Sentiment Analysis in R

```
library(tidytext)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
data("sentiments")
```

```
get_sentiments("bing")
```

```
## # A tibble: 6,786 × 2
##    word        sentiment
##    <chr>       <chr>
##  1 2-faces     negative
##  2 abnormal    negative
##  3 abolish     negative
##  4 abominable  negative
##  5 abominably  negative
##  6 abominate   negative
##  7 abomination negative
##  8 abort       negative
##  9 aborted     negative
## 10 aborts      negative
## # ℹ 6,776 more rows
```

```
library(janeaustenr)
library(stringr)
library(tidytext)
```

```
tidy_data <- austen_books() %>%
 group_by(book) %>%
 mutate(linenumber = row_number(),
   chapter = cumsum(str_detect(text, regex("^chapter [\\divxlc]",
                         ignore_case = TRUE)))) %>%
ungroup() %>%
unnest_tokens(word, text)
```

```
positive_senti <- get_sentiments("bing") %>%
 filter(sentiment == "positive")

tidy_data %>%
 filter(book == "Emma") %>%
 semi_join(positive_senti) %>%
 count(word, sort = TRUE)
```

```
## Joining with `by = join_by(word)`
```

```
## # A tibble: 668 × 2
##    word         n
##    <chr>    <int>
##  1 well       401
##  2 good       359
##  3 great      264
##  4 like       200
##  5 better     173
##  6 enough     129
##  7 happy      125
##  8 love       117
##  9 pleasure   115
## 10 right       92
## # ℹ 658 more rows
```


```
positive_senti <- get_sentiments("bing") %>%
 filter(sentiment == "positive")

tidy_data %>%
 filter(book == "Emma") %>%
