Analysis of Available Data

Load the corpora

```
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
## v dplyr     1.1.4     v readr     2.1.5
## v forcats   1.0.0     v stringr   1.5.1
## v ggplot2   3.5.1     v tibble    3.2.1
## v lubridate 1.9.3     v tidyr     1.3.1
## v purrr     1.0.2
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
library(tidymodels)
```

```
## -- Attaching packages --------------------------------------- tidymodels 1.2.0 --
## v broom        1.0.5     v rsample      1.2.1
## v dials        1.3.0     v tune         1.2.1
## v infer        1.0.7     v workflows    1.1.4
## v modeldata    1.4.0     v workflowsets 1.1.0
## v parsnip      1.2.1     v yardstick    1.3.2
## v recipes      1.1.0
## -- Conflicts ------------------------------------------ tidymodels_conflicts() --
## x scales::discard() masks purrr::discard()
## x dplyr::filter()   masks stats::filter()
## x recipes::fixed()  masks stringr::fixed()
## x dplyr::lag()      masks stats::lag()
## x yardstick::spec() masks readr::spec()
## x recipes::step()   masks stats::step()
## * Search for functions across packages at https://www.tidymodels.org/find/
```

```
library(jsonlite)
```

```
##
## Attaching package: 'jsonlite'
##
## The following object is masked from 'package:purrr':
##
##     flatten
```

```
set.seed(42)

load_kuk_subcorpus_metadata <- function(crp) {
  read_tsv(paste(c(
    "../corpora/KUK_1.0/metadata/", crp, "_DocumentFileFormat.tsv"
  ), collapse = "")) %>%
```

```
    filter(FileFormat == "TXT") %>%
    full_join(
      read_tsv(paste(c(
        "../corpora/KUK_1.0/metadata/",
        crp,
        "_DocumentIdentificationGenreProperties.tsv"
      ), collapse = "")),
      by = "KUK_ID"
    ) %>%
    mutate(across(where(is.numeric), as.character)) %>%
    mutate(subcorpus = crp) %>%
    select(KUK_ID, FileName, FileFormat, FolderPath, subcorpus, everything())
}

kuky_orig <- fromJSON("../corpora/KUKY/argumentative.json")$documents %>%
  as_tibble() %>%
  bind_rows(
    fromJSON("../corpora/KUKY/normative.json")$documents %>% as_tibble()
  ) %>%
  rename(KUK_ID = doc_id) %>%
  select(!c(plainText, doc_name)) %>%
  select(KUK_ID, everything())

kuky_kuk <- load_kuk_subcorpus_metadata("KUKY") %>%
  filter(FolderPath == "data/KUKY/TXT")
```

```
## Rows: 448 Columns: 4
## -- Column specification --------------------------------------------------------
## Delimiter: "\t"
## chr (4): KUK_ID, FileName, FileFormat, FolderPath
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
## Rows: 224 Columns: 12
## -- Column specification --------------------------------------------------------
## Delimiter: "\t"
## chr (8): KUK_ID, SourceDB, Anonymized, RecipientType, RecipientIndividuation...
## lgl (4): SourceID, DocumentTitle, ClarityPursuit, Bindingness
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
kuky <- kuky_kuk %>% full_join(kuky_orig, by = "KUK_ID")
czcdc <- load_kuk_subcorpus_metadata("CzCDC")
```

```
## Rows: 237723 Columns: 4
## -- Column specification --------------------------------------------------------
## Delimiter: "\t"
## chr (4): KUK_ID, FileName, FileFormat, FolderPath
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
## Rows: 237723 Columns: 12
## -- Column specification --------------------------------------------------------
```

