Experiment 4: summa with time pressure

Before Exclusions

Number of participants tested:

```
## [1] 1200
```

Participants in each condition:

```
##
## all_QUD any_QUD  no_QUD
##     400     400     400
```

Exclusions

Non-unique participants (remove all attempts):

```
## integer(0)
```

Participants whose native language is not english:

```
##    workerid  language
## 1        17        29
## 2        37 Cantonese
## 3        82 Hungarian
## 4        84
## 5       119   swahili
## 6       151   Spanish
## 7       220   Chinese
## 8       245   Spanish
## 9       390      Urdu
## 10      402  Filipino
## 11      420
## 12      430   Spanish
## 13      461   Russian
## 14      494   finnish
## 15      505   spanish
## 16      546
## 17      581   Spanish
## 18      590
## 19      602
## 20      672  Mandarin
## 21      691
## 22      695  romanian
## 23      715
## 24      776   Spansih
## 25      780   tagalog
## 26      793    Polish
## 27      860 bachelors
## 28      870    German
## 29      910
## 30      911
## 31      924   Spanish
```

```
## 32      971
## 33     1086   chinese
## 34     1160
## 35     1180
## 36     1182    Arabic
## 37     1187
```

Participants who got at least three practice trials wrong:

Participants who got the audio check wrong more than one once:

Participants who got the second comprehension question wrong more than twice:

```
## # A tibble: 21 x 2
## # Groups:   workerid [21]
##    workerid     n
##       <int> <int>
##  1       59     3
##  2      185     4
##  3      213     3
##  4      401     4
##  5      432     7
##  6      457     3
##  7      465     3
##  8      493     3
##  9      567     4
## 10      604     3
## # ... with 11 more rows
```

Participants with accuracy of lower than 85% on non-critical trials with "some","none","all" and numbers below 6:

```
##     workerid gaveRightAnswer  n answerNm  accuracy
## 1         15               1 14       38 36.842105
## 2         19               1 23       38 60.526316
## 3         24               1 39       46 84.782609
## 4         29               1  5       47 10.638298
## 5         31               1 35       45 77.777778
## 6         43               1 25       47 53.191489
## 7         47               1 18       44 40.909091
## 8         51               1 21       42 50.000000
## 9         61               1 28       47 59.574468
## 10        69               1  4       45  8.888889
## 11        70               1 38       45 84.444444
## 12        72               1 22       45 48.888889
## 13        73               1  2       47  4.255319
## 14        77               1 38       47 80.851064
## 15        85               1 28       46 60.869565
## 16        87               1 23       41 56.097561
## 17        88               1 23       45 51.111111
## 18        91               1 21       47 44.680851
## 19        95               1 36       47 76.595745
## 20       110               1  5       46 10.869565
## 21       118               1 38       47 80.851064
## 22       121               1 20       38 52.631579
## 23       128               1 35       43 81.395349
## 24       133               1 19       44 43.181818
```

```
## 25       138              1 15       34 44.117647
## 26       141              1  1       47  2.127660
## 27       143              1 34       43 79.069767
## 28       145              1 18       46 39.130435
## 29       152              1 28       45 62.222222
## 30       155              1  2       46  4.347826
## 31       157              1 17       41 41.463415
## 32       160              1 19       40 47.500000
## 33       161              1 17       40 42.500000
## 34       162              1 25       44 56.818182
## 35       187              1 26       46 56.521739
## 36       188              1 21       47 44.680851
## 37       191              1 16       47 34.042553
## 38       192              1 33       40 82.500000
## 39       197              1 12       23 52.173913
## 40       211              1 30       42 71.428571
## 41       214              1 30       46 65.217391
## 42       215              1 28       43 65.116279
## 43       219              1 22       46 47.826087
## 44       221              1 24       46 52.173913
## 45       227              1  2       47  4.255319
## 46       233              1 27       46 58.695652
## 47       235              1 16       47 34.042553
## 48       236              1 23       43 53.488372
## 49       238              1 24       41 58.536585
## 50       241              1 16       37 43.243243
## 51       247              1 23       46 50.000000
## 52       254              1 20       39 51.282051
## 53       258              1 28       47 59.574468
## 54       259              1 26       44 59.090909
## 55       260              1 15       38 39.473684
## 56       276              1  7       21 33.333333
## 57       282              1 23       45 51.111111
## 58       288              1 21       46 45.652174
## 59       293              1 21       45 46.666667
## 60       295              1 26       45 57.777778
## 61       296              1 29       47 61.702128
## 62       302              1 23       43 53.488372
## 63       303              1 20       38 52.631579
## 64       305              1 36       47 76.595745
## 65       306              1 23       42 54.761905
## 66       308              1 25       47 53.191489
## 67       309              1 22       45 48.888889
## 68       311              1 17       37 45.945946
## 69       316              1 25       43 58.139535
## 70       320              1 23       38 60.526316
## 71       321              1 37       47 78.723404
## 72       322              1 22       45 48.888889
## 73       323              1 24       36 66.666667
## 74       325              1 23       47 48.936170
## 75       326              1 29       43 67.441860
## 76       329              1 25       47 53.191489
## 77       331              1 10       18 55.555556
## 78       336              1 19       44 43.181818
```

```
## 79       342              1 17       41 41.463415
## 80       344              1 16       36 44.444444
## 81       346              1 14       37 37.837838
## 82       348              1 22       47 46.808511
## 83       351              1 22       43 51.162791
## 84       352              1 23       38 60.526316
## 85       356              1 22       41 53.658537
## 86       357              1 21       46 45.652174
## 87       358              1 39       47 82.978723
## 88       361              1 22       42 52.380952
## 89       362              1  2       47  4.255319
## 90       365              1 23       46 50.000000
## 91       366              1 19       36 52.777778
## 92       367              1  3       47  6.382979
## 93       369              1 26       45 57.777778
## 94       370              1 16       47 34.042553
## 95       373              1 25       46 54.347826
## 96       378              1 27       44 61.363636
## 97       382              1  2       47  4.255319
## 98       385              1 21       41 51.219512
## 99       386              1 14       38 36.842105
## 100      392              1 35       43 81.395349
## 101      406              1 33       45 73.333333
## 102      408              1 27       47 57.446809
## 103      410              1 17       45 37.777778
## 104      411              1 23       42 54.761905
## 105      415              1 25       45 55.555556
## 106      416              1 17       44 38.636364
## 107      425              1 22       43 51.162791
## 108      426              1 23       45 51.111111
## 109      439              1 23       43 53.488372
## 110      444              1 19       47 40.425532
## 111      467              1 20       37 54.054054
## 112      470              1 24       43 55.813953
## 113      471              1 32       44 72.727273
## 114      473              1 32       41 78.048780
## 115      482              1 17       45 37.777778
## 116      488              1 16       44 36.363636
## 117      501              1  1       46  2.173913
## 118      504              1 29       46 63.043478
## 119      506              1 24       44 54.545455
## 120      511              1 23       45 51.111111
## 121      516              1 35       47 74.468085
## 122      521              1 24       47 51.063830
## 123      522              1 22       43 51.162791
## 124      523              1 20       40 50.000000
## 125      531              1 19       40 47.500000
## 126      533              1  9       14 64.285714
## 127      552              1 19       46 41.304348
## 128      555              1 16       36 44.444444
## 129      557              1 16       29 55.172414
## 130      560              1  7       14 50.000000
## 131      561              1 20       43 46.511628
## 132      564              1  2       46  4.347826
```

```
## 133      572              1 14       39 35.897436
## 134      583              1 36       45 80.000000
## 135      584              1 22       43 51.162791
## 136      586              1 20       35 57.142857
## 137      588              1 21       39 53.846154
## 138      601              1 12       20 60.000000
## 139      608              1 35       43 81.395349
## 140      615              1  3       47  6.382979
## 141      616              1 23       46 50.000000
## 142      618              1 10       44 22.727273
## 143      629              1 37       47 78.723404
## 144      631              1  2       47  4.255319
## 145      636              1 38       47 80.851064
## 146      644              1 14       36 38.888889
## 147      649              1 26       45 57.777778
## 148      650              1 21       41 51.219512
## 149      657              1 22       38 57.894737
## 150      661              1 23       39 58.974359
## 151      663              1 29       46 63.043478
## 152      667              1 19       38 50.000000
## 153      669              1 20       44 45.454545
## 154      675              1 11       23 47.826087
## 155      682              1 25       45 55.555556
## 156      683              1 14       46 30.434783
## 157      686              1 24       45 53.333333
## 158      690              1 20       43 46.511628
## 159      692              1 30       45 66.666667
## 160      697              1  2       47  4.255319
## 161      704              1  5       47 10.638298
## 162      706              1  3       45  6.666667
## 163      716              1 21       46 45.652174
## 164      718              1 21       42 50.000000
## 165      722              1 15       43 34.883721
## 166      723              1 22       46 47.826087
## 167      724              1  4       47  8.510638
## 168      726              1 24       47 51.063830
## 169      732              1 15       47 31.914894
## 170      733              1 17       38 44.736842
## 171      737              1 25       44 56.818182
## 172      742              1 15       44 34.090909
## 173      748              1 21       41 51.219512
## 174      756              1 27       47 57.446809
## 175      757              1 20       44 45.454545
## 176      764              1 18       43 41.860465
## 177      767              1 21       37 56.756757
## 178      770              1  7       47 14.893617
## 179      772              1 25       46 54.347826
## 180      773              1 18       40 45.000000
## 181      774              1 16       47 34.042553
## 182      778              1 24       46 52.173913
## 183      781              1 20       32 62.500000
## 184      790              1 22       44 50.000000
## 185      796              1 17       45 37.777778
## 186      805              1 22       44 50.000000
```

```
## 187      808              1 17       47 36.170213
## 188      815              1 22       45 48.888889
## 189      822              1  2        5 40.000000
## 190      824              1 22       39 56.410256
## 191      825              1 37       46 80.434783
## 192      827              1 21       38 55.263158
## 193      829              1 18       41 43.902439
## 194      832              1 21       47 44.680851
## 195      836              1 36       45 80.000000
## 196      842              1 16       41 39.024390
## 197      843              1 22       42 52.380952
## 198      846              1 21       39 53.846154
## 199      848              1 27       43 62.790698
## 200      849              1 24       42 57.142857
## 201      850              1 20       38 52.631579
## 202      856              1 14       34 41.176471
## 203      857              1  9       17 52.941176
## 204      858              1 21       42 50.000000
## 205      865              1 24       43 55.813953
## 206      869              1  1        3 33.333333
## 207      878              1 33       40 82.500000
## 208      880              1 22       44 50.000000
## 209      884              1 11       40 27.500000
## 210      888              1 25       40 62.500000
## 211      889              1 25       45 55.555556
## 212      890              1 22       42 52.380952
## 213      902              1 20       38 52.631579
## 214      903              1 18       42 42.857143
## 215      907              1 33       44 75.000000
## 216      914              1 23       45 51.111111
## 217      920              1 32       41 78.048780
## 218      921              1 21       38 55.263158
## 219      941              1 22       46 47.826087
## 220      943              1 14       24 58.333333
## 221      949              1 27       46 58.695652
## 222      953              1 19       31 61.290323
## 223      956              1 21       42 50.000000
## 224      964              1 19       41 46.341463
## 225      966              1 24       46 52.173913
## 226      981              1 38       46 82.608696
## 227      983              1 18       39 46.153846
## 228     1006              1 25       40 62.500000
## 229     1010              1 16       42 38.095238
## 230     1013              1 32       46 69.565217
## 231     1015              1 37       45 82.222222
## 232     1019              1 18       46 39.130435
## 233     1020              1 14       41 34.146341
## 234     1022              1 38       46 82.608696
## 235     1034              1 21       44 47.727273
## 236     1040              1 22       42 52.380952
## 237     1071              1 21       42 50.000000
## 238     1075              1 27       35 77.142857
## 239     1085              1 16       39 41.025641
## 240     1090              1  3       47  6.382979
```

```
## 241     1094              1 28       39 71.794872
## 242     1097              1 20       40 50.000000
## 243     1099              1 19       37 51.351351
## 244     1101              1 16       38 42.105263
## 245     1111              1 24       46 52.173913
## 246     1113              1 30       46 65.217391
## 247     1116              1 23       40 57.500000
## 248     1130              1 24       40 60.000000
## 249     1131              1 19       39 48.717949
## 250     1156              1 25       46 54.347826
## 251     1167              1 37       47 78.723404
## 252     1172              1 37       46 80.434783
## 253     1175              1 22       37 59.459459
## 254     1176              1 16       45 35.555556
## 255     1181              1 14       40 35.000000
```

