Writing Stats

Linear Modelling for Normalized Error (Word Count)

Our Linear Model:

$$NormalizedError_{WordCount} = 1 + Group + Session + 1|Subject$$

```
## Linear mixed-effects model fit by REML
##   Data: full_nlp_df
##         AIC       BIC   logLik
##   -193.3099 -175.5818 103.655
##
## Random effects:
##  Formula: ~1 | Subject
##         (Intercept)    Residual
## StdDev:  0.04698783 0.06002497
##
## Fixed effects: NormalizedErrorWC ~ 1 + Group + Session
##                  Value  Std.Error DF   t-value p-value
## (Intercept)  0.10462161 0.02003128 48   5.222912  0.0000
## GroupIN      0.01256807 0.02594029 45   0.484500  0.6304
## GroupBF     -0.00803297 0.02643104 45  -0.303922  0.7626
## GroupIF      0.00884147 0.02594029 45   0.340839  0.7348
## SessionDT   -0.03473269 0.01212688 48  -2.864108  0.0062
##  Correlation:
##           (Intr) GropIN GropBF GropIF
## GroupIN   -0.701
## GroupBF   -0.688  0.532
## GroupIF   -0.701  0.542  0.532
## SessionDT -0.303  0.000  0.000  0.000
##
## Standardized Within-Group Residuals:
##        Min         Q1        Med         Q3        Max
## -1.3940500 -0.4985505 -0.1339172  0.4332199  4.4140738
##
## Number of Observations: 98
## Number of Groups: 49
```

