0.04536 -13.012  < 2e-16 ***
## sender6                     -0.28040   0.75548  0.03933  -7.130 1.00e-12 ***
## sender7                     -0.17634   0.83833  0.03827  -4.608 4.06e-06 ***
## eventAttributedisruption    -0.37951   0.68419  0.10829  -3.505 0.000457 ***
## eventAttributefloor-grabber  0.13002   1.13885  0.09224   1.410 0.158643
## eventAttributequestion       1.43486   4.19904  0.07321  19.599  < 2e-16 ***
## eventAttributestatement      2.36035  10.59468  0.07006  33.692  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                             exp(coef) exp(-coef) lower .95 upper .95
## sender3                        0.8569    1.16701    0.7964    0.9220
## sender5                        0.5542    1.80432    0.5071    0.6058
## sender6                        0.7555    1.32366    0.6994    0.8160
## sender7                        0.8383    1.19285    0.7778    0.9036
## eventAttributedisruption       0.6842    1.46157    0.5534    0.8460
## eventAttributefloor-grabber    1.1389    0.87808    0.9505    1.3645
## eventAttributequestion         4.1990    0.23815    3.6378    4.8469
## eventAttributestatement       10.5947    0.09439    9.2354   12.1540
##
## Concordance= 0.766  (se = 0.003 )
## Likelihood ratio test= 5027  on 8 df,   p=<2e-16
## Wald test            = 3612  on 8 df,   p=<2e-16
## Score (logrank) test = 5061  on 8 df,   p=<2e-16
##
## ----------- High -----------
## Call:
## coxph(formula = high_perf_collab ~ sender + eventAttribute, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##                                coef exp(coef) se(coef)       z Pr(>|z|)
## sender3                     -0.28592   0.75132  0.04101  -6.972 3.13e-12 ***
## sender5                     -0.63414   0.53039  0.04784 -13.255  < 2e-16 ***
## sender6                     -0.40703   0.66562  0.04260  -9.555  < 2e-16 ***
## sender7                     -0.24203   0.78503  0.04068  -5.949 2.69e-09 ***
```

```
## eventAttributedisruption    -0.36673   0.69300  0.12897  -2.844  0.00446 **
## eventAttributefloor-grabber  0.11523   1.12213  0.10358   1.113  0.26590
## eventAttributequestion       1.51066   4.52973  0.08147  18.542  < 2e-16 ***
## eventAttributestatement      2.31378  10.11262  0.07868  29.407  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                              exp(coef) exp(-coef) lower .95 upper .95
## sender3                         0.7513    1.33098    0.6933    0.8142
## sender5                         0.5304    1.88540    0.4829    0.5825
## sender6                         0.6656    1.50235    0.6123    0.7236
## sender7                         0.7850    1.27383    0.7249    0.8502
## eventAttributedisruption        0.6930    1.44300    0.5382    0.8923
## eventAttributefloor-grabber     1.1221    0.89116    0.9160    1.3747
## eventAttributequestion          4.5297    0.22076    3.8612    5.3140
## eventAttributestatement        10.1126    0.09889    8.6674   11.7988
##
## Concordance= 0.759  (se = 0.003 )
## Likelihood ratio test= 3670  on 8 df,   p=<2e-16
## Wald test            = 2622  on 8 df,   p=<2e-16
## Score (logrank) test = 3541  on 8 df,   p=<2e-16
##
##
## #############      Model  6    #############
## ------------ Low ------------
## Call:
## coxph(formula = low_perf_collab ~ sender * eventAttribute, data = REM.data)
##
##   n= 642212, number of events= 5981
##
##                                       coef exp(coef) se(coef)      z Pr(>|z|)
## sender3                            0.21356   1.23808  0.19484  1.096 0.273034
## sender5                            0.04636   1.04745  0.20897  0.222 0.824431
## sender6                           -0.57702   0.56157  0.26083 -2.212 0.026950
## sender7                            0.29328   1.34081  0.20533  1.428 0.153209
## eventAttributedisruption           0.04620   1.04729  0.20898  0.221 0.825015
## eventAttributefloor-grabber        0.37273   1.45170  0.18741  1.989 0.046711
## eventAttributequestion             1.64283   5.16977  0.15332 10.715  < 2e-16
## eventAttributestatement            2.63092  13.88650  0.14626 17.988  < 2e-16
## sender3:eventAttributedisruption  -0.45298   0.63573  0.28978 -1.563 0.118003
## sender5:eventAttributedisruption  -1.27414   0.27967  0.38765 -3.287 0.001013
## sender6:eventAttributedisruption   0.11312   1.11976  0.35822  0.316 0.752174
## sender7:eventAttributedisruption  -0.85408   0.42568  0.36342 -2.350 0.018768
## sender3:eventAttributefloor-grabber -0.39006   0.67701  0.26182 -1.490 0.136266
## sender5:eventAttributefloor-grabber -1.10363   0.33167  0.32557 -3.390 0.000699
## sender6:eventAttributefloor-grabber  