Additional Exclusions

Participants who gave more than 5 very slow (logRT>20) responses:

```
## # A tibble: 0 x 3
## # Groups:   workerid [0]
## # ... with 3 variables: workerid <int>, slowResponse <lgl>, n <int>
```

Responses that are faster than the onset of the quantifier (rawRT<600):

```
## [1] 432
```

Responses that are very slow (logRT>20):

```
## [1] 51
```

After Exclusions

Number of participants:

```
## [1] 887
```

Participants left in each condition:

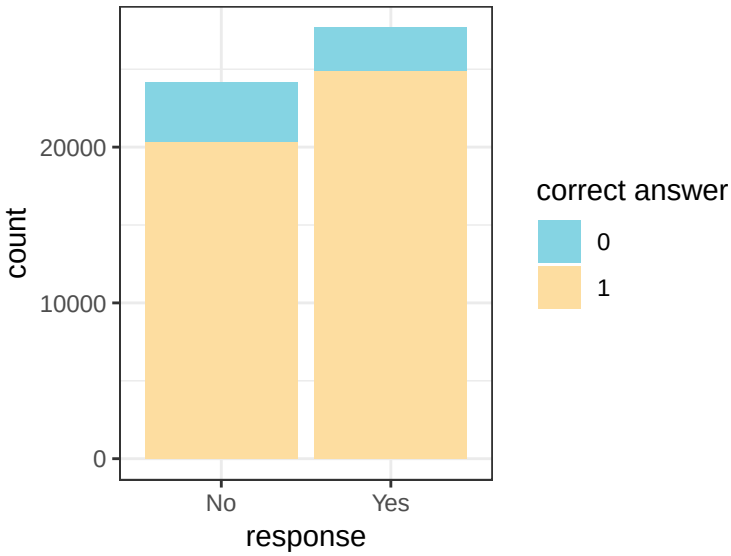
```
##
## all_QUD any_QUD  no_QUD
##     288     280     319
```