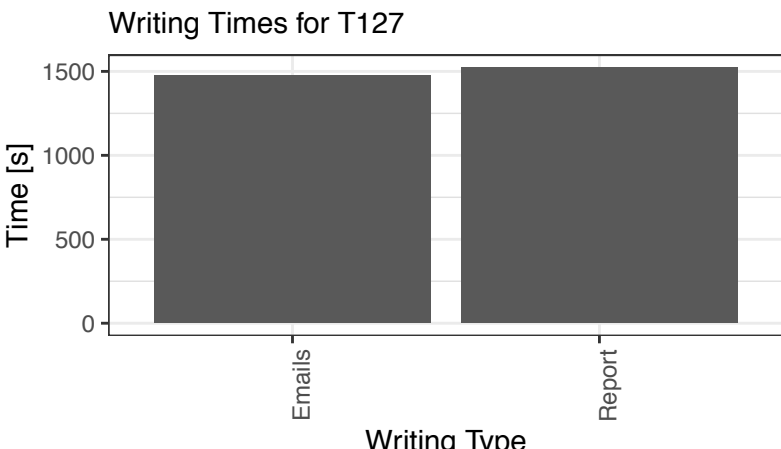# Linear Modelling for Normalized Error (Sentence Count)

Our Linear Model:

$$WritingQuality_{SentenceCount} = 1 + Group + Session + 1|Subject$$

```
## Linear mixed-effects model fit by REML
##  Data: full_nlp_df
##        AIC      BIC    logLik
##   351.0448 368.773 -168.5224
##
## Random effects:
##  Formula: ~1 | Subject
##         (Intercept) Residual
## StdDev:    0.673736 1.209775
##
## Fixed effects: NormalizedErrorSC ~ 1 + Group + Session
##                  Value Std.Error DF   t-value p-value
## (Intercept)  1.9285113 0.3503212 48  5.504980  0.0000
## GroupIN      0.1326920 0.4460922 45  0.297454  0.7675