```
## Delimiter: "\t"
## chr (10): KUK_ID, SourceDB, SourceID, DocumentTitle, Anonymized, RecipientTy...
## lgl  (2): ClarityPursuit, Bindingness
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
eso <- load_kuk_subcorpus_metadata("ESO")
```

```
## Rows: 11230 Columns: 4
## -- Column specification --------------------------------------------------------
## Delimiter: "\t"
## chr (3): KUK_ID, FileFormat, FolderPath
## dbl (1): FileName
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
## Rows: 5615 Columns: 12
## -- Column specification --------------------------------------------------------
## Delimiter: "\t"
## chr (10): KUK_ID, SourceDB, SourceID, DocumentTitle, Anonymized, RecipientTy...
## lgl  (2): ClarityPursuit, Bindingness
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
frbo <- load_kuk_subcorpus_metadata("FrBo")
```

```
## Rows: 638 Columns: 4
## -- Column specification --------------------------------------------------------
## Delimiter: "\t"
## chr (4): KUK_ID, FileName, FileFormat, FolderPath
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
## Rows: 319 Columns: 12
## -- Column specification --------------------------------------------------------
## Delimiter: "\t"
## chr (10): KUK_ID, SourceDB, SourceID, DocumentTitle, Anonymized, RecipientTy...
## lgl  (2): ClarityPursuit, Bindingness
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
lifrlaw <- load_kuk_subcorpus_metadata("LiFRLaw")
```

```
## Rows: 36 Columns: 4
## -- Column specification --------------------------------------------------------
## Delimiter: "\t"
## chr (4): KUK_ID, FileName, FileFormat, FolderPath
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
## Rows: 18 Columns: 11
## -- Column specification --------------------------------------------------------
## Delimiter: "\t"
```

```
## chr (9): KUK_ID, SourceDB, SourceID, DocumentTitle, Anonymized, Recipient Ty...
## lgl (2): ClarityPursuit, Bindingness
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
ombuflyers <- load_kuk_subcorpus_metadata("OmbuFlyers")
```

```
## Rows: 234 Columns: 4
## -- Column specification --------------------------------------------------------
## Delimiter: "\t"
## chr (4): KUK_ID, FileName, FileFormat, FolderPath
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
## Rows: 117 Columns: 12
## -- Column specification --------------------------------------------------------
## Delimiter: "\t"
## chr (8): KUK_ID, DocumentTitle, Anonymized, RecipientType, RecipientIndividu...
## lgl (4): SourceDB, SourceID, ClarityPursuit, Bindingness
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
df <- bind_rows(kuky, czcdc) %>%
  bind_rows(eso) %>%
  bind_rows(frbo) %>%
  bind_rows(lifrlaw) %>%
  bind_rows(ombuflyers)

str(df)
```