General

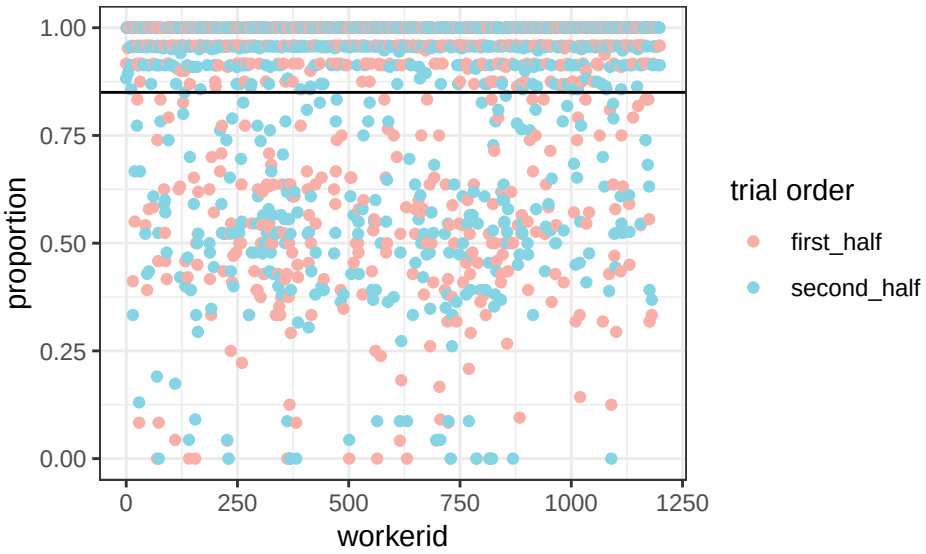
Expected number of yes and no answers:

```
##
##    No   Yes
## 23106 28682
```

Accuracy

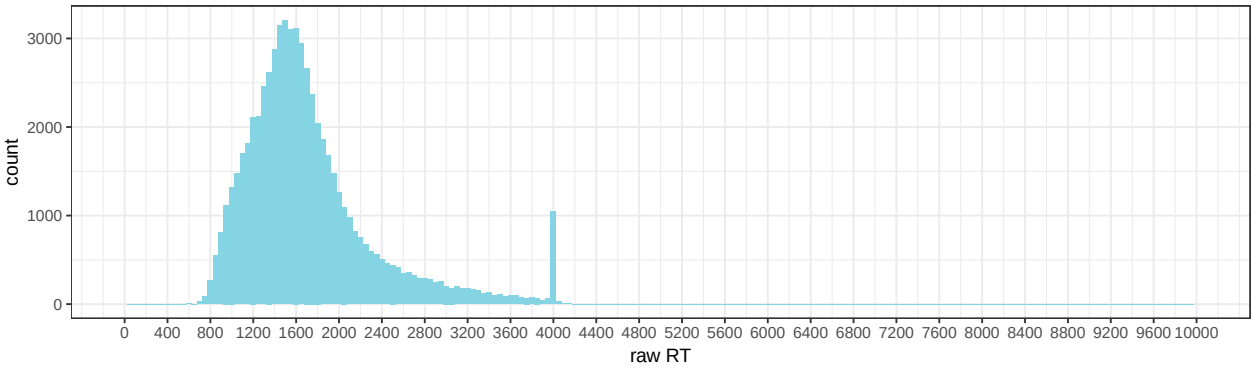


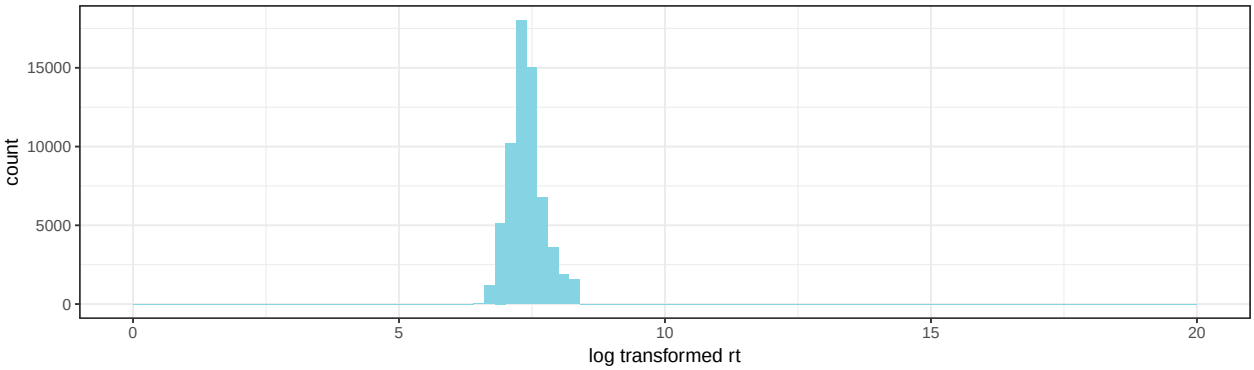
Accuracy and trial order



Distribution of RT and logRT

```
## Warning: Removed 2 rows containing missing values (geom_bar).
```





15 fastest responses (raw RT)

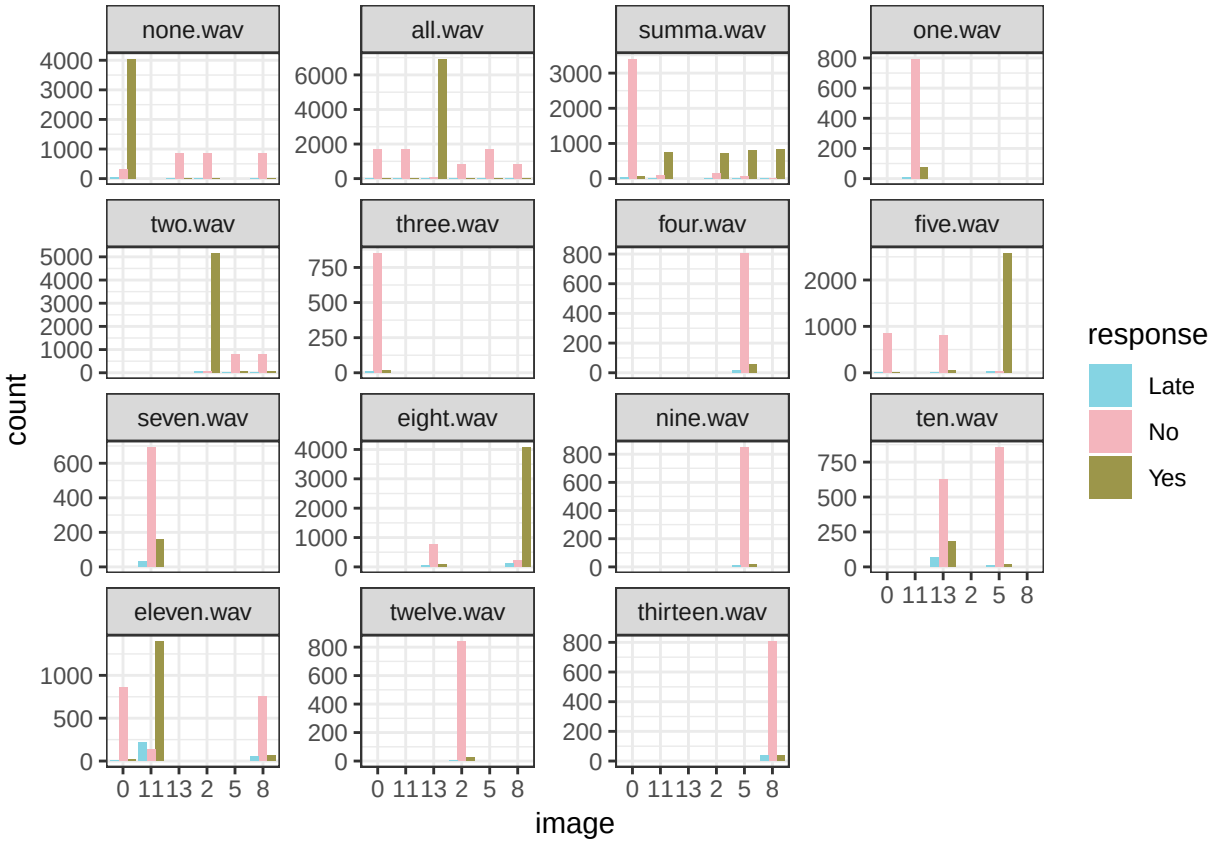
```
##  [1] 603 605 614 622 624 645 679 687 688 692 693 695 699 700 700
```