0.62074   1.86030  0.31875  1.947 0.051486
## sender7:eventAttributefloor-grabber -0.44849   0.63859  0.27525 -1.629 0.103231
## sender3:eventAttributequestion     -0.58318   0.55812  0.21187 -2.753 0.005914
## sender5:eventAttributequestion     -0.43221   0.64907  0.22661 -1.907 0.056482
## sender6:eventAttributequestion      0.56140   1.75313  0.27241  2.061 0.039317
## sender7:eventAttributequestion     -0.45394   0.63512  0.22127 -2.052 0.040217
## sender3:eventAttributestatement    -0.31324   0.73107  0.20000 -1.566 0.117298
## sender5:eventAttributestatement    -0.71841   0.48753  0.21679 -3.314 0.000920
## sender6:eventAttributestatement     0.18942   1.20855  0.26537  0.714 0.475349
```

```
## sender7:eventAttributestatement     -0.48958   0.61289  0.21045 -2.326 0.020004
##
## sender3
## sender5
## sender6                             *
## sender7
## eventAttributedisruption
## eventAttributefloor-grabber         *
## eventAttributequestion              ***
## eventAttributestatement             ***
## sender3:eventAttributedisruption
## sender5:eventAttributedisruption    **
## sender6:eventAttributedisruption
## sender7:eventAttributedisruption    *
## sender3:eventAttributefloor-grabber
## sender5:eventAttributefloor-grabber ***
## sender6:eventAttributefloor-grabber .
## sender7:eventAttributefloor-grabber
## sender3:eventAttributequestion      **
## sender5:eventAttributequestion      .
## sender6:eventAttributequestion      *
## sender7:eventAttributequestion      *
## sender3:eventAttributestatement
## sender5:eventAttributestatement     ***
## sender6:eventAttributestatement
## sender7:eventAttributestatement     *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                                     exp(coef) exp(-coef) lower .95 upper .95
## sender3                                1.2381    0.80770    0.8451    1.8138
## sender5                                1.0475    0.95470    0.6954    1.5776
## sender6                                0.5616    1.78072    0.3368    0.9363
## sender7                                1.3408    0.74582    0.8966    2.0052
## eventAttributedisruption               1.0473    0.95485    0.6953    1.5774
## eventAttributefloor-grabber            1.4517    0.68885    1.0054    2.0960
## eventAttributequestion                 5.1698    0.19343    3.8280    6.9819
## eventAttributestatement               13.8865    0.07201   10.4255   18.4965
## sender3:eventAttributedisruption       0.6357    1.57300    0.3603    1.1218
## sender5:eventAttributedisruption       0.2797    3.57564    0.1308    0.5979
## sender6:eventAttributedisruption       1.1198    0.89305    0.5549    2.2597
## sender7:eventAttributedisruption       0.4257    2.34921    0.2088    0.8678
## sender3:eventAttributefloor-grabber    0.6770    1.47708    0.4053    1.1310
## sender5:eventAttributefloor-grabber    0.3317    3.01508    0.1752    0.6278
## sender6:eventAttributefloor-grabber    1.8603    0.53755    0.9960    3.4746
## sender7:eventAttributefloor-grabber    0.6386    1.56595    0.3723    1.0953
## sender3:eventAttributequestion         0.5581    1.79173    0.3685    0.8454
## sender5:eventAttributequestion         0.6491    1.54066    0.4163    1.0120
## sender6:eventAttributequestion         1.7531    0.57041    1.0279    2.9901
## sender7:eventAttributequestion         0.6351    1.57451    0.4116    0.9799
## sender3:eventAttributestatement        0.7311    1.36785    0.4940    1.0819
## sender5:eventAttributestatement        0.4875    2.05117    0.3188    0.7456
## sender6:eventAttributestatement        1.2085    0.82744    0.7184    2.0330
## sender7:eventAttributestatement        0.6129    1.63162    0.4057    0.9258
```

```
##
## Concordance= 0.769  (se = 0.003 )
## Likelihood ratio test= 5115  on 24 df,   p=<2e-16
## Wald test            = 3644  on 24 df,   p=<2e-16
## Score (logrank) test = 5334  on 24 df,   p=<2e-16
##
## ------------ High ------------
## Call:
## coxph(formula = high_perf_collab ~ sender * eventAttribute, data = REM.data)
##
##   n= 515830, number of events= 5089
##
##                                       coef exp(coef) se(coef)      z Pr(>|z|)
## sender3                            -0.44992   0.63768  0.21960 -2.049  0.04048
## sender5                            -0.22835   0.79584  0.23430 -0.975  0.32976
## sender6                            -0.85102   0.42698  0.27027 -3.149  0.00164
## sender7                            -0.44353   0.64177  0.21618 -2.052  0.04020
## eventAttributedisruption           -0.22967   0.79480  0.21785 -1.054  0.29177
## eventAttributefloor-grabber        -0.08712   0.91657  0.19913 -0.438  0.66175
## eventAttributequestion              1.31732   3.73341  0.15344  8.585  < 2e-16
## eventAttributestatement             2.25981   9.58127  0.14693 15.381  < 2e-16
## sender3:eventAttributedisruption   -0.42254   0.65538  0.34457 -1.226  0.22009
## sender5:eventAttributedisruption   -0.27567   0.75906  0.47417 -0.581  0.56099
## sender6:eventAttributedisruption    0.65725   1.92949  0.40330  1.630  0.10316
## sender7:eventAttributedisruption   -0.44679   0.63968  0.41693 -1.072  0.28390
## sender3:eventAttributefloor-grabber 0.27360   1.31469  0.29784  0.919  0.35829
## sender5:eventAttributefloor-grabber 0.13933   1.14951  0.32958  0.423  0.67247
## sender6:eventAttributefloor-grabber 0.53924   1.71470  0.34765  1.551  0.12088
## sender7:eventAttributefloor-grabber 0.24513   1.27779  0.29965  0.818  0.41333
## sender3:eventAttributequestion      0.14283   1.15354  0.23601  0.605  0.54505
## sender5:eventAttributequestion      0.06625   1.06849  0.24982  0.265  0.79087
## sender6:eventAttributequestion      0.57616   1.77919  0.28265  2.038  0.04150
## sender7:eventAttributequestion      0.26770   1.30695  0.23163  1.156  0.24779
## sender3:eventAttributestatement     0.19162   1.21121  0.22520  0.851  0.39485
## sender5:eventAttributestatement    -0.67303   0.51016  0.24255 -2.775  0.00552
## sender6:eventAttributestatement     0.40273   1.49590  0.27540  1.462  0.14365
## sender7:eventAttributestatement     0.19910   1.22031  0.22180  0.898  0.36937
##
## sender3                            *
## sender5
## sender6                            **
## sender7                            *
## eventAttributedisruption
## eventAttributefloor-grabber
## eventAttributequestion             ***
## eventAttributestatement            ***
## sender3:eventAttributedisruption
## sender5:eventAttributedisruption
## sender6:eventAttributedisruption
## sender7:eventAttributedisruption
## sender3:eventAttributefloor-grabber
## sender5:eventAttributefloor-grabber
## sender6:eventAttributefloor-grabber
## sender7:eventAttributefloor-grabber
```

```
## sender3:eventAttributequestion
## sender5:eventAttributequestion
## sender6:eventAttributequestion      *
## sender7:eventAttributequestion
## sender3:eventAttributestatement
## sender5:eventAttributestatement     **
## sender6:eventAttributestatement
## sender7:eventAttributestatement
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                                    exp(coef) exp(-coef) lower .95 upper .95
## sender3                               0.6377     1.5682    0.4147    0.9807
## sender5                               0.7958     1.2565    0.5028    1.2597
## sender6                               0.4270     2.3420    0.2514    0.7252
## sender7                               0.6418     1.5582    0.4201    0.9804
## eventAttributedisruption              0.7948     1.2582    0.5186    1.2181
## eventAttributefloor-grabber           0.9166     1.0910    0.6204    1.3541
## eventAttributequestion                3.7334     0.2679    2.7637    5.0433
## eventAttributestatement               9.5813     0.1044    7.1839   12.7787
## sender3:eventAttributedisruption      0.6554     1.5258    0.3336    1.2876
## sender5:eventAttributedisruption      0.7591     1.3174    0.2997    1.9226
## sender6:eventAttributedisruption      1.9295     0.5183    0.8753    4.2533
## sender7:eventAttributedisruption      0.6397     1.5633    0.2825    1.4483
## sender3:eventAttributefloor-grabber   1.3147     0.7606    0.7333    2.3569
## sender5:eventAttributefloor-grabber   1.1495     0.8699    0.6025    2.1931
## sender6:eventAttributefloor-grabber   1.7147     0.5832    0.8675    3.3893
## sender7:eventAttributefloor-grabber   1.2778     0.7826    0.7102    2.2989
## sender3:eventAttributequestion        1.1535     0.8669    0.7263    1.8320
## sender5:eventAttributequestion        1.0685     0.9359    0.6548    1.7435
## sender6:eventAttributequestion        1.7792     0.5621    1.0224    3.0961
## sender7:eventAttributequestion        1.3070     0.7651    0.8300    2.0579
## sender3:eventAttributestatement       1.2112     0.8256    0.7790    1.8833
## sender5:eventAttributestatement       0.5102     1.9602    0.3171    0.8207
## sender6:eventAttributestatement       1.4959     0.6685    0.8719    2.5664
## sender7:eventAttributestatement       1.2203     0.8195    0.7901    1.8848
##
## Concordance= 0.761  (se = 0.003 )
## Likelihood ratio test= 3757  on 24 df,   p=<2e-16
## Wald test            = 2721  on 24 df,   p=<2e-16
## Score (logrank) test = 3829  on 24 df,   p=<2e-16
```