```
## tibble [244,016 x 35] (S3: tbl_df/tbl/data.frame)
##  $ KUK_ID                   : chr [1:244016] "671918e2c6537d54ff0626db" "671918e2c6537d54ff0626dc" "67
##  $ FileName                 : chr [1:244016] "orig_Certifikáty autorizovaných inspektorů" "red_Co je
##  $ FileFormat               : chr [1:244016] "TXT" "TXT" "TXT" "TXT" ...
##  $ FolderPath               : chr [1:244016] "data/KUKY/TXT" "data/KUKY/TXT" "data/KUKY/TXT" "data/KU
##  $ subcorpus                : chr [1:244016] "KUKY" "KUKY" "KUKY" "KUKY" ...
##  $ SourceDB                 : chr [1:244016] "SourceDB" "SourceDB" "SourceDB" "SourceDB" ...
##  $ SourceID                 : chr [1:244016] NA NA NA NA ...
##  $ DocumentTitle            : chr [1:244016] NA NA NA NA ...
##  $ ClarityPursuit           : logi [1:244016] NA NA NA NA NA NA ...
##  $ Anonymized.x             : chr [1:244016] "No" "No" "No" "No" ...
##  $ RecipientType.x          : chr [1:244016] "natural person" "natural person" "natural person" "natu
##  $ RecipientIndividuation.x: chr [1:244016] "public" "public" "public" "public" ...
##  $ AuthorType.x             : chr [1:244016] "individual" "individual" "individual" "authority" ...
##  $ Objectivity.x            : chr [1:244016] "quasiobjective" "quasiobjective" "quasiobjective" "quas
##  $ LegalActType.x           : chr [1:244016] "normative" "normative" "normative" "normative" ...
##  $ Bindingness.x            : logi [1:244016] FALSE FALSE FALSE FALSE FALSE FALSE ...
##  $ Readability              : chr [1:244016] "low" "high" "low" "low" ...
##  $ SyllogismBased           : chr [1:244016] "false" "false" "false" "false" ...
##  $ DocumentVersion          : chr [1:244016] "Original" "Redesign" "Original" "Original" ...
##  $ ParentDocumentID         : chr [1:244016] NA NA NA NA ...
##  $ LegalActType.y           : chr [1:244016] "normative" "normative" "normative" "normative" ...
##  $ Objectivity.y            : chr [1:244016] "quasiobjective" "quasiobjective" "quasiobjective" "quas
```

```
##  $ Bindingness.y           : logi [1:244016] FALSE FALSE FALSE FALSE FALSE FALSE ...
##  $ AuthorType.y            : chr [1:244016] "individual" "individual" "individual" "authority" ...
##  $ RecipientType.y         : chr [1:244016] "natural person" "natural person" "natural person" "natu
##  $ RecipientIndividuation.y: chr [1:244016] "public" "public" "public" "public" ...