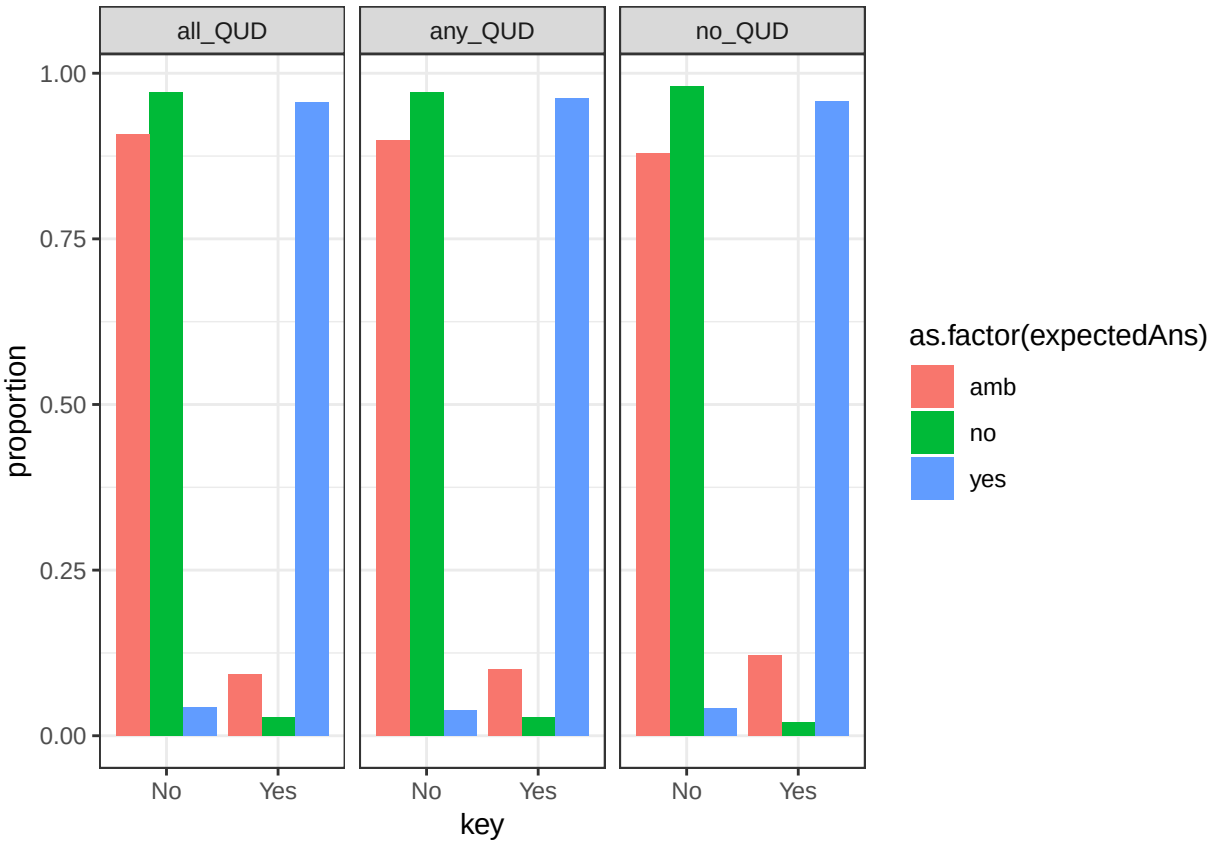
15 slowest responses (raw RT)

```
##  [1] 4047 4049 4052 4054 4064 4064 4065 4068 4077 4082 4101 4137 4142 4152
## [15] 4447
```