 semi_join(positive_senti) %>%
 count(word, sort = TRUE)
```

```
## Joining with `by = join_by(word)`
```

```
## # A tibble: 668 × 2
##    word         n
##    <chr>    <int>
##  1 well       401
##  2 good       359
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##  5 better     173
##  6 enough     129
##  7 happy      125
##  8 love       117
##  9 pleasure   115
## 10 right       92
## # ℹ 658 more rows
```

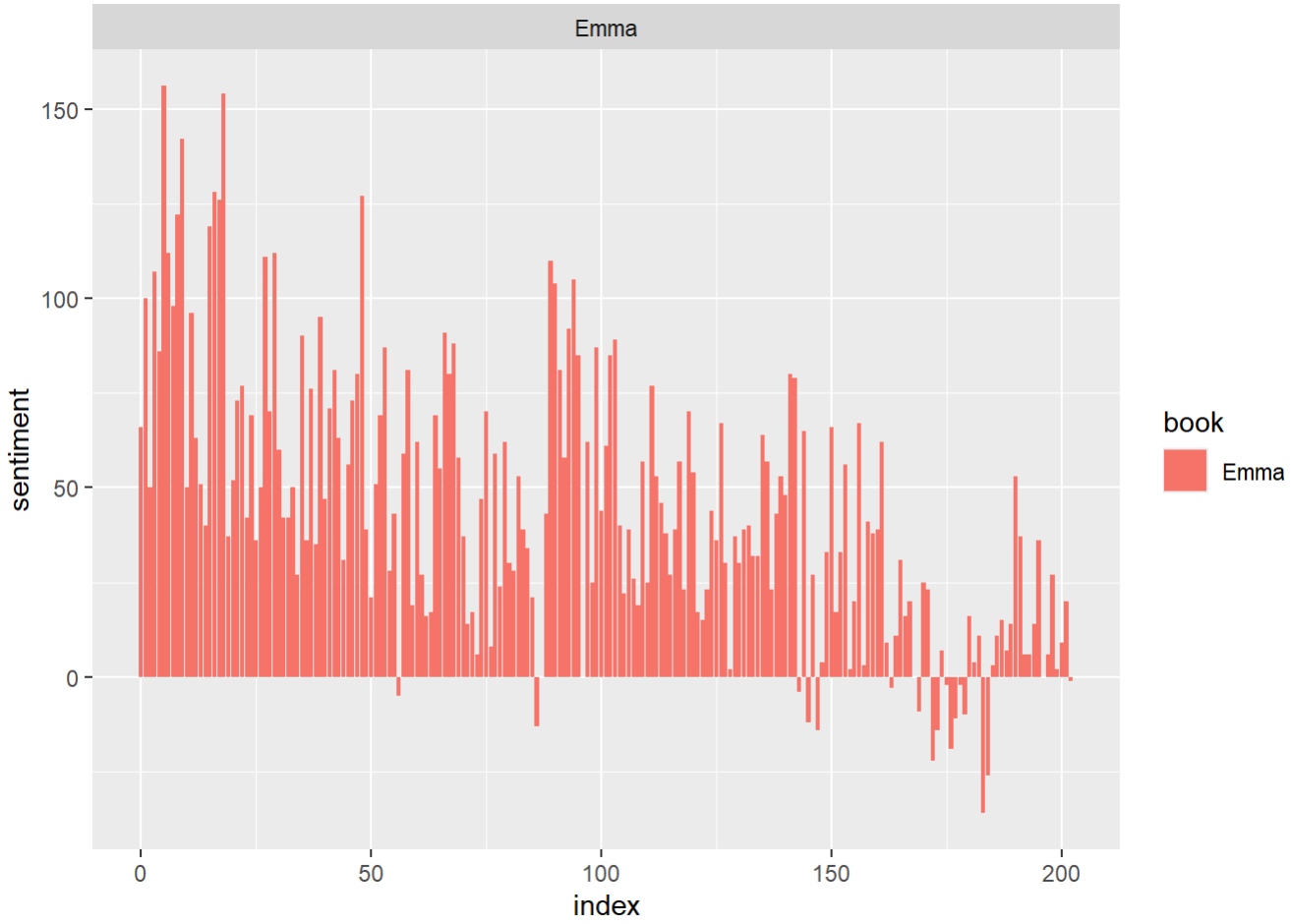
```
library(tidyr)
bing <- get_sentiments("bing")
Emma_sentiment <- tidy_data %>%
 inner_join(bing) %>%
 count(book = "Emma" , index = linenumber %/% 80, sentiment) %>%
 spread(sentiment, n, fill = 0) %>%
 mutate(sentiment = positive - negative)
```

```
## Joining with `by = join_by(word)`
```

```
## Warning in inner_join(., bing): Detected an unexpected many-to-many relationship between `x`
and `y`.
## ℹ Row 435434 of `x` matches multiple rows in `y`.
## ℹ Row 5051 of `y` matches multiple rows in `x`.
## ℹ If a many-to-many relationship is expected, set `relationship =
##   "many-to-many"` to silence this warning.
```

```
library(ggplot2)

ggplot(Emma_sentiment, aes(index, sentiment, fill = book)) +
 geom_bar(stat = "identity", show.legend = TRUE) +
 facet_wrap(~book, ncol = 2, scales = "free_x")
```




```
counting_words <- tidy_data %>%
 inner_join(bing) %>%
 count(word, sentiment, sort = TRUE)
```

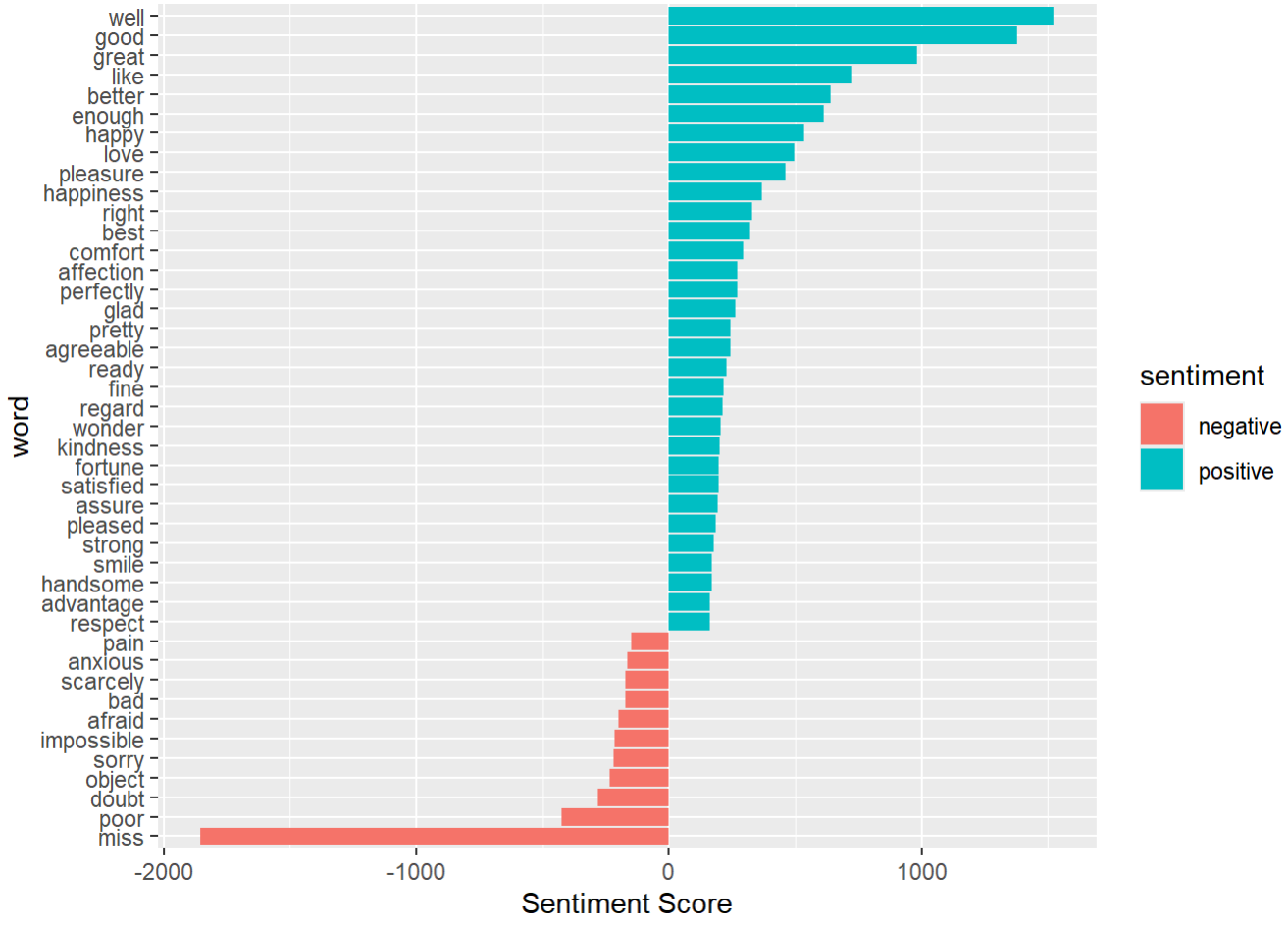
```
## Joining with `by = join_by(word)`
```

```