##  $ Anonymized.y            : chr [1:244016] "No" "No" "No" "No" ...
##  $ Anonymized              : chr [1:244016] NA NA NA NA ...
##  $ RecipientType           : chr [1:244016] NA NA NA NA ...
##  $ RecipientIndividuation  : chr [1:244016] NA NA NA NA ...
##  $ AuthorType              : chr [1:244016] NA NA NA NA ...
##  $ Objectivity             : chr [1:244016] NA NA NA NA ...
##  $ LegalActType            : chr [1:244016] NA NA NA NA ...
##  $ Bindingness             : logi [1:244016] NA NA NA NA NA NA ...
##  $ Recipient Type          : chr [1:244016] NA NA NA NA ...
```

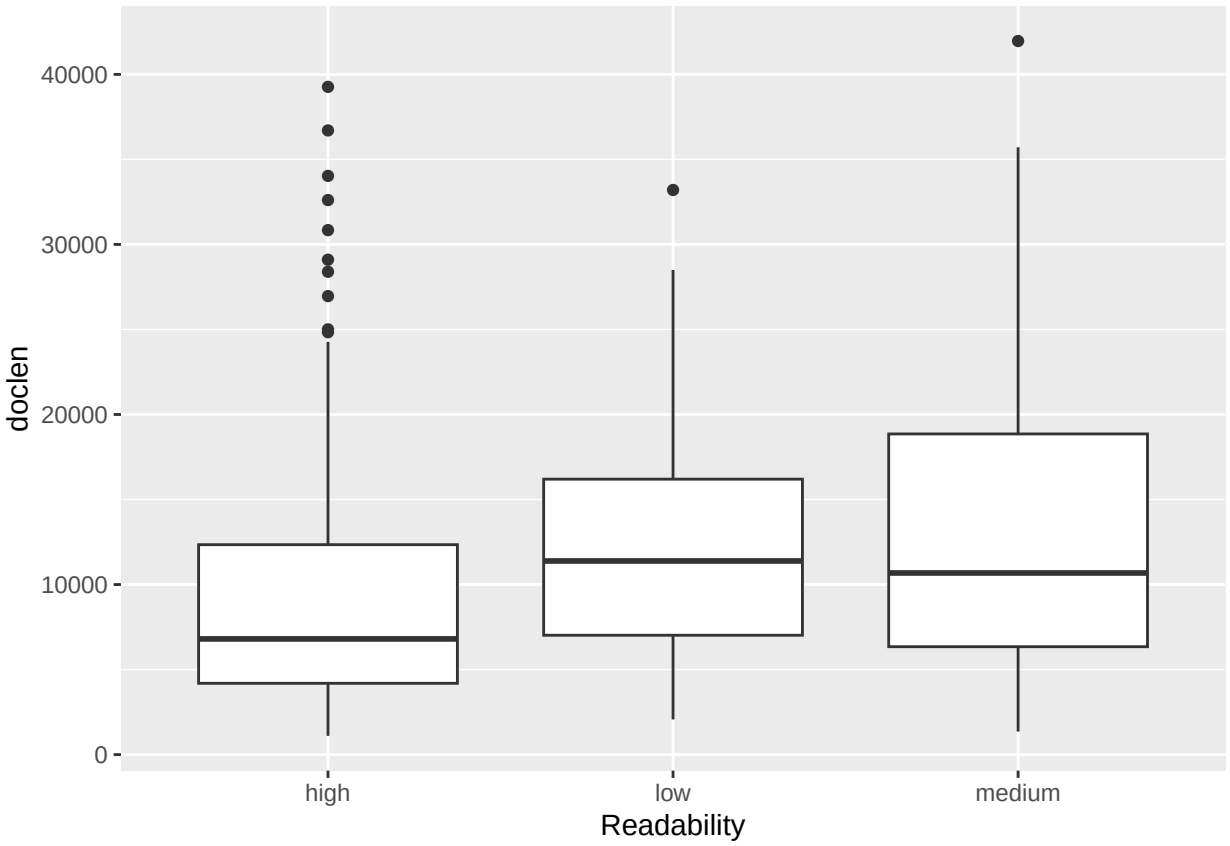
Properties of KUKY

```
kuky_properties_df <- fromJSON(
  "../corpora/KUKY/argumentative.json"
)$documents %>%
  as_tibble() %>%
  bind_rows(
    fromJSON("../corpora/KUKY/normative.json")$documents %>% as_tibble()
  ) %>%
  rename(KUK_ID = doc_id) %>%
  mutate(doclen = str_length(plainText))

print(kuky_properties_df %>% group_by(Readability) %>% count())
```

```
## # A tibble: 3 x 2
## # Groups:   Readability [3]
##   Readability     n
##   <chr>       <int>
## 1 high          125
## 2 low            38
## 3 medium         61
```

```
kuky_properties_df %>% ggplot(aes(x = Readability, y = doclen)) +
  geom_boxplot()
```



Quick peek into other parts of the data set:

Subcorpus	Low # of chars	High # of chars
CzCDC/ConCo	2.000	18.000
CzCDC/SupAdmCo	3.000	30.000
CzCDC/SupCo	3.000	10.000
ESO	7.000	40.000
FrBo/articles	4.000	15.000

Filter out duplicates

Some subcorpora overlap (*FrBo* with *ESO*, and multiple subcorpora with *KUKY*).

The usage of documents with ClarityPursuit == NA is questionable, let's exclude such documents. This effectively comes with a price of excluding the whole *ESO* subcorpus.

The usage of documents with ClarityPursuit == TRUE is also questionable as they're not reviewed in the same manner as the documents from KUKY, yet at the same time they are less likely to be as "unreadable" as the documents with ClarityPursuit == FALSE. Such documents could very well be readable, interfering with the training process. This effectively comes with a price of excluding the whole *FrBo/analyses* subcorpus.

After filtering ClarityPursuit == NA out, the only remaining overlaps are with *KUKY*. Let's keep the documents from *KUKY* as they are associated with a more careful readability evaluation.