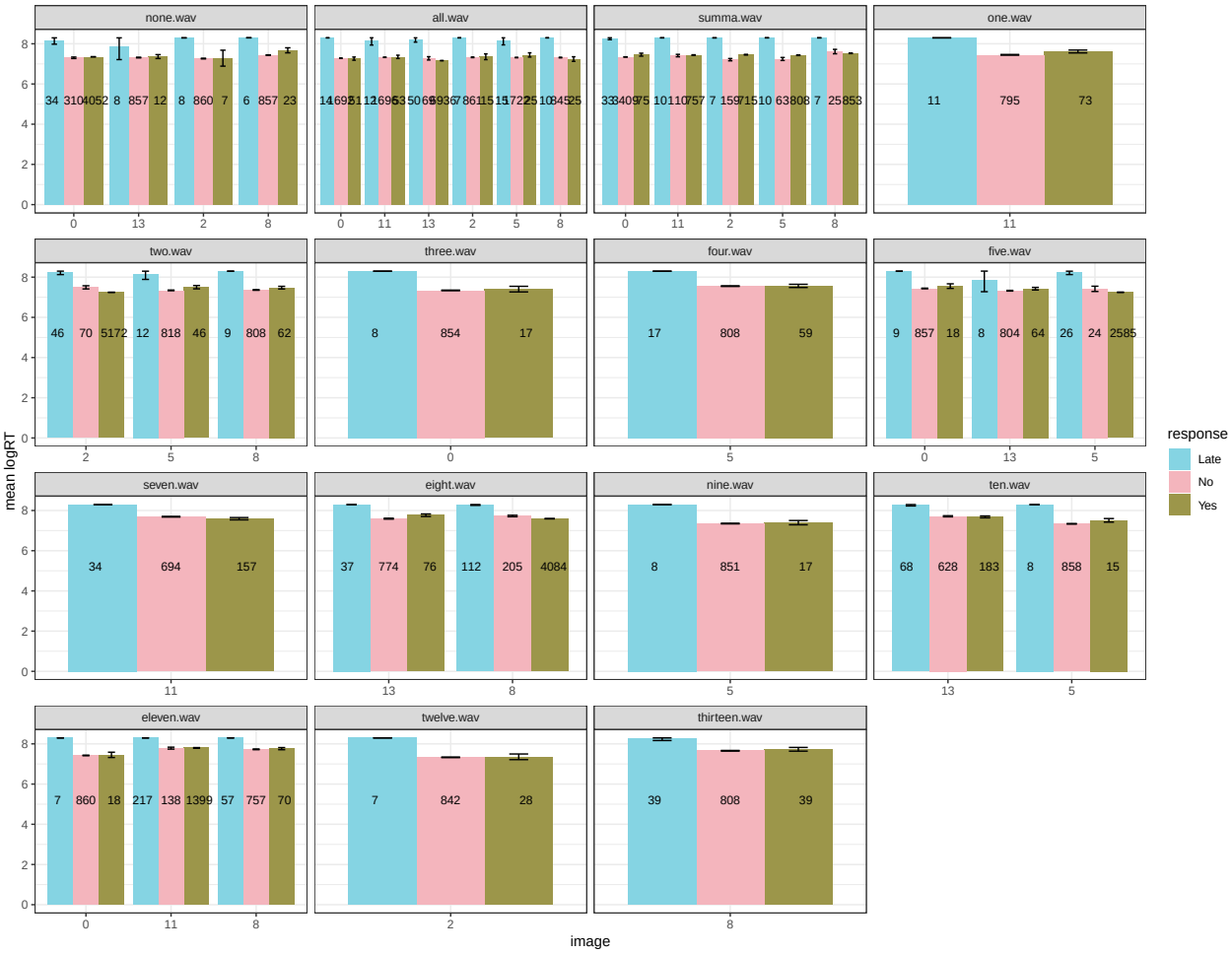
Non-critical Trials

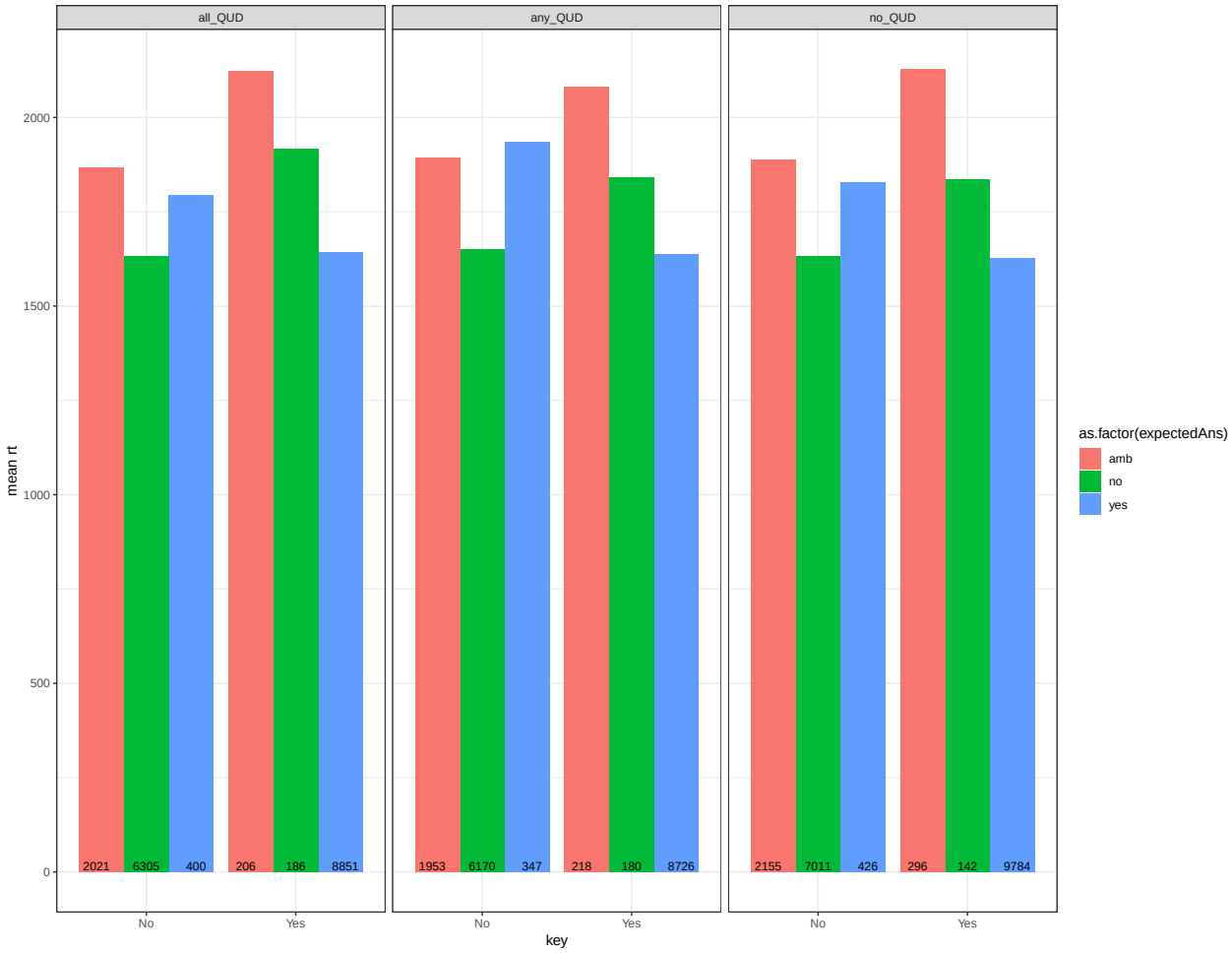
Response type:





Response time:


none.wav
all.wav
summa.wav
one.wav
two.wav
three.wav
four.wav
five.wav
seven.wav
eight.wav
nine.wav
ten.wav
eleven.wav
twelve.wav
thirteen.wav
mean logRT
image
response
Late
No
Yes



Critical Trials

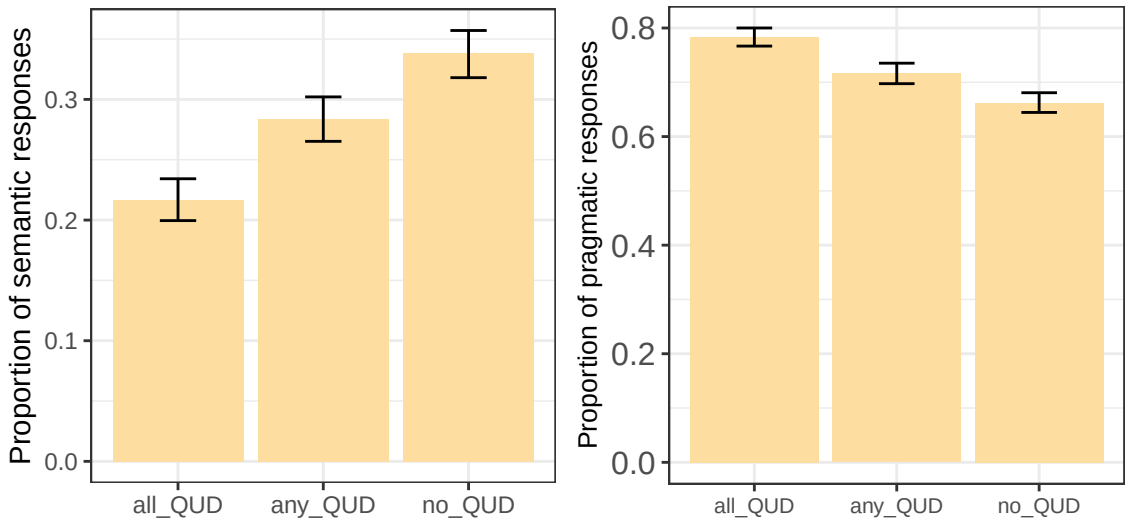
Total number of critical trials (8 per participant):

```
## [1] 7033
```