## GroupBF     -0.1762288 0.4545315 45 -0.387715  0.7001
## GroupIF      0.3281122 0.4460922 45  0.735525  0.4658
## SessionDT   -0.5902486 0.2444115 48 -2.414979  0.0196
##  Correlation:
##           (Intr) GropIN GropBF GropIF
## GroupIN   -0.690
## GroupBF   -0.677  0.532
## GroupIF   -0.690  0.542  0.532
## SessionDT -0.349  0.000  0.000  0.000
##
## Standardized Within-Group Residuals:
##        Min         Q1        Med         Q3        Max
## -1.4795742 -0.5147006 -0.1423886  0.2675904  5.1612413
##
## Number of Observations: 98
## Number of Groups: 49
```

Plotting Trait Levels

Trait Level for Word Choice

Trait Level for Conventions
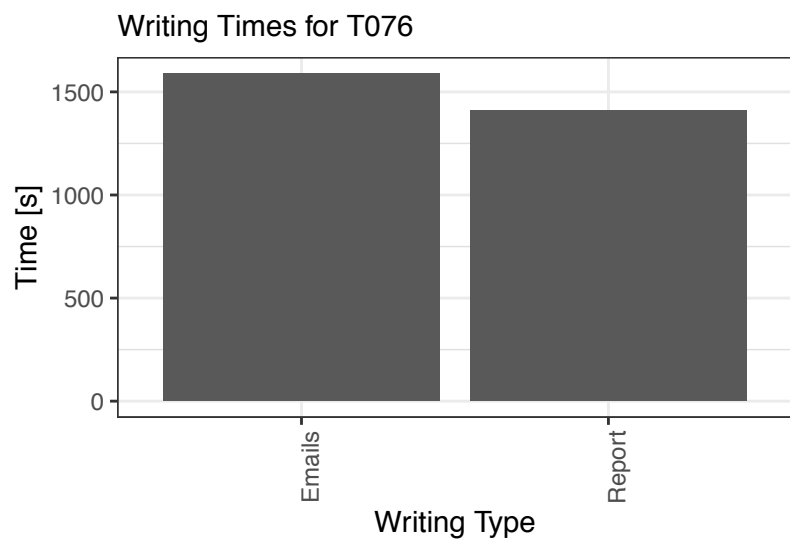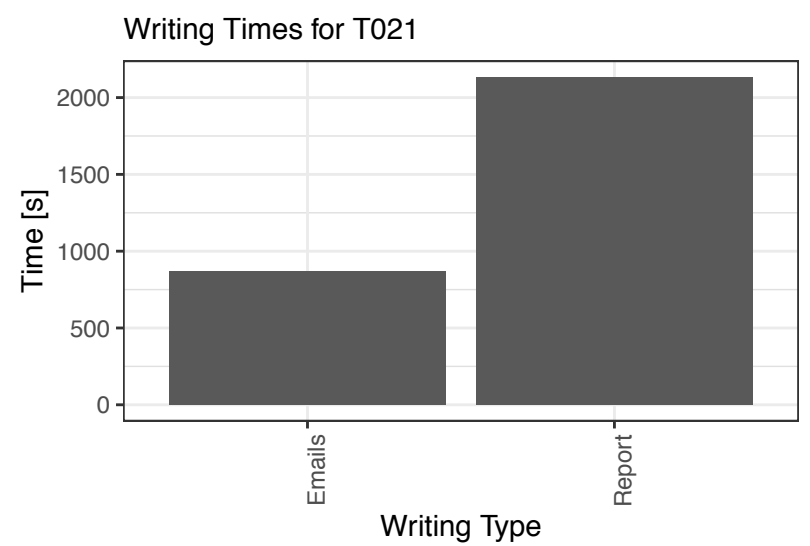
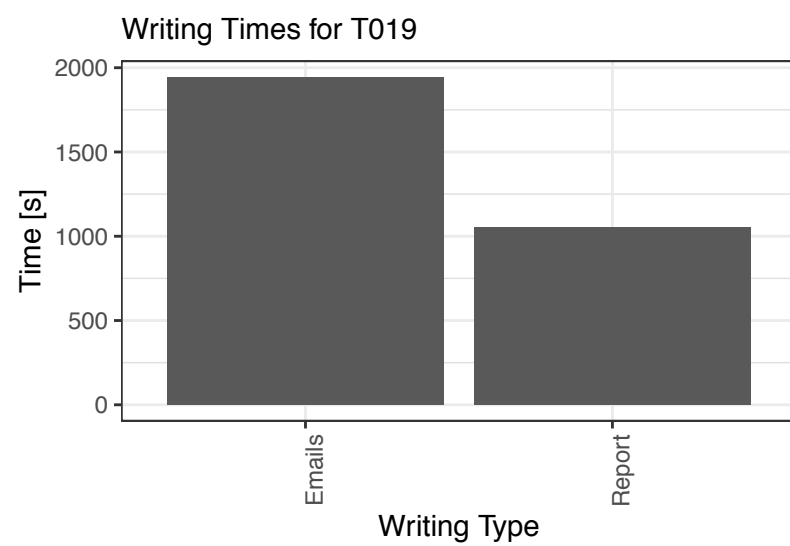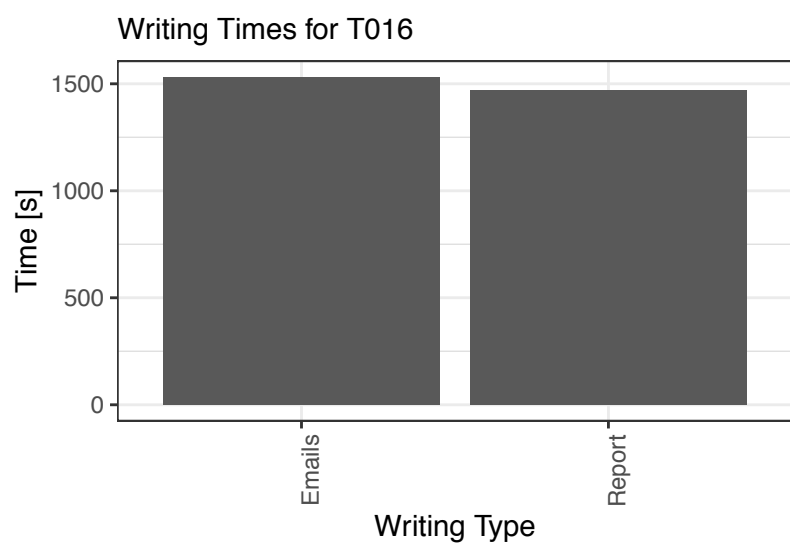Trait Level for Fluency/Organization
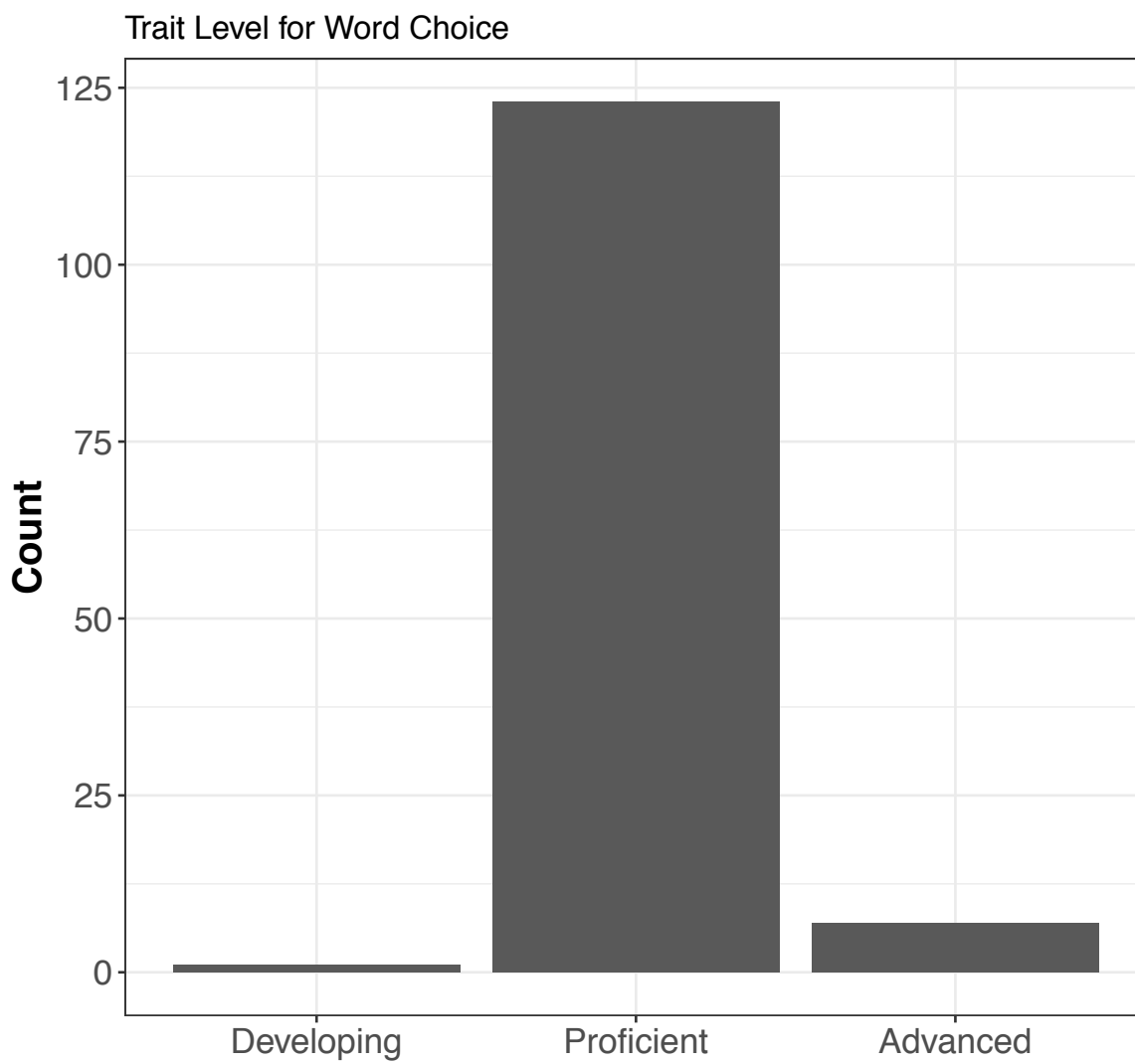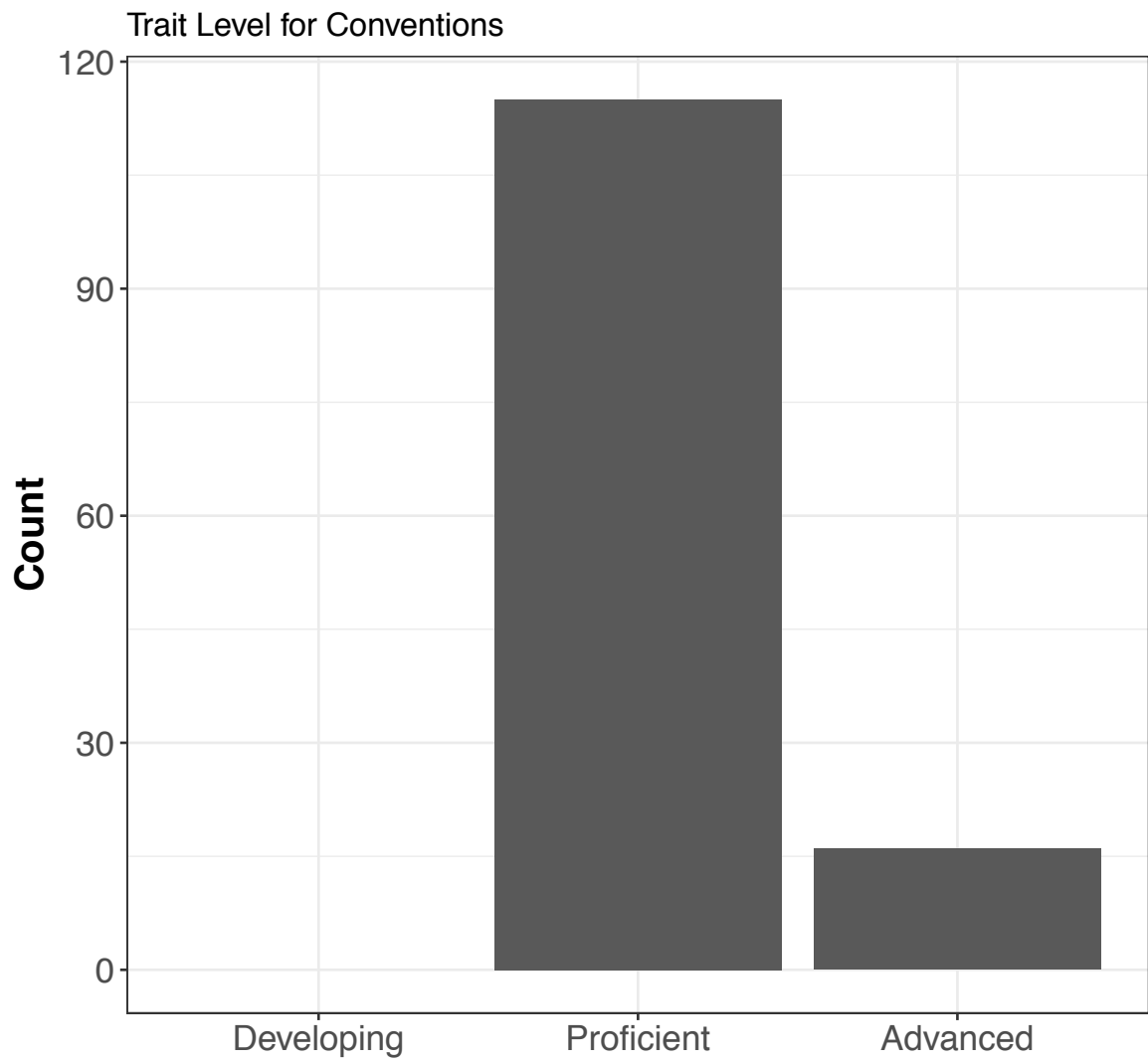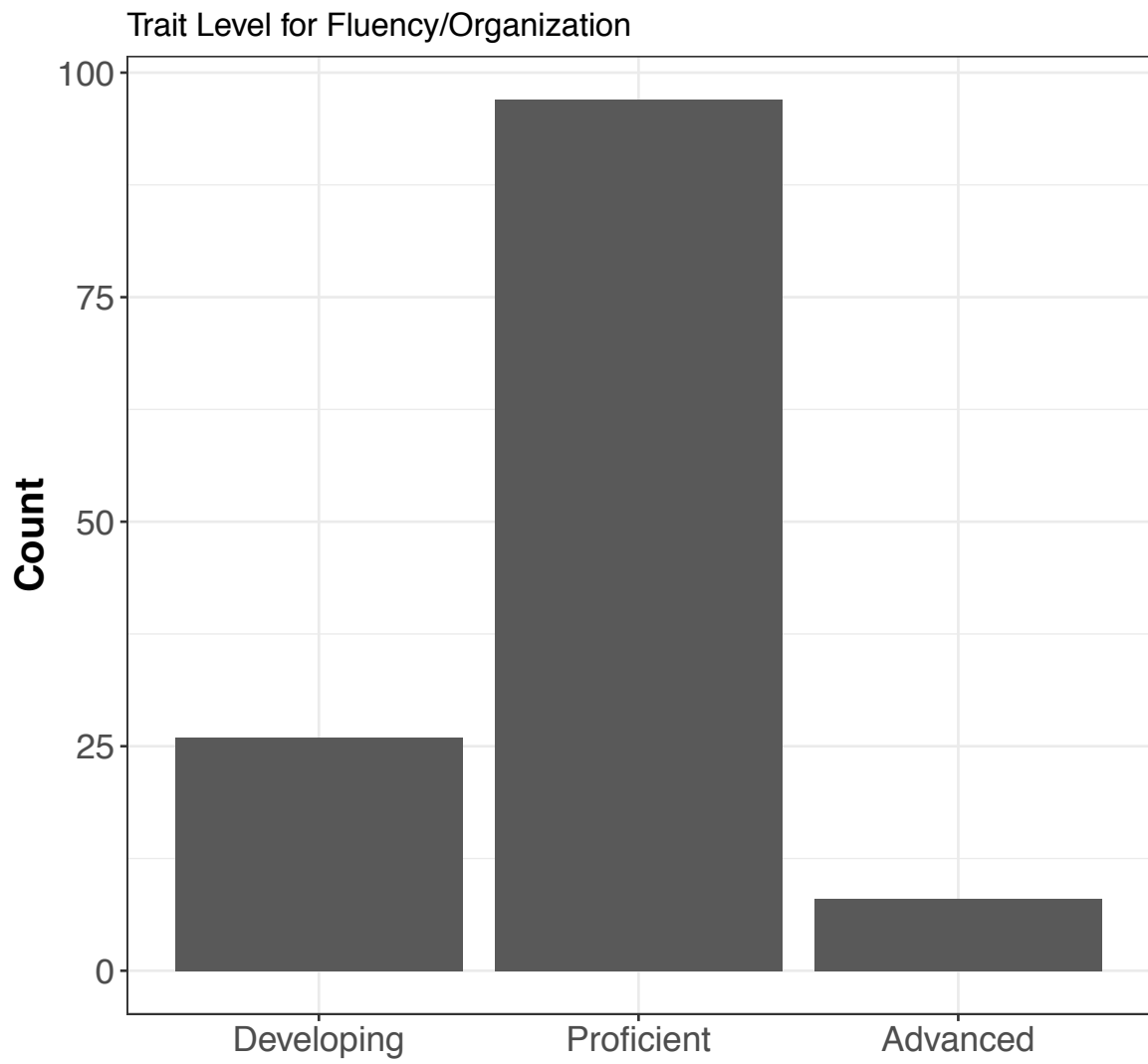
Intermittent Filler (IF) Writing Times
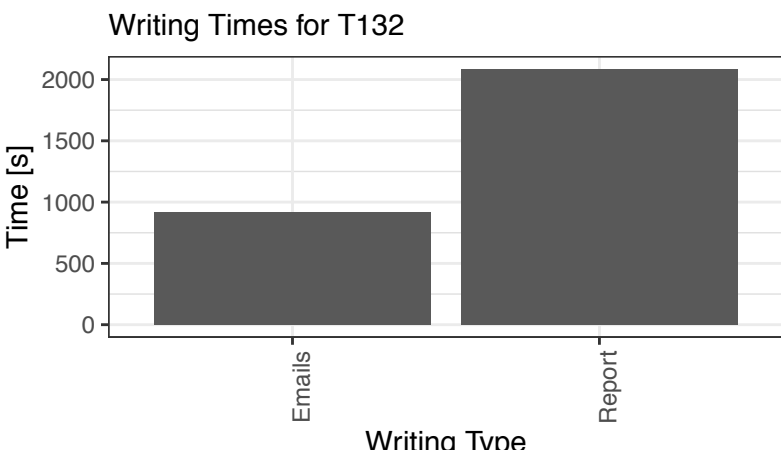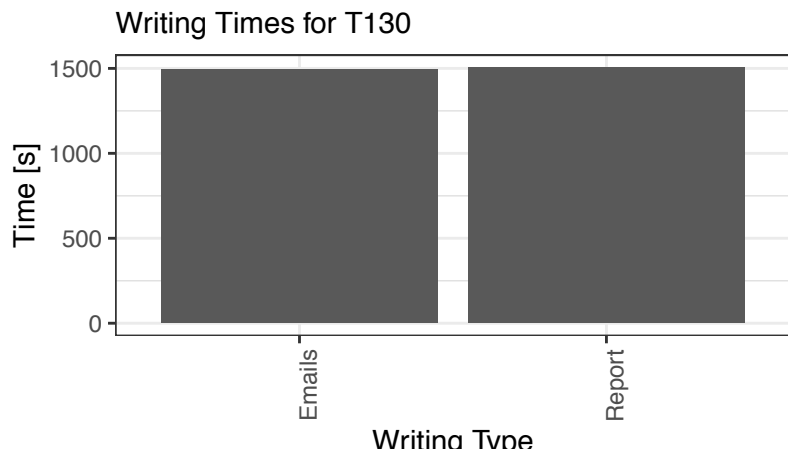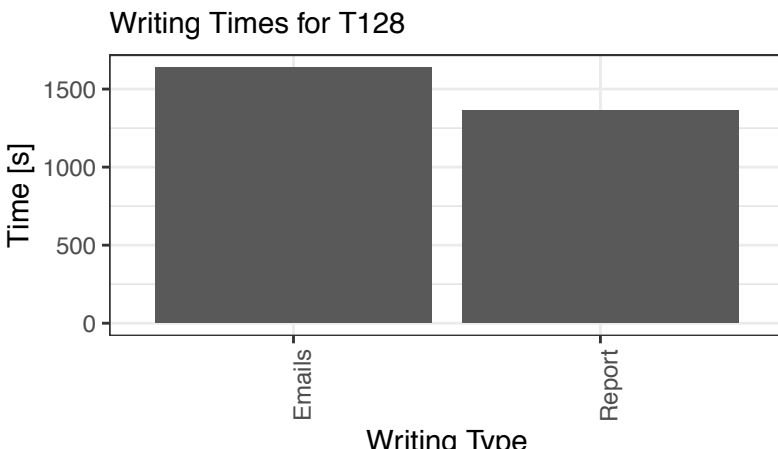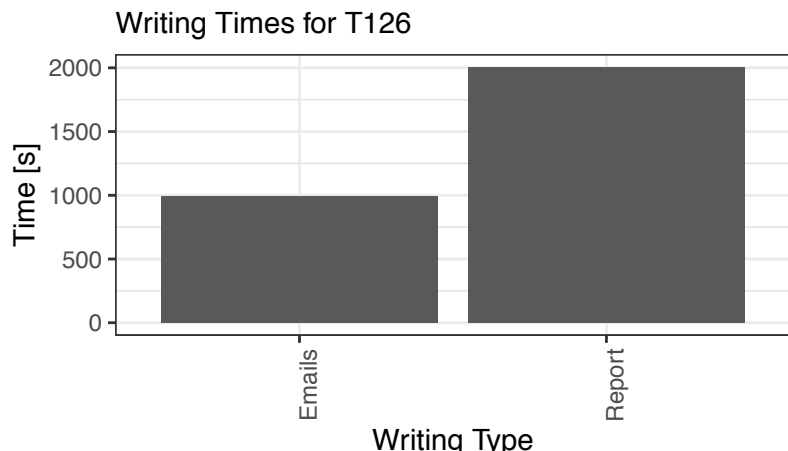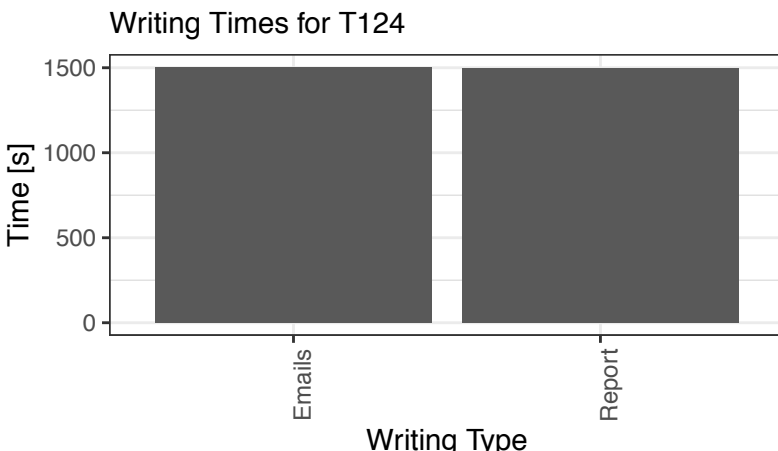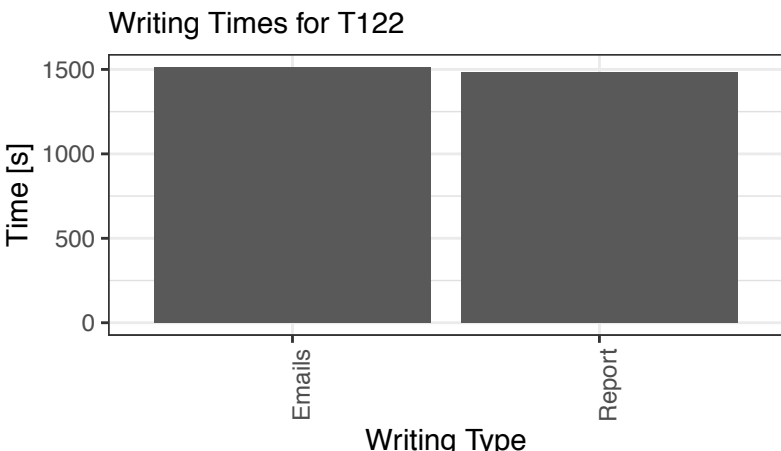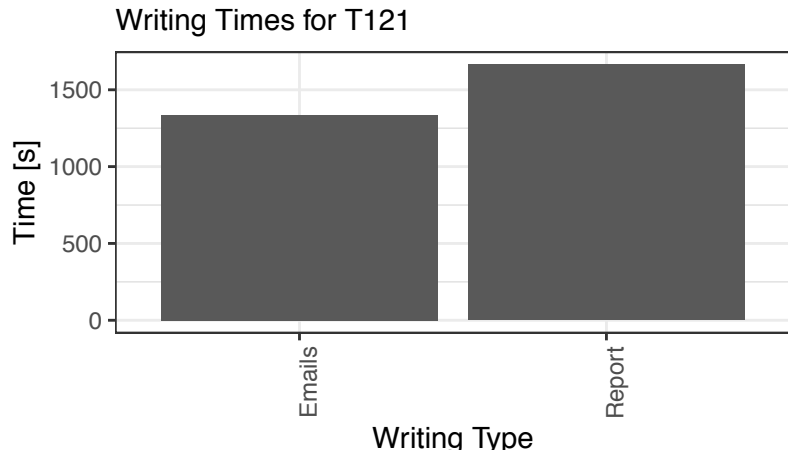