```
df %>%
  group_by(FileName) %>%
  mutate(n = n()) %>%
```

```
  filter(n > 1) %>%
  select(FileName, subcorpus, Readability, ClarityPursuit) %>%
  arrange(FileName) %>%
  print(n = 80)
```

```
## # A tibble: 80 x 4
## # Groups:   FileName [40]
##    FileName                                subcorpus Readability ClarityPursuit
##    <chr>                                   <chr>     <chr>       <lgl>
##  1 100                                     ESO       <NA>        NA
##  2 100                                     FrBo      <NA>        TRUE
##  3 102                                     ESO       <NA>        NA
##  4 102                                     FrBo      <NA>        TRUE
##  5 110                                     ESO       <NA>        NA
##  6 110                                     FrBo      <NA>        TRUE
##  7 14                                      ESO       <NA>        NA
##  8 14                                      FrBo      <NA>        TRUE
##  9 142                                     ESO       <NA>        NA
## 10 142                                     FrBo      <NA>        TRUE
## 11 148                                     ESO       <NA>        NA
## 12 148                                     FrBo      <NA>        TRUE
## 13 152                                     ESO       <NA>        NA
## 14 152                                     FrBo      <NA>        TRUE
## 15 154                                     ESO       <NA>        NA
## 16 154                                     FrBo      <NA>        TRUE
## 17 156                                     ESO       <NA>        NA
## 18 156                                     FrBo      <NA>        TRUE
## 19 158                                     ESO       <NA>        NA
## 20 158                                     FrBo      <NA>        TRUE
## 21 16                                      ESO       <NA>        NA
## 22 16                                      FrBo      <NA>        TRUE
## 23 170                                     ESO       <NA>        NA
## 24 170                                     FrBo      <NA>        TRUE
## 25 176                                     ESO       <NA>        NA
## 26 176                                     FrBo      <NA>        TRUE
## 27 18                                      ESO       <NA>        NA
## 28 18                                      FrBo      <NA>        TRUE
## 29 190                                     ESO       <NA>        NA
## 30 190                                     FrBo      <NA>        TRUE
## 31 200                                     ESO       <NA>        NA
## 32 200                                     FrBo      <NA>        TRUE
## 33 202                                     ESO       <NA>        NA
## 34 202                                     FrBo      <NA>        TRUE
## 35 204                                     ESO       <NA>        NA
## 36 204                                     FrBo      <NA>        TRUE
## 37 206                                     ESO       <NA>        NA
## 38 206                                     FrBo      <NA>        TRUE
## 39 208                                     ESO       <NA>        NA
## 40 208                                     FrBo      <NA>        TRUE
## 41 24                                      ESO       <NA>        NA
## 42 24                                      FrBo      <NA>        TRUE
## 43 28                                      ESO       <NA>        NA
## 44 28                                      FrBo      <NA>        TRUE
## 45 30                                      ESO       <NA>        NA
```

```
## 46 30                                      FrBo      <NA>        TRUE
## 47 42                                      ESO       <NA>        NA
## 48 42                                      FrBo      <NA>        TRUE
## 49 44                                      ESO       <NA>        NA
## 50 44                                      FrBo      <NA>        TRUE
## 51 54                                      ESO       <NA>        NA
## 52 54                                      FrBo      <NA>        TRUE
## 53 68                                      ESO       <NA>        NA
## 54 68                                      FrBo      <NA>        TRUE
## 55 70                                      ESO       <NA>        NA
## 56 70                                      FrBo      <NA>        TRUE
## 57 76                                      ESO       <NA>        NA
## 58 76                                      FrBo      <NA>        TRUE
## 59 Duchody                                 KUKY      low         NA
## 60 Duchody                                 OmbuFlye~ <NA>        FALSE
## 61 Odpadni-vody                            KUKY      low         NA
## 62 Odpadni-vody                            OmbuFlye~ <NA>        FALSE
## 63 ockovani-1_kusv                         KUKY      high        NA
## 64 ockovani-1_kusv                         LiFRLaw   <NA>        TRUE
## 65 ockovani-3_orig                         KUKY      low         NA
## 66 ockovani-3_orig                         LiFRLaw   <NA>        FALSE
## 67 orig_Certifikáty autorizovaných inspekt~ KUKY      low         NA
## 68 orig_Certifikáty autorizovaných inspekt~ FrBo      <NA>        FALSE
## 69 orig_financovani_politickych_stran      KUKY      low         NA
## 70 orig_financovani_politickych_stran      FrBo      <NA>        FALSE
## 71 red_Co je to územní plánování_final_při~ KUKY      high        NA
## 72 red_Co je to územní plánování_final_při~ FrBo      <NA>        TRUE
## 73 stavarska-1_kusv                        KUKY      high        NA
## 74 stavarska-1_kusv                        LiFRLaw   <NA>        TRUE
## 75 stavarska-2_orig                        KUKY      low         NA
## 76 stavarska-2_orig                        LiFRLaw   <NA>        FALSE
## 77 zaloba-1_orig                           KUKY      medium      NA
## 78 zaloba-1_orig                           LiFRLaw   <NA>        FALSE
## 79 zaloba-2_kusv                           KUKY      high        NA
## 80 zaloba-2_kusv                           LiFRLaw   <NA>        TRUE
```

```r
df <- df %>%
  filter(!is.na(Readability) | !is.na(ClarityPursuit)) %>%
  filter(ClarityPursuit == FALSE | is.na(ClarityPursuit))

df <- df %>%
  group_by(FileName) %>%
  mutate(n = n()) %>%
  ungroup() %>%
  filter(n == 1 | !is.na(Readability)) %>%
  select(-n)
```

The dataset is now free of overlaps.