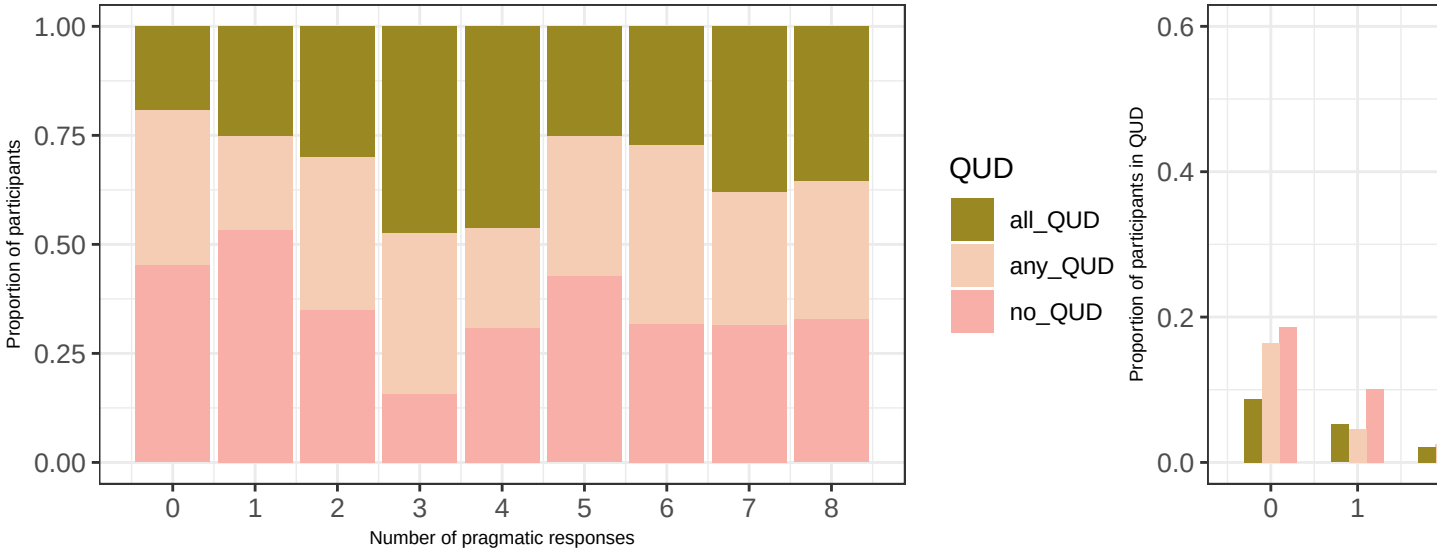
Total number of critical trials with late responses removed:

```
## [1] 6929
```