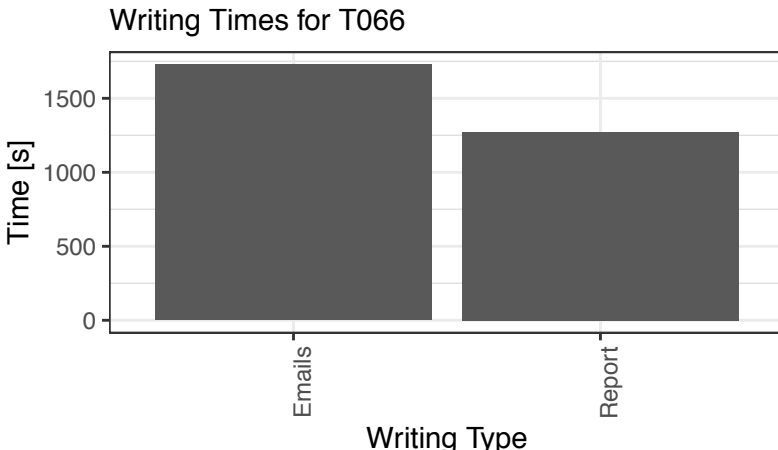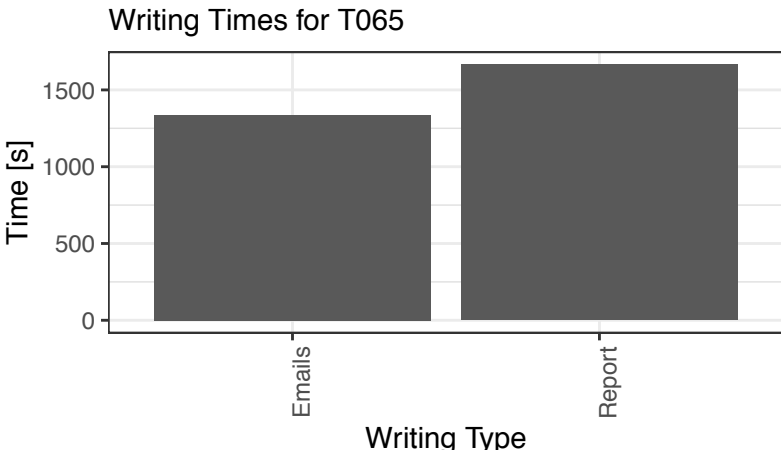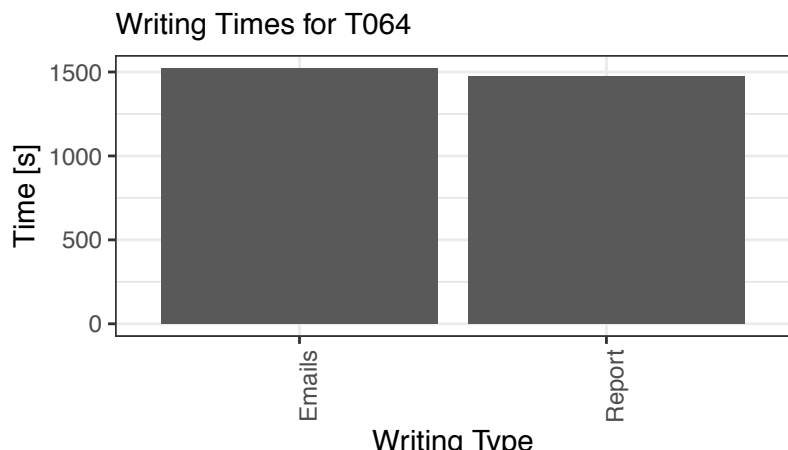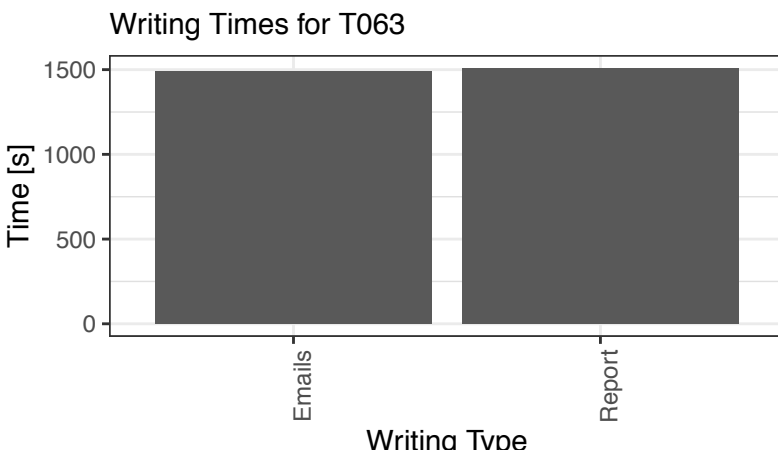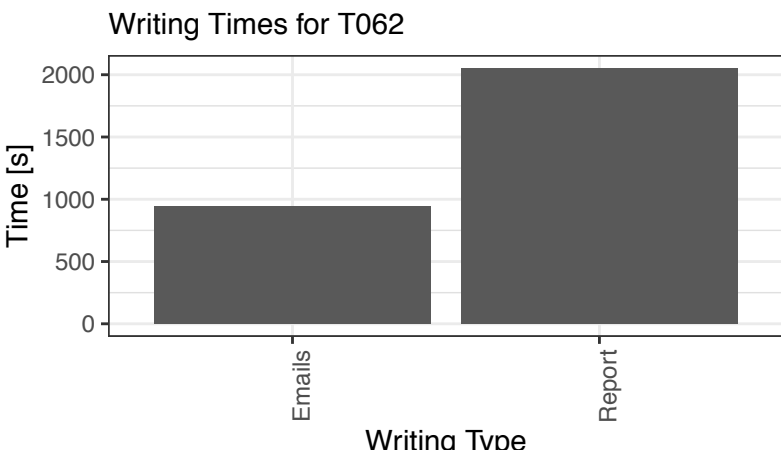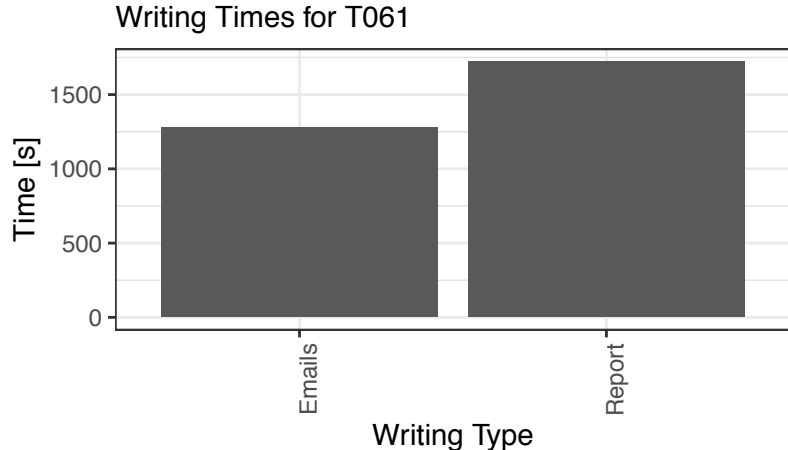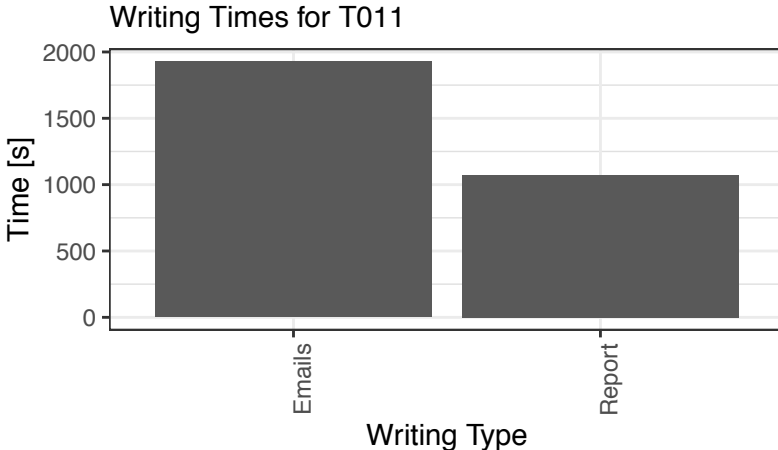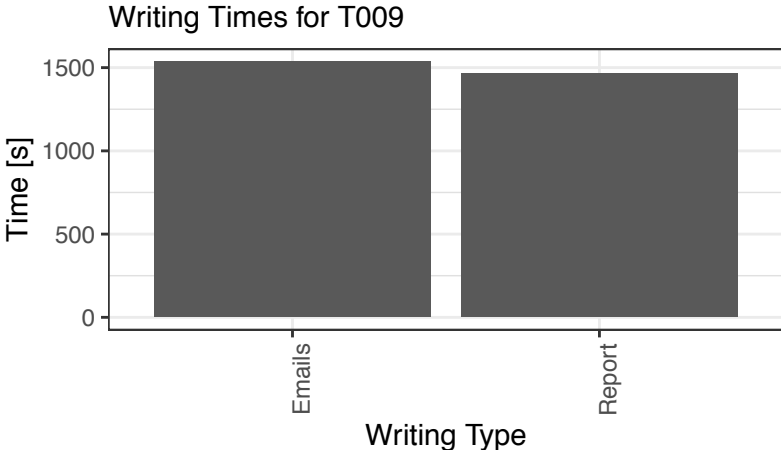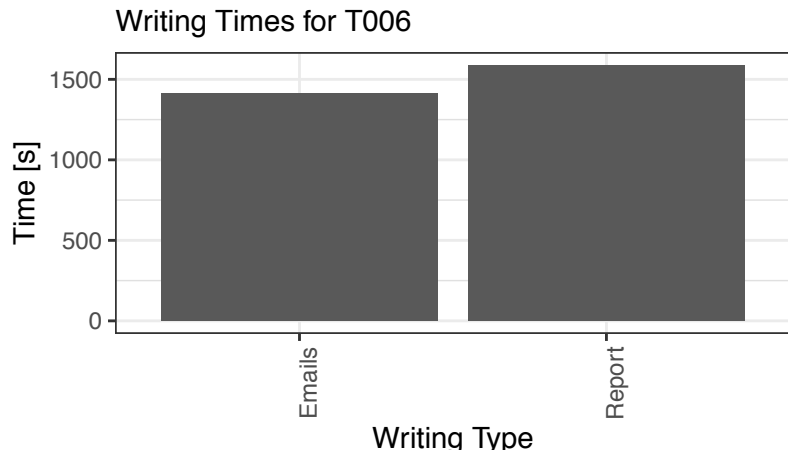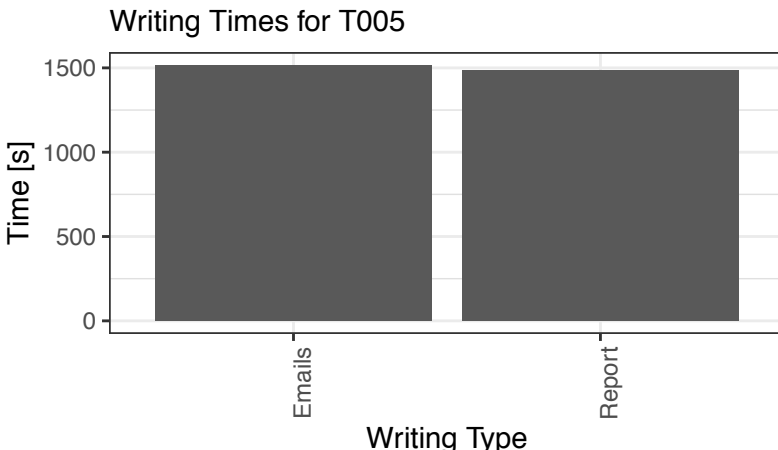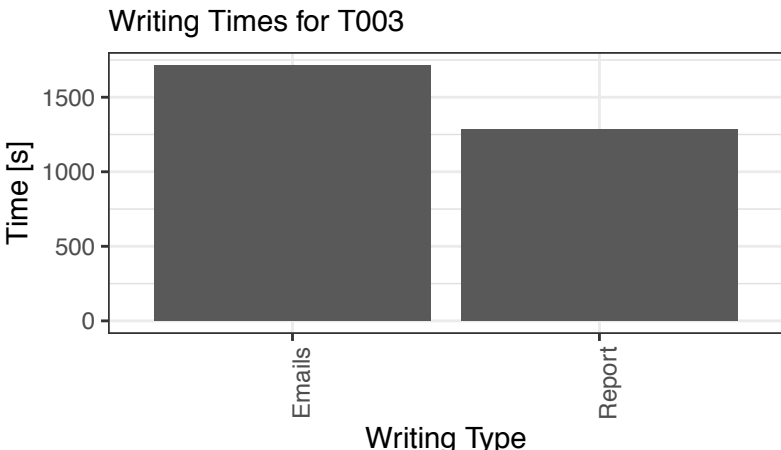
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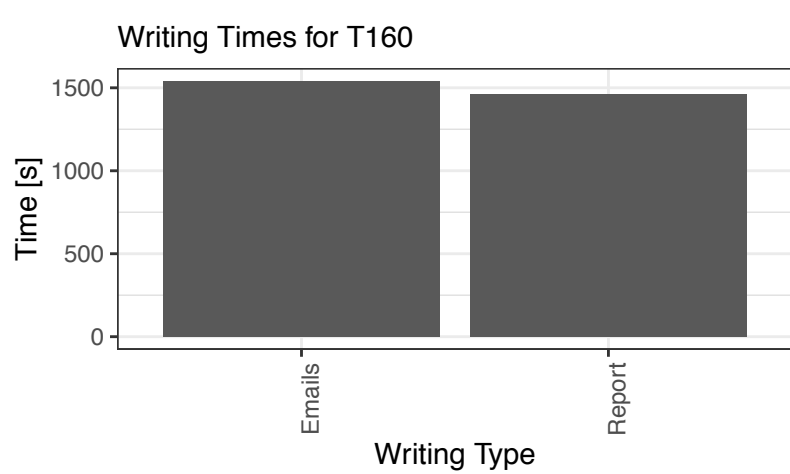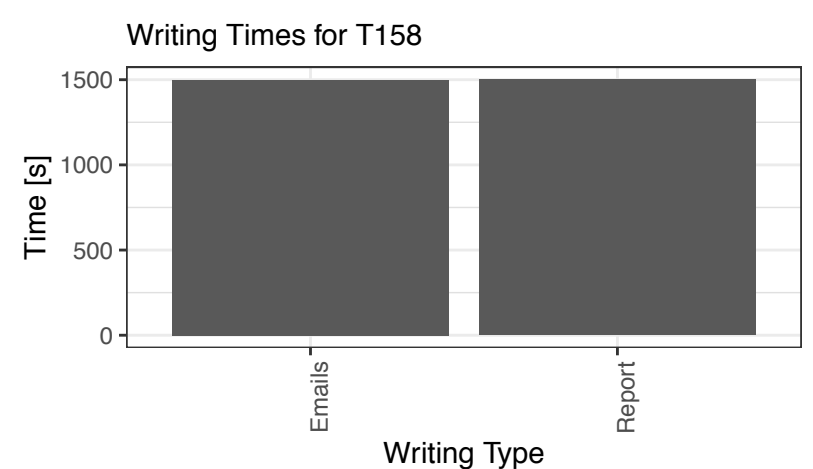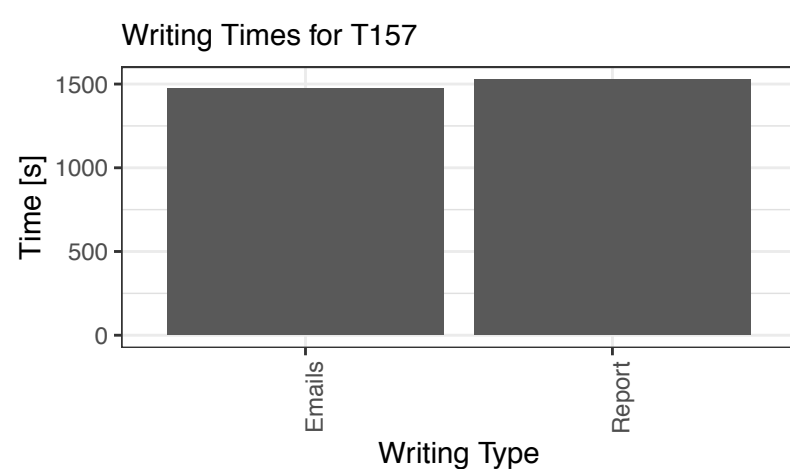