Prepare for ML

Classes

```r
df <- df %>%
  mutate(class = if_else(Readability %in% c("high", "medium"), "good", "bad"))

readable <- df %>% filter(class == "good")
unreadable <- df %>% filter(class == "bad")

str(readable)
```

```
## tibble [186 x 36] (S3: tbl_df/tbl/data.frame)
##  $ KUK_ID                   : chr [1:186] "671918e2c6537d54ff0626dc" "673b7a37c6537d54ff062b8d" "673b
##  $ FileName                 : chr [1:186] "red_Co je to územní plánování_final_přidat odkaz na manuál
##  $ FileFormat               : chr [1:186] "TXT" "TXT" "TXT" "TXT" ...
##  $ FolderPath               : chr [1:186] "data/KUKY/TXT" "data/KUKY/TXT" "data/KUKY/TXT" "data/KUKY/
##  $ subcorpus                : chr [1:186] "KUKY" "KUKY" "KUKY" "KUKY" ...
##  $ SourceDB                 : chr [1:186] "SourceDB" "SourceDB" "SourceDB" "SourceDB" ...
##  $ SourceID                 : chr [1:186] NA NA NA NA ...
##  $ DocumentTitle            : chr [1:186] NA NA NA NA ...
##  $ ClarityPursuit           : logi [1:186] NA NA NA NA NA NA ...
##  $ Anonymized.x             : chr [1:186] "No" "No" "No" "No" ...
##  $ RecipientType.x          : chr [1:186] "natural person" "natural person" "natural person" "natural
##  $ RecipientIndividuation.x: chr [1:186] "public" "public" "public" "public" ...
##  $ AuthorType.x             : chr [1:186] "individual" "individual" "authority" "authority" ...
##  $ Objectivity.x            : chr [1:186] "quasiobjective" "quasiobjective" "quasiobjective" "quasiob
##  $ LegalActType.x           : chr [1:186] "normative" "normative" "normative" "normative" ...
##  $ Bindingness.x            : logi [1:186] FALSE FALSE FALSE FALSE FALSE FALSE ...
##  $ Readability              : chr [1:186] "high" "high" "high" "medium" ...
##  $ SyllogismBased           : chr [1:186] "false" "false" "false" "false" ...
##  $ DocumentVersion          : chr [1:186] "Redesign" "Redesign" "Redesign" "Original" ...
##  $ ParentDocumentID         : chr [1:186] NA NA NA NA ...
##  $ LegalActType.y           : chr [1:186] "normative" "normative" "normative" "normative" ...
##  $ Objectivity.y            : chr [1:186] "quasiobjective" "quasiobjective" "quasiobjective" "quasiob
##  $ Bindingness.y            : logi [1:186] FALSE FALSE FALSE FALSE FALSE FALSE ...
##  $ AuthorType.y             : chr [1:186] "individual" "individual" "authority" "authority" ...
##  $ RecipientType.y          : chr [1:186] "natural person" "natural person" "natural person" "natural
##  $ RecipientIndividuation.y: chr [1:186] "public" "public" "public" "public" ...
##  $ Anonymized.y             : chr [1:186] "No" "No" "No" "No" ...
##  $ Anonymized               : chr [1:186] NA NA NA NA ...
##  $ RecipientType            : chr [1:186] NA NA NA NA ...
##  $ RecipientIndividuation   : chr [1:186] NA NA NA NA ...
##  $ AuthorType               : chr [1:186] NA NA NA NA ...
##  $ Objectivity              : chr [1:186] NA NA NA NA ...
##  $ LegalActType             : chr [1:186] NA NA NA NA ...
##  $ Bindingness              : logi [1:186] NA NA NA NA NA NA ...
##  $ Recipient Type           : chr [1:186] NA NA NA NA ...
##  $ class                    : chr [1:186] "good" "good" "good" "good" ...
```

```r
str(unreadable)
```

```
## tibble [237,926 x 36] (S3: tbl_df/tbl/data.frame)
##  $ KUK_ID                   : chr [1:237926] "671918e2c6537d54ff0626db" "671918e2c6537d54ff0626dd" "67
##  $ FileName                 : chr [1:237926] "orig_Certifikáty autorizovaných inspektorů" "orig_finan
##  $ FileFormat               : chr [1:237926] "TXT" "TXT" "TXT" "TXT" ...
##  $ FolderPath               : chr [1:237926] "data/KUKY/TXT" "data/KUKY/TXT" "data/KUKY/TXT" "data/KU
##  $ subcorpus                : chr [1:237926] "KUKY" "KUKY" "KUKY" "KUKY" ...
```