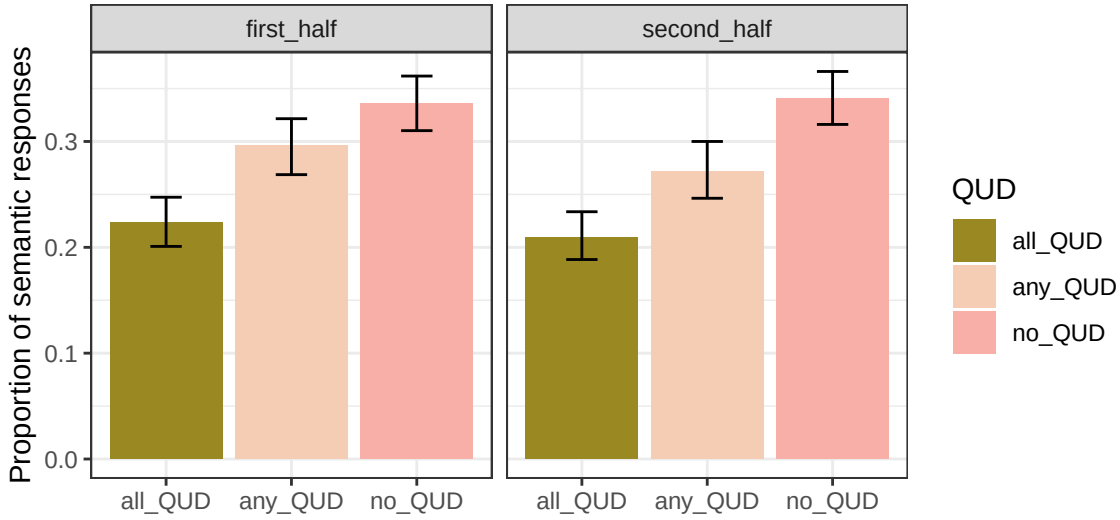
Response Type



Distribution of participants over number of semantic responses



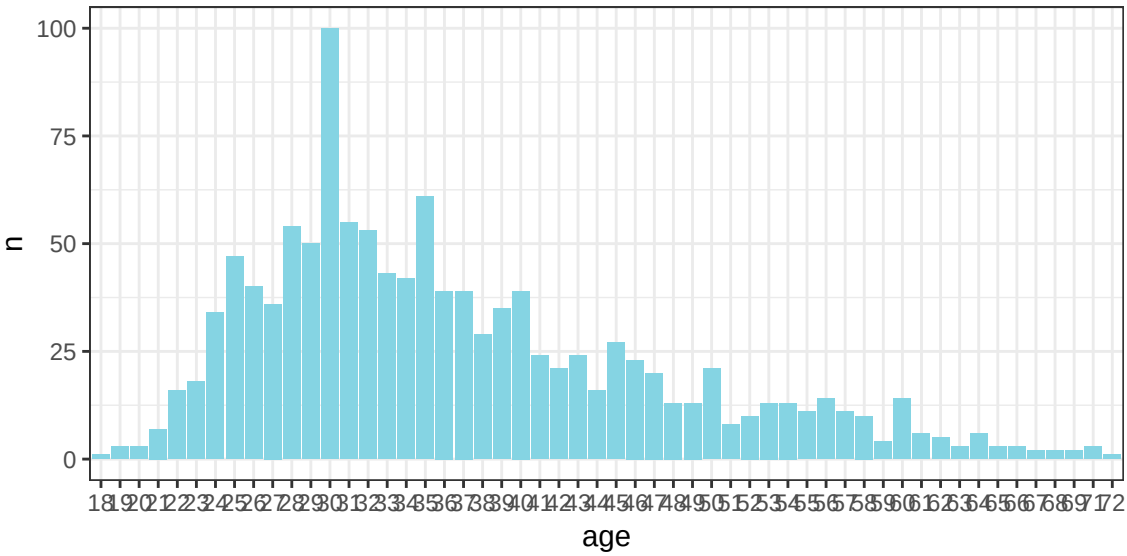
Response type and trial order



Age distribution of participants

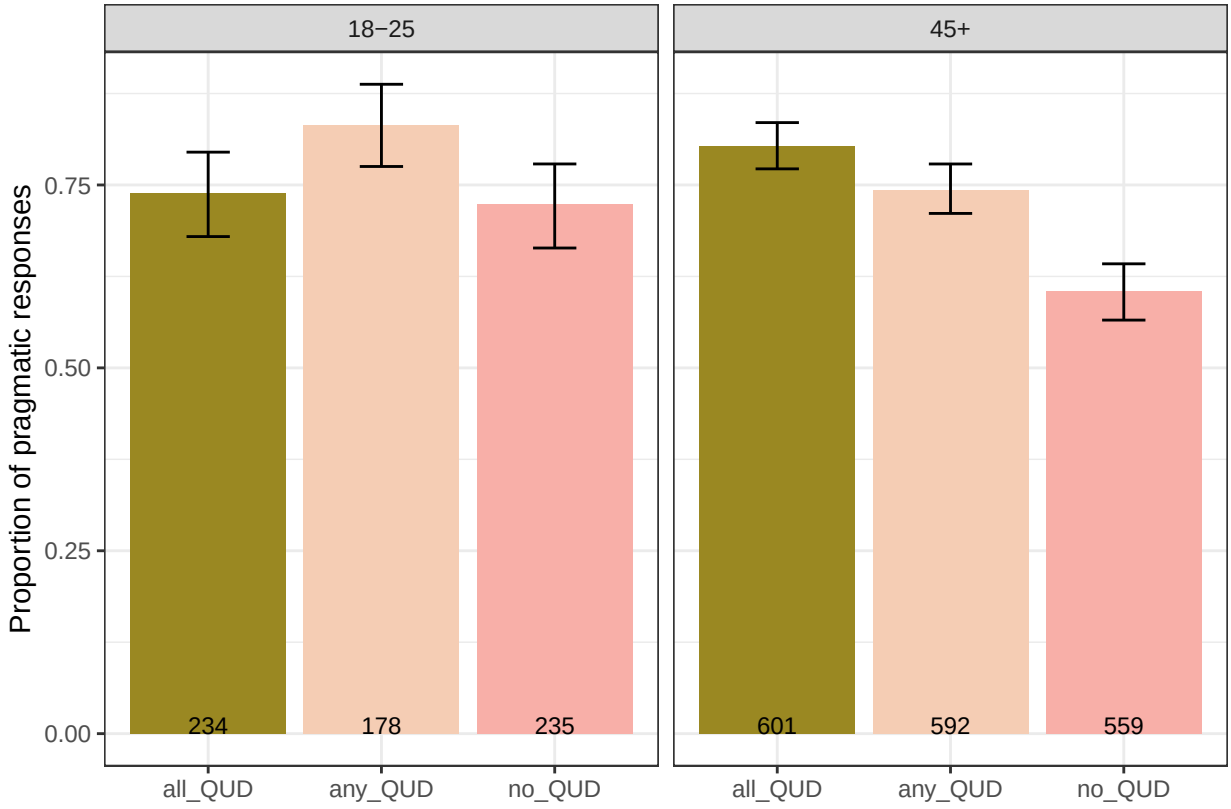
```
## Warning: Factor `age` contains implicit NA, consider using
## `forcats::fct_explicit_na`
```

```
## Warning: Factor `age` contains implicit NA, consider using
## `forcats::fct_explicit_na`
```



Response type and age

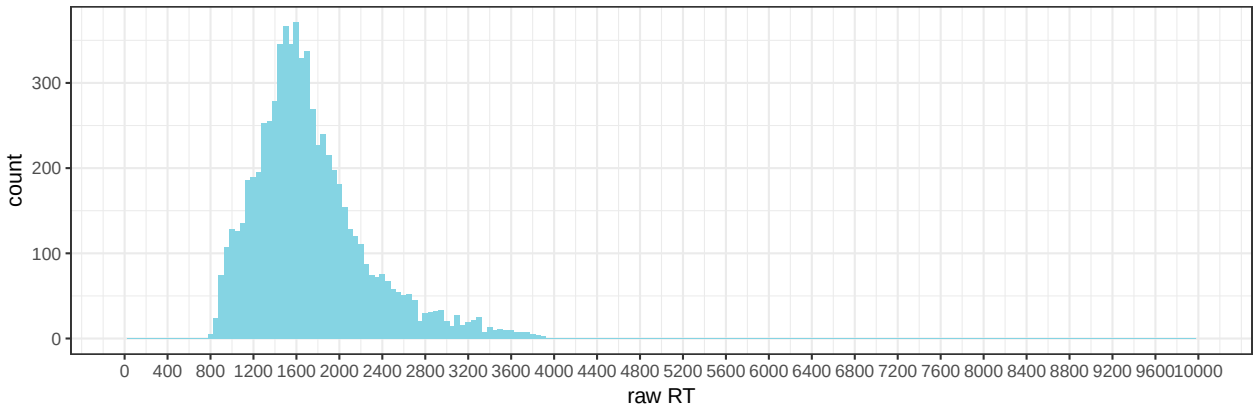
```
## Warning: NAs introduced by coercion
```



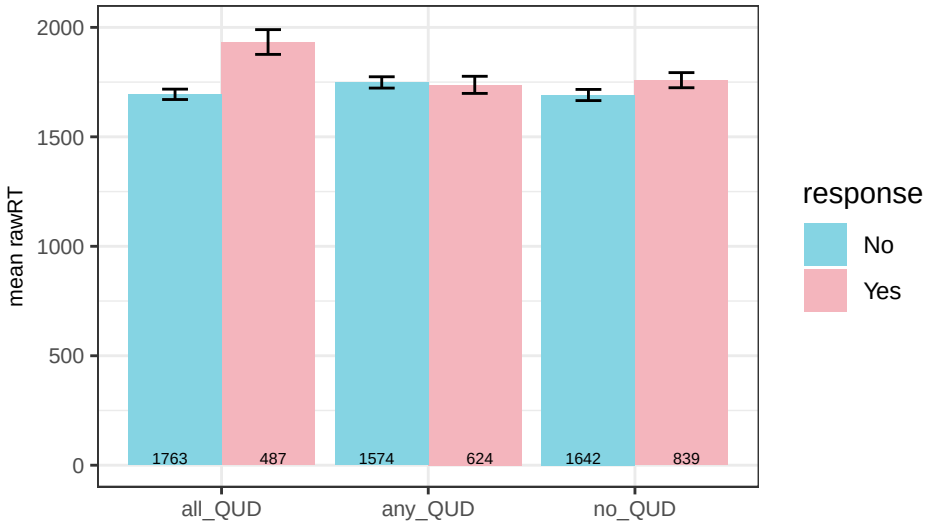
Response Time

Distribution of response times in critical trials

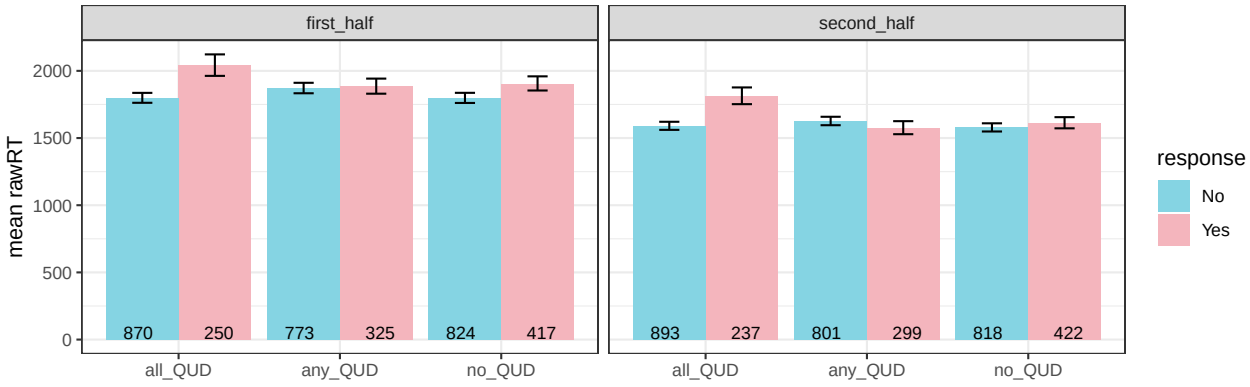
```
## Warning: Removed 2 rows containing missing values (geom_bar).
```