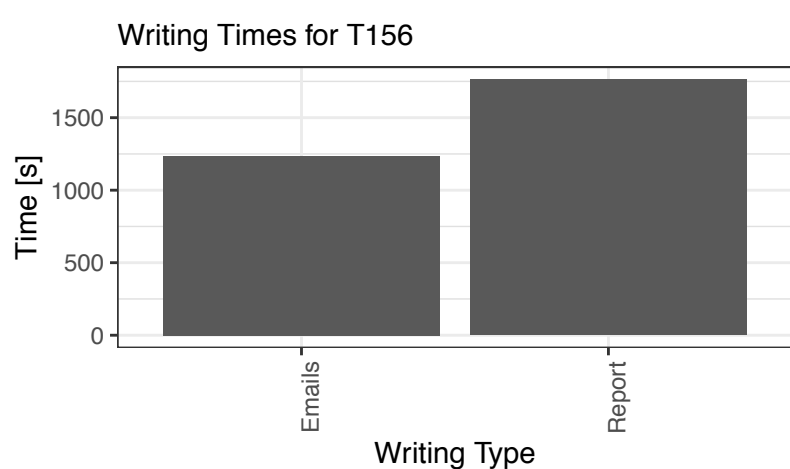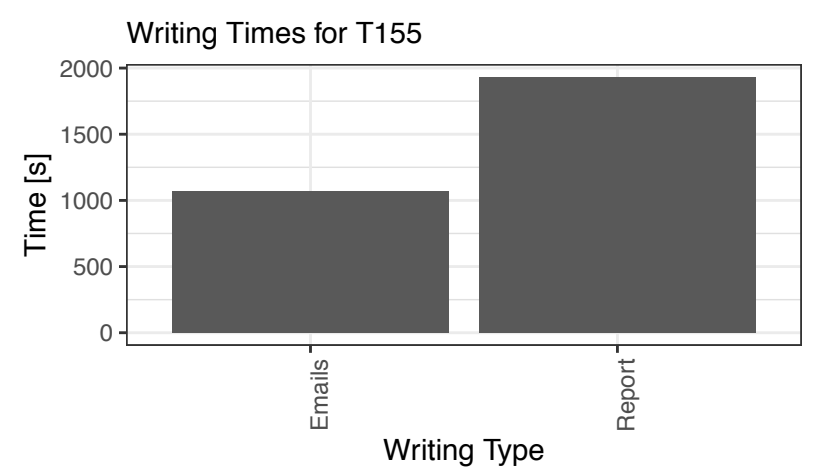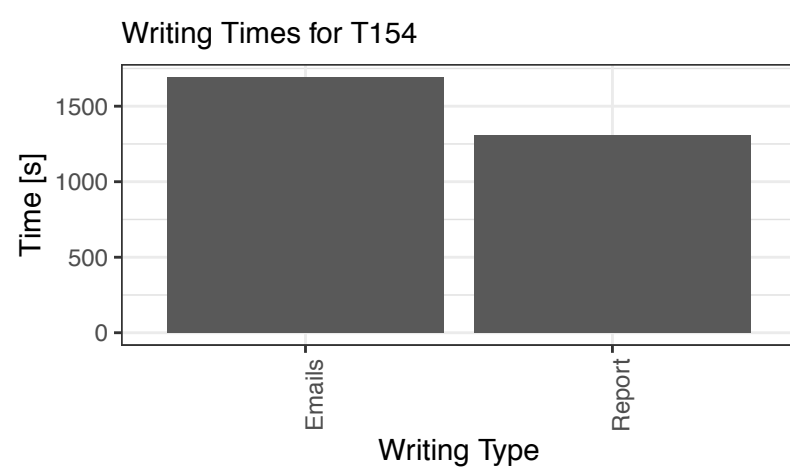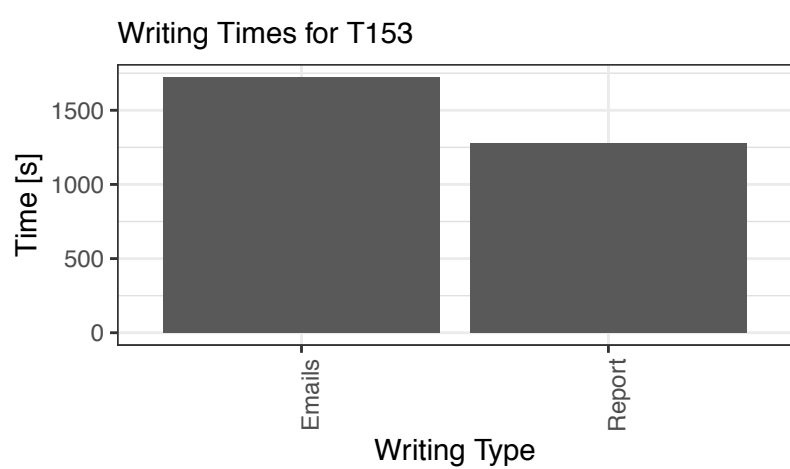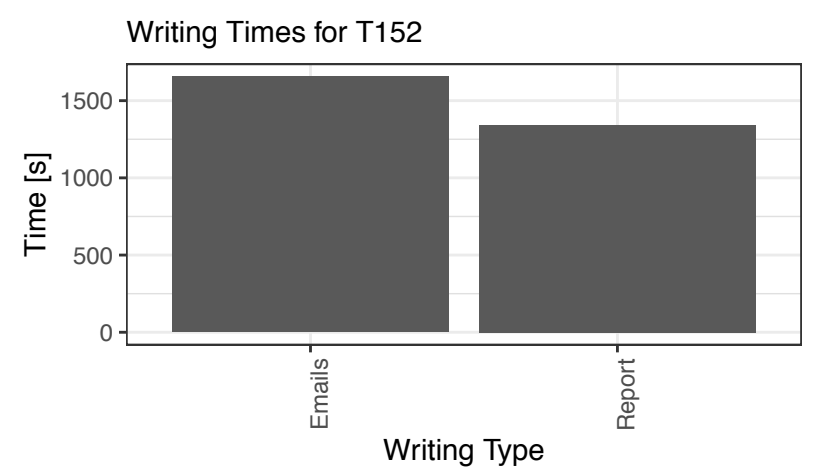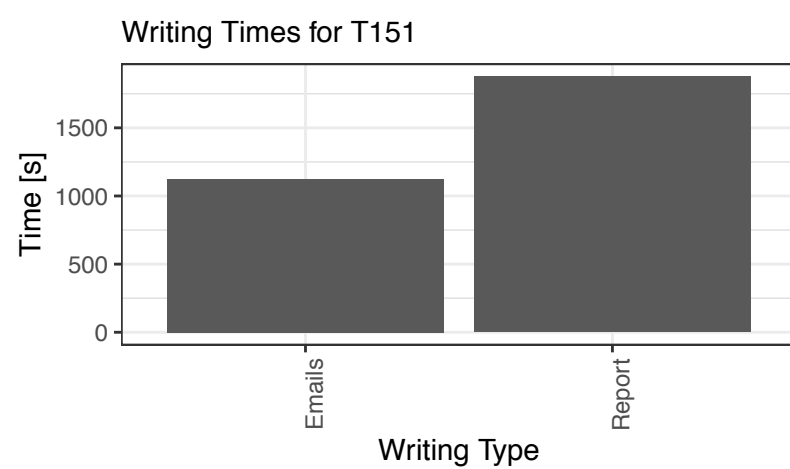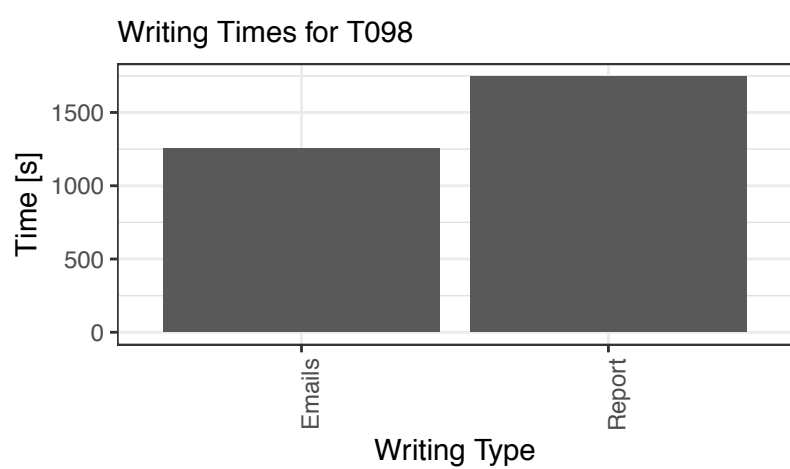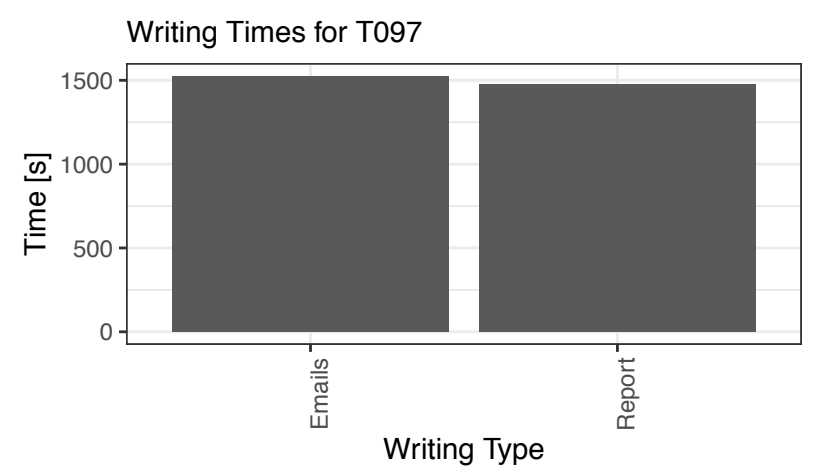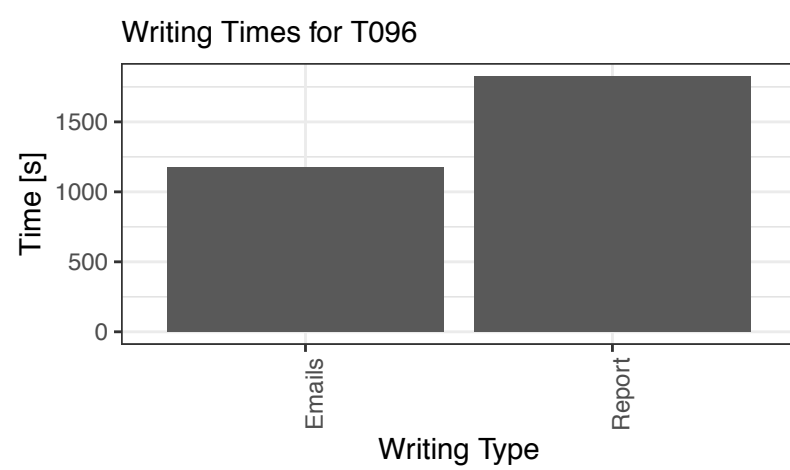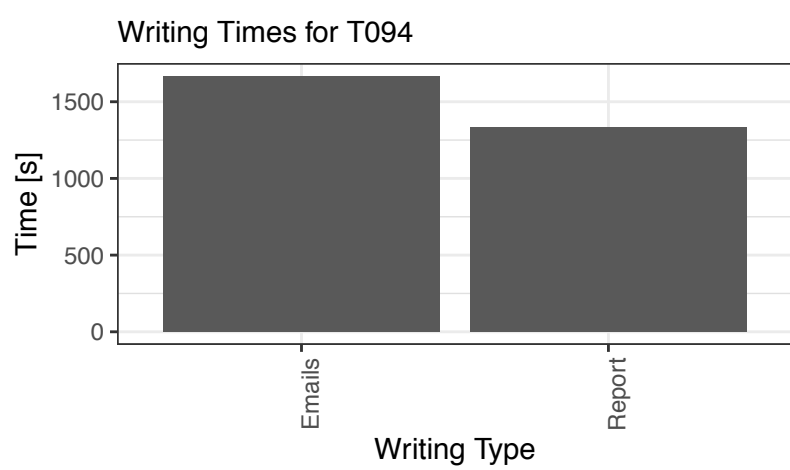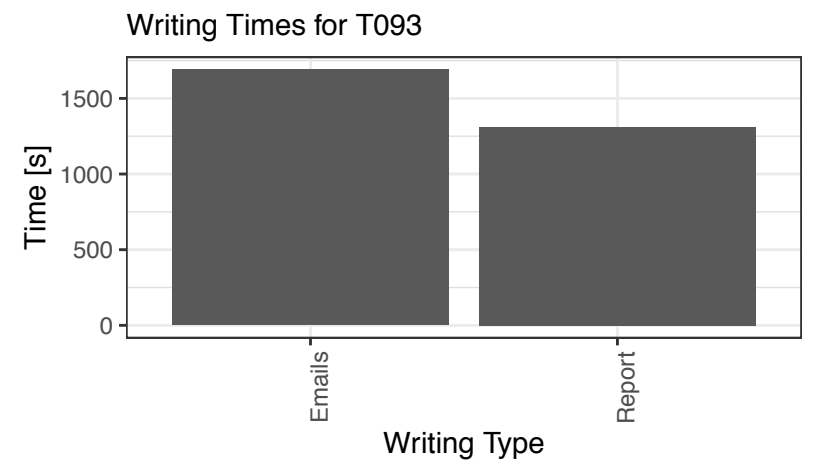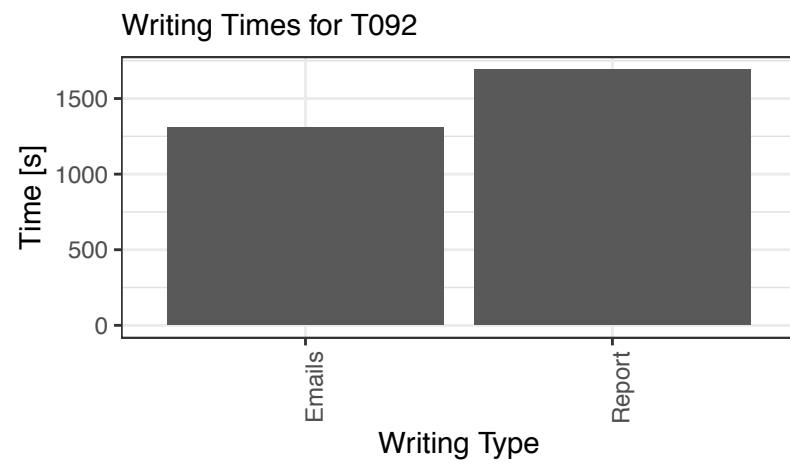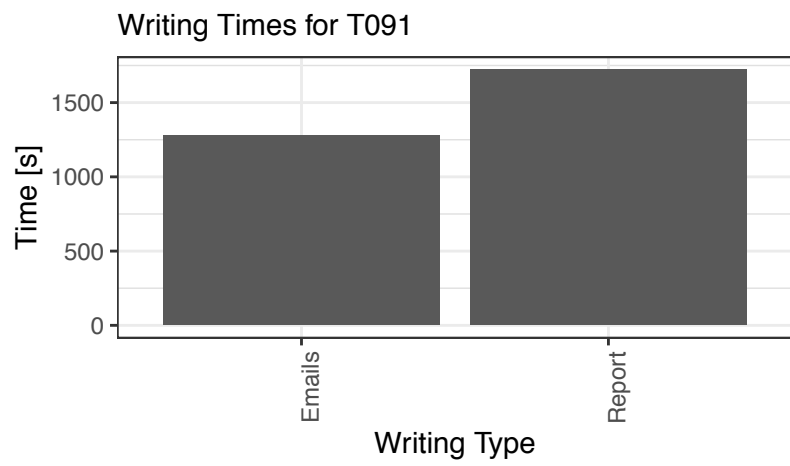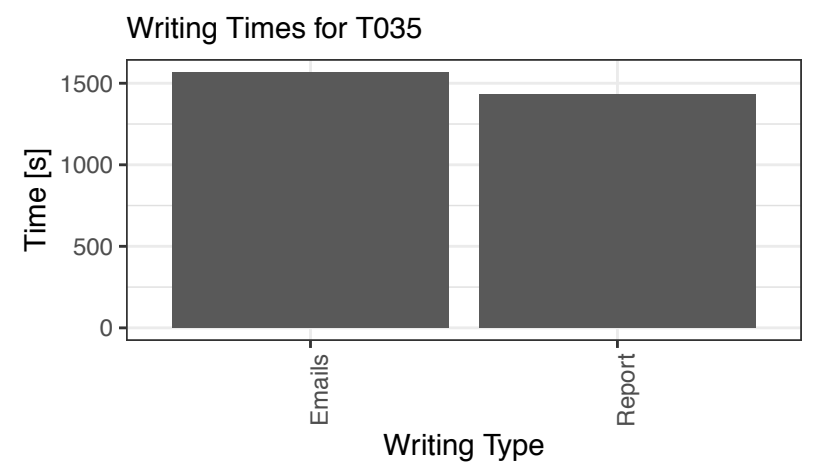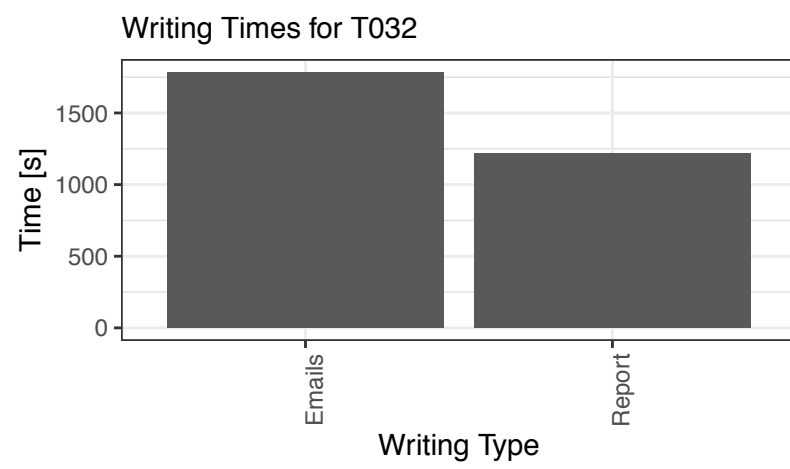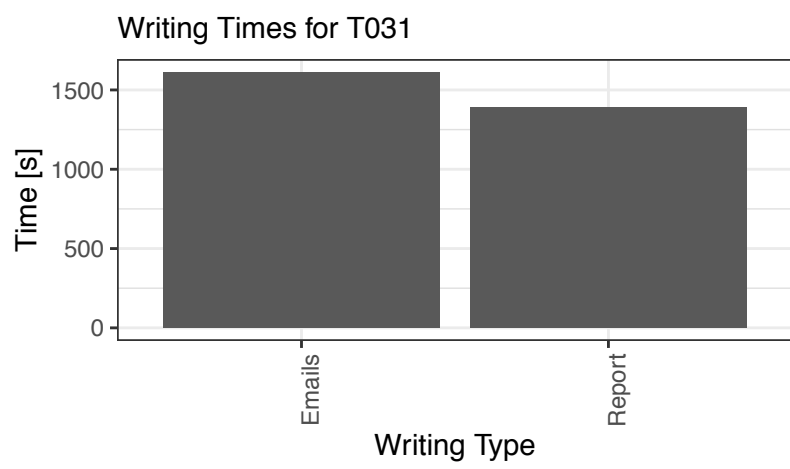