```
##  $ SourceDB                : chr [1:237926] "SourceDB" "SourceDB" "SourceDB" "SourceDB" ...
##  $ SourceID                : chr [1:237926] NA NA NA NA ...
##  $ DocumentTitle           : chr [1:237926] NA NA NA NA ...
##  $ ClarityPursuit          : logi [1:237926] NA NA NA NA NA NA ...
##  $ Anonymized.x            : chr [1:237926] "No" "No" "No" "No" ...
##  $ RecipientType.x         : chr [1:237926] "natural person" "natural person" "natural person" "natu
##  $ RecipientIndividuation.x: chr [1:237926] "public" "public" "public" "public" ...
##  $ AuthorType.x            : chr [1:237926] "individual" "individual" "authority" "authority" ...
##  $ Objectivity.x           : chr [1:237926] "quasiobjective" "quasiobjective" "quasiobjective" "quasi
##  $ LegalActType.x          : chr [1:237926] "normative" "normative" "normative" "normative" ...
##  $ Bindingness.x           : logi [1:237926] FALSE FALSE FALSE FALSE FALSE FALSE ...
##  $ Readability             : chr [1:237926] "low" "low" "low" "low" ...
##  $ SyllogismBased          : chr [1:237926] "false" "false" "false" "false" ...
##  $ DocumentVersion         : chr [1:237926] "Original" "Original" "Original" "Original" ...
##  $ ParentDocumentID        : chr [1:237926] NA NA NA NA ...
##  $ LegalActType.y          : chr [1:237926] "normative" "normative" "normative" "normative" ...
##  $ Objectivity.y           : chr [1:237926] "quasiobjective" "quasiobjective" "quasiobjective" "quasi
##  $ Bindingness.y           : logi [1:237926] FALSE FALSE FALSE FALSE FALSE FALSE ...
##  $ AuthorType.y            : chr [1:237926] "individual" "individual" "authority" "authority" ...
##  $ RecipientType.y         : chr [1:237926] "natural person" "natural person" "natural person" "natu
##  $ RecipientIndividuation.y: chr [1:237926] "public" "public" "public" "public" ...
##  $ Anonymized.y            : chr [1:237926] "No" "No" "No" "No" ...
##  $ Anonymized              : chr [1:237926] NA NA NA NA ...
##  $ RecipientType           : chr [1:237926] NA NA NA NA ...
##  $ RecipientIndividuation  : chr [1:237926] NA NA NA NA ...
##  $ AuthorType              : chr [1:237926] NA NA NA NA ...
##  $ Objectivity             : chr [1:237926] NA NA NA NA ...
##  $ LegalActType            : chr [1:237926] NA NA NA NA ...
##  $ Bindingness             : logi [1:237926] NA NA NA NA NA NA ...
##  $ Recipient Type          : chr [1:237926] NA NA NA NA ...
##  $ class                   : chr [1:237926] "bad" "bad" "bad" "bad" ...
```

Data set parameters

```
.split_prop <- 4 / 5 # proportion of testing data in the dataset
.no_folds <- 10 # no. of folds in v-fold cross-validation
.balance <- 3 / 10 # proportion of positive samples in the target dataset