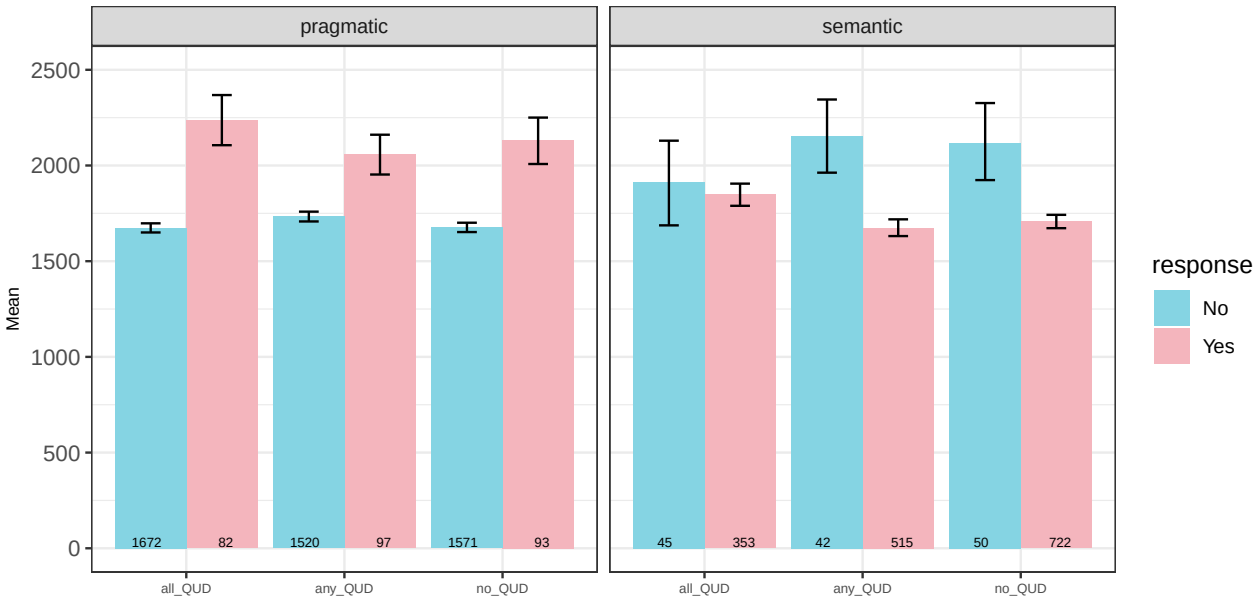
Response time and QUD



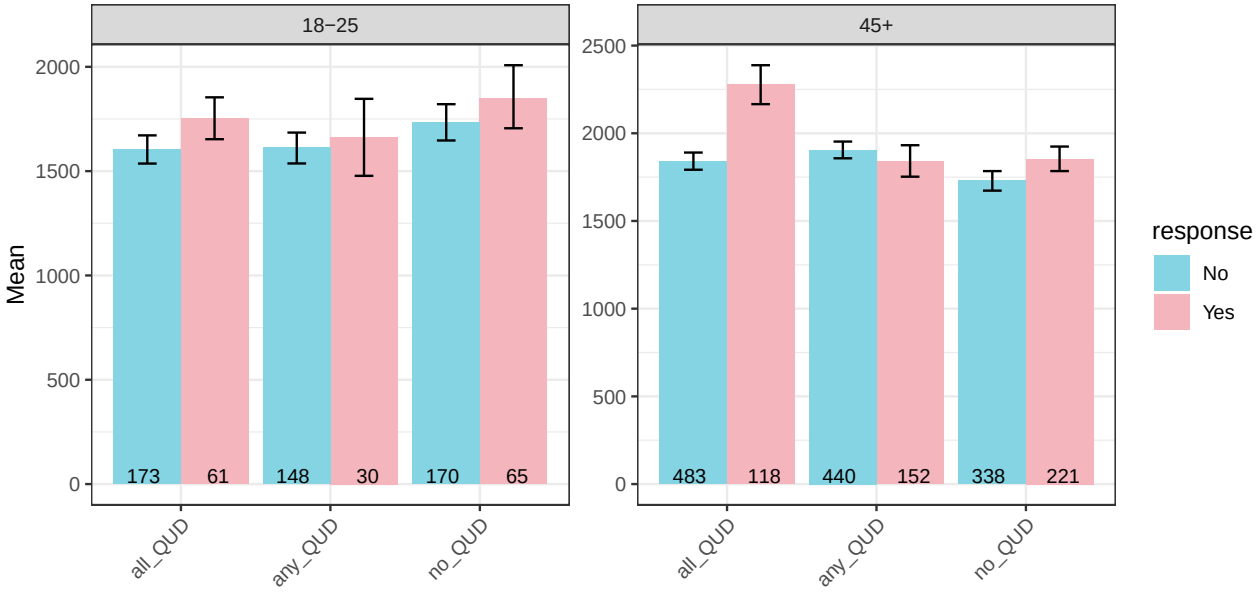
Response time, trial order and QUD



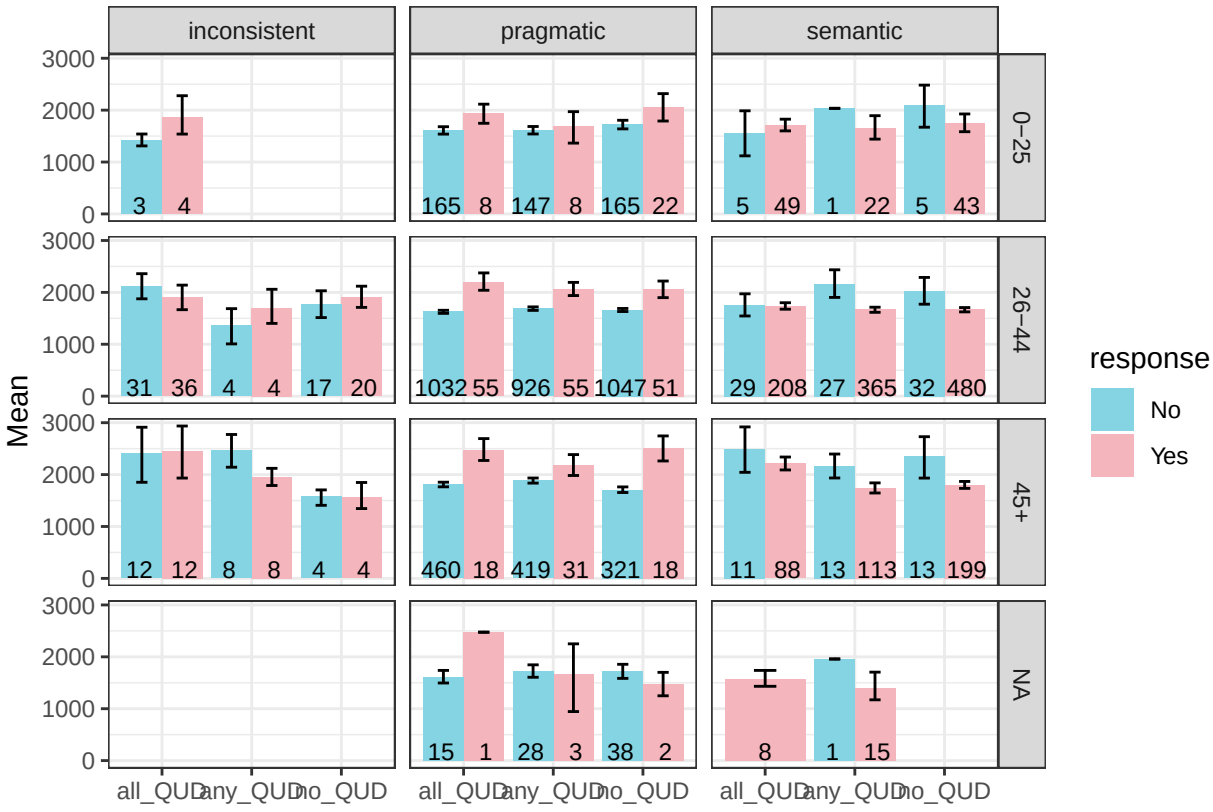
Response time, responder type and QUD



Response time, age and QUD



Response time, age, responder type and QUD



EXTRA: Pragmaticity and response time

Models