Batch Filler (BF) Writing Times
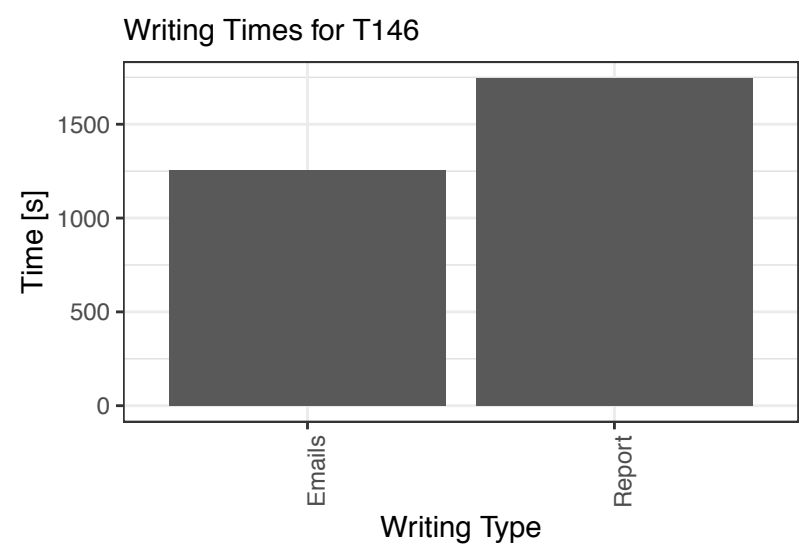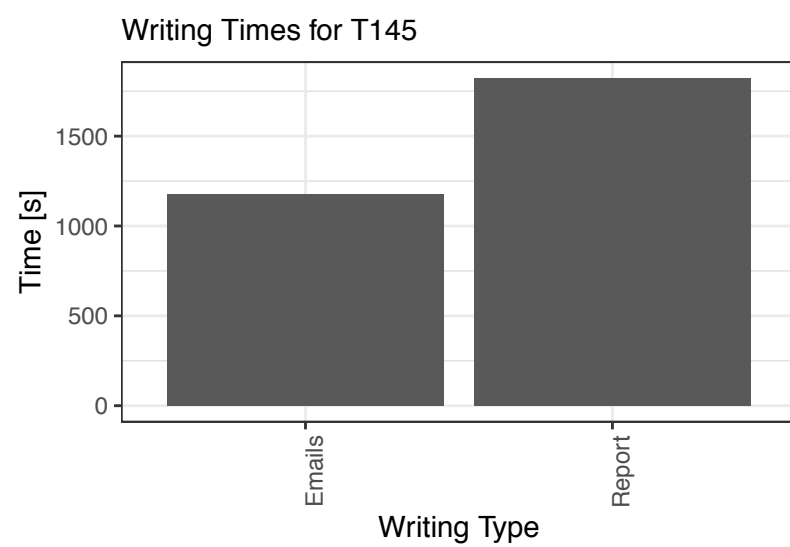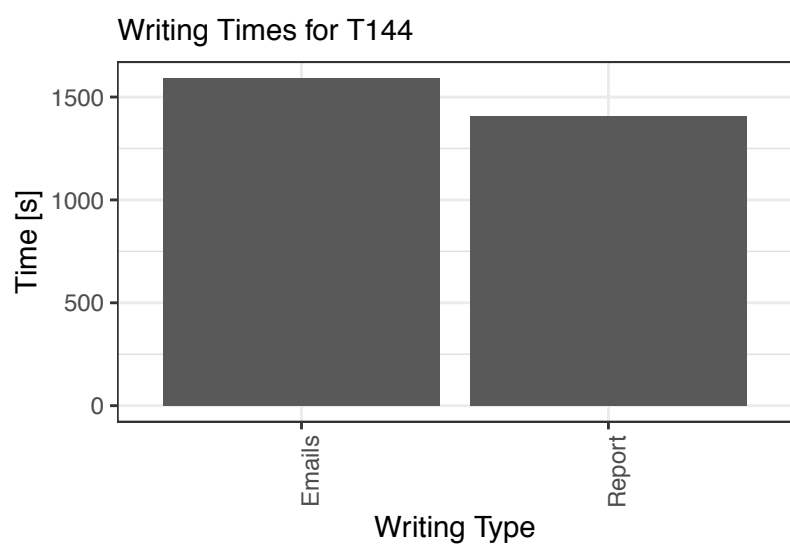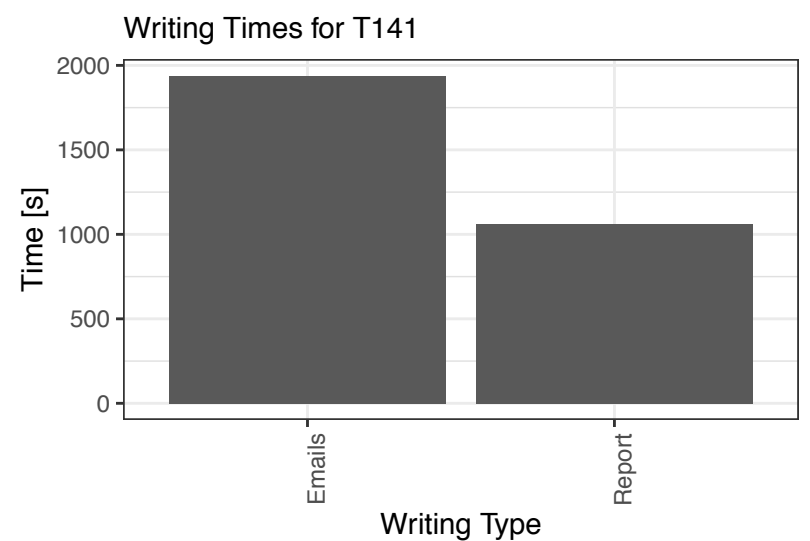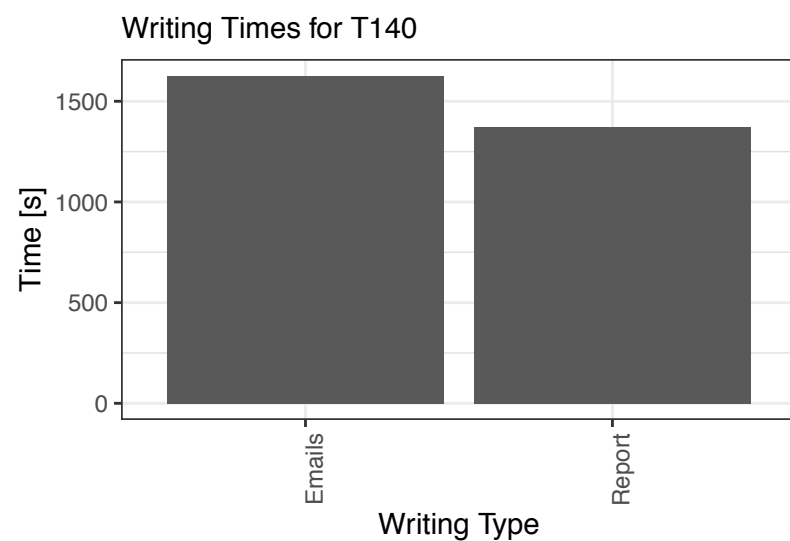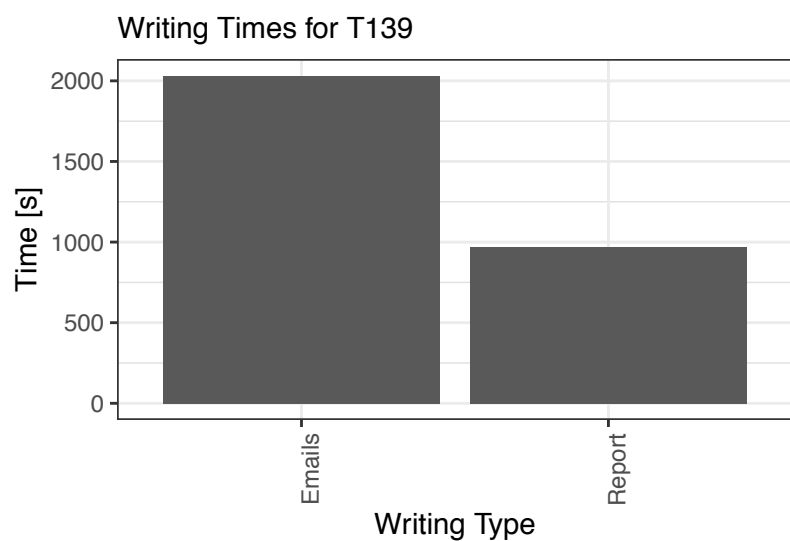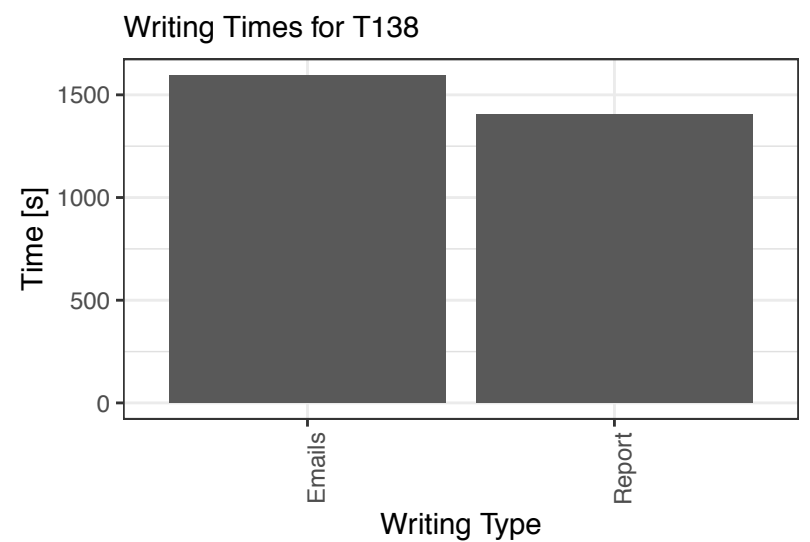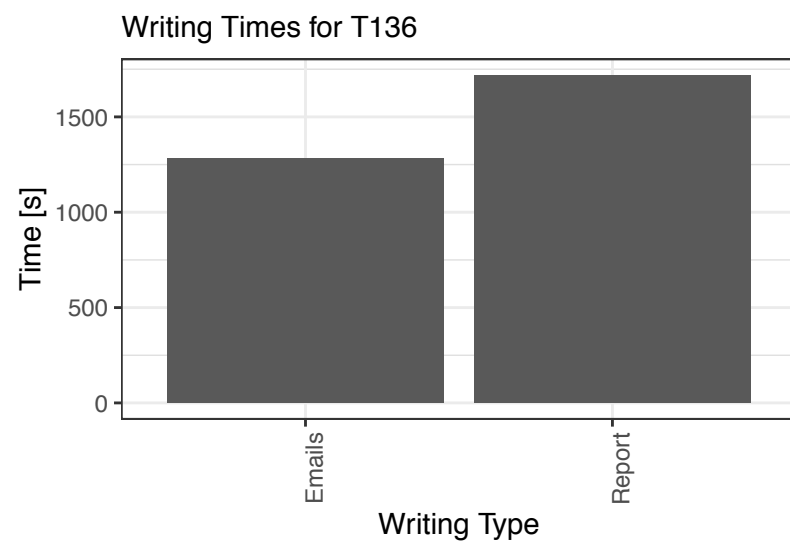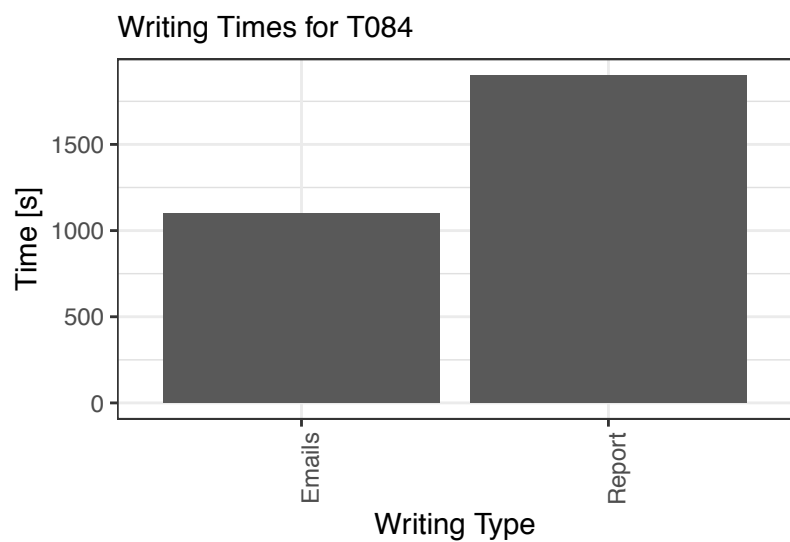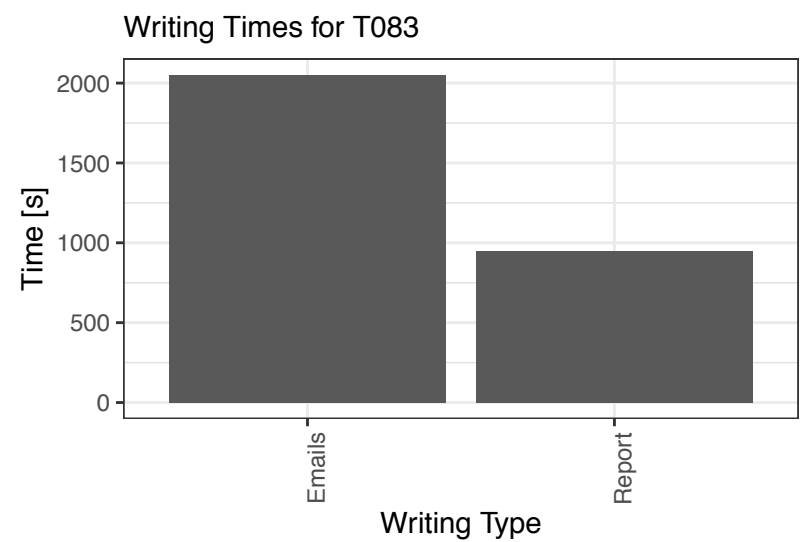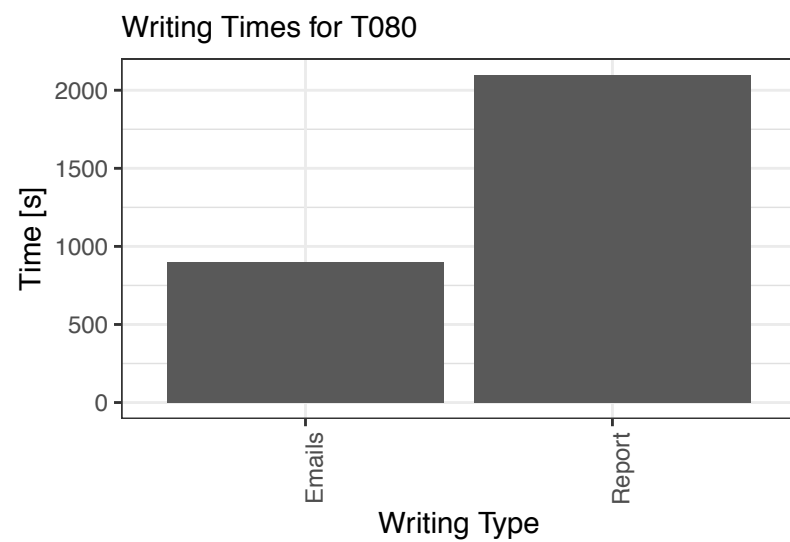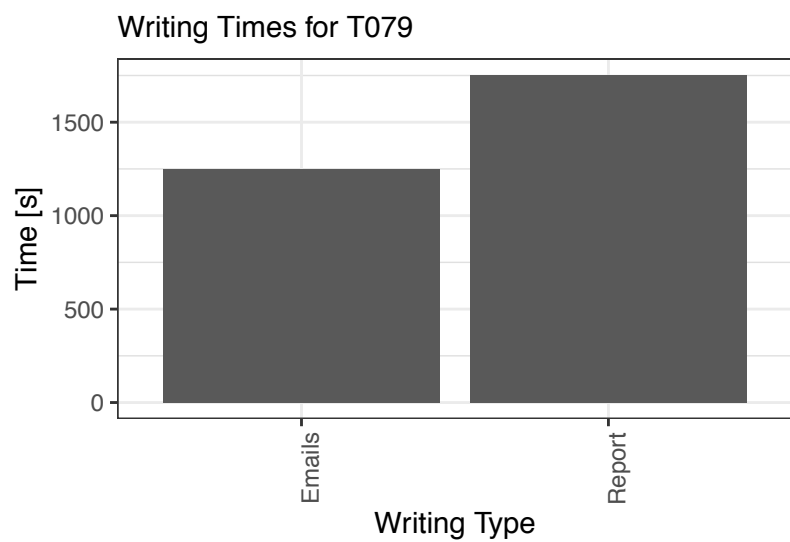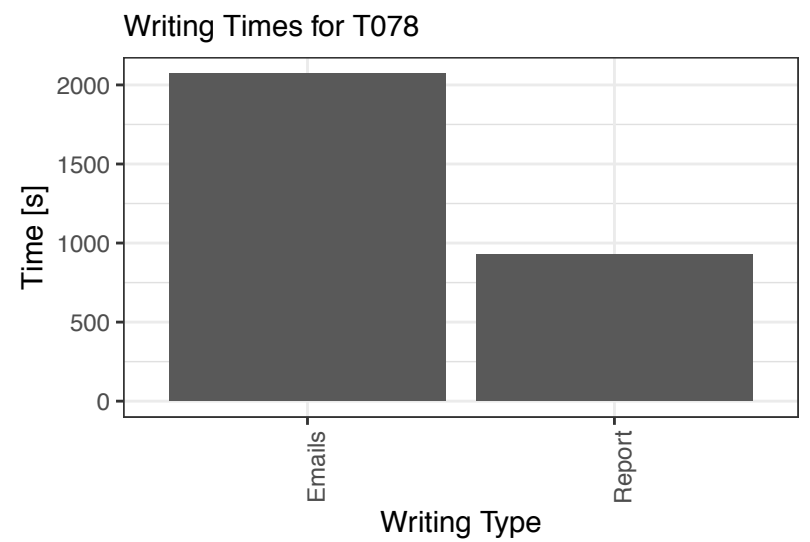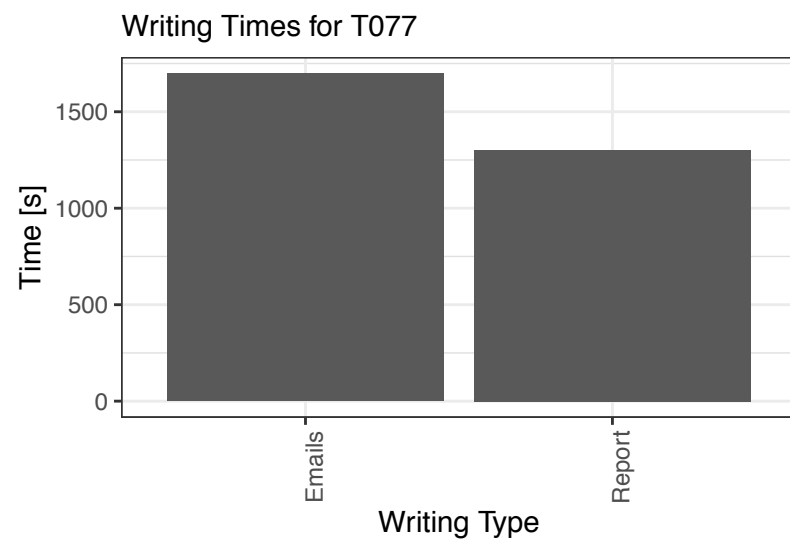
Batch Nothing (BN) Writing Times