dssize_positive <- count(readable)[[1, 1]]
dssize_total <- dssize_positive / .balance
dssize_negative <- dssize_total - dssize_positive

print(c(
  paste(c(
    "Data set size:", dssize_total
  ), collapse = " "),
  paste(c(
    "Positive class size:", dssize_positive
  ), collapse = " "),
  paste(c(
    "Negative class size:", dssize_negative
  ), collapse = " "),
  paste(c(
```

```
    "Training data set size:", dssize_total * .split_prop
  ), collapse = " "),
  paste(c(
    "Training positive class size:", dssize_positive * .split_prop
  ), collapse = " "),
  paste(c(
    "Training negative class size:", dssize_negative * .split_prop
  ), collapse = " "),
  paste(c(
    "One fold size:", (dssize_total * .split_prop) / .no_folds
  ), collapse = " "),
  paste(c(
    "One fold positive class size:", (dssize_positive * .split_prop) / .no_folds
  ), collapse = " "),
  paste(c(
    "One fold negative class size:", (dssize_negative * .split_prop) / .no_folds
  ), collapse = " "),
  paste(c(
    "Evaluation data set size:", dssize_total * (1 - .split_prop)
  ), collapse = " "),
  paste(c(
    "Evaluation positive class size:", dssize_positive * (1 - .split_prop)
  ), collapse = " "),
  paste(c(
    "Evaluation negative class size:", dssize_negative * (1 - .split_prop)
  ), collapse = " ")
), quote = FALSE)
```

```
##  [1] Data set size: 620                   Positive class size: 186
##  [3] Negative class size: 434             Training data set size: 496
##  [5] Training positive class size: 148.8  Training negative class size: 347.2
##  [7] One fold size: 49.6                  One fold positive class size: 14.88
##  [9] One fold negative class size: 34.72  Evaluation data set size: 124
## [11] Evaluation positive class size: 37.2 Evaluation negative class size: 86.8
```

Data set undersampling and split

```
df <- df # TODO: undersample here!

df_split <- df %>% initial_split(prop = .split_prop)
training_set <- training(df_split)
evaluation_set <- testing(df_split)

folds <- vfold_cv(training_set, v = .no_folds, strata = class)

print(df_split)
```

```
## <Training/Testing/Total>
## <190489/47623/238112>
```

```
print(folds)
```

```
## #  10-fold cross-validation using stratification
## # A tibble: 10 x 2
```

```
##    splits                id
##    <list>                <chr>
##  1 <split [171440/19049]> Fold01
##  2 <split [171440/19049]> Fold02
##  3 <split [171440/19049]> Fold03
##  4 <split [171440/19049]> Fold04
##  5 <split [171440/19049]> Fold05
##  6 <split [171440/19049]> Fold06
##  7 <split [171440/19049]> Fold07
##  8 <split [171440/19049]> Fold08
##  9 <split [171440/19049]> Fold09
## 10 <split [171441/19048]> Fold10
```