## Warning in inner_join(., bing): Detected an unexpected many-to-many relationship between `x`
and `y`.
## ℹ Row 435434 of `x` matches multiple rows in `y`.
## ℹ Row 5051 of `y` matches multiple rows in `x`.
## ℹ If a many-to-many relationship is expected, set `relationship =
##   "many-to-many"` to silence this warning.
```

```
head(counting_words)
```

```
## # A tibble: 6 × 3
##   word   sentiment     n
##   <chr>  <chr>     <int>
## 1 miss   negative   1855
## 2 well   positive   1523
## 3 good   positive   1380
## 4 great  positive    981
## 5 like   positive    725
## 6 better positive    639
```

```
counting_words %>%
 filter(n > 150) %>%
 mutate(n = ifelse(sentiment == "negative", -n, n)) %>%
 mutate(word = reorder(word, n)) %>%
 ggplot(aes(word, n, fill = sentiment))+
 geom_col() +
 coord_flip() +
 labs(y = "Sentiment Score")
```




```
library(reshape2)
```

```
##
## Attaching package: 'reshape2'
```

```
## The following object is masked from 'package:tidyr':
##
##     smiths
```

```
library(wordcloud)
```

```
## Loading required package: RColorBrewer
```

```
tidy_data %>%
 inner_join(bing) %>%
 count(word, sentiment, sort = TRUE) %>%
 acast(word ~ sentiment, value.var = "n", fill = 0) %>%
 comparison.cloud(colors = c("red", "dark green"),
          max.words = 100)
```

```
## Joining with `by = join_by(word)`
```

```
## Warning in inner_join(., bing): Detected an unexpected many-to-many relationship between `x`
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```

negative

positive