Sentiment dictionaries

INTRODUCTION TO TEXT ANALYSIS IN R

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Bing dictionary

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

```
# A tibble: 6,788 x 2
   word        sentiment
   <chr>       <chr>
 1 2-faced     negative
 2 2-faces     negative
 3 a+          positive
 4 abnormal    negative
 5 abolish     negative
# … with 6,783 more rows
```

Bing dictionary

```
get_sentiments("bing") %>%
  count(sentiment)
```

```
# A tibble: 2 x 2
  sentiment     n
  <chr>     <int>
1 negative   4782
2 positive   2006
```

Afinn dictionary

```
get_sentiments("afinn")
```

```
# A tibble: 2,476 x 2
   word       value
   <chr>      <int>
 1 abandon       -2
 2 abandoned     -2
 3 abandons      -2
 4 abducted      -2
 5 abduction     -2
# … with 2,471 more rows
```

Afinn dictionary

```
get_sentiments("afinn") %>%
  summarize(
    min = min(value),
    max = max(value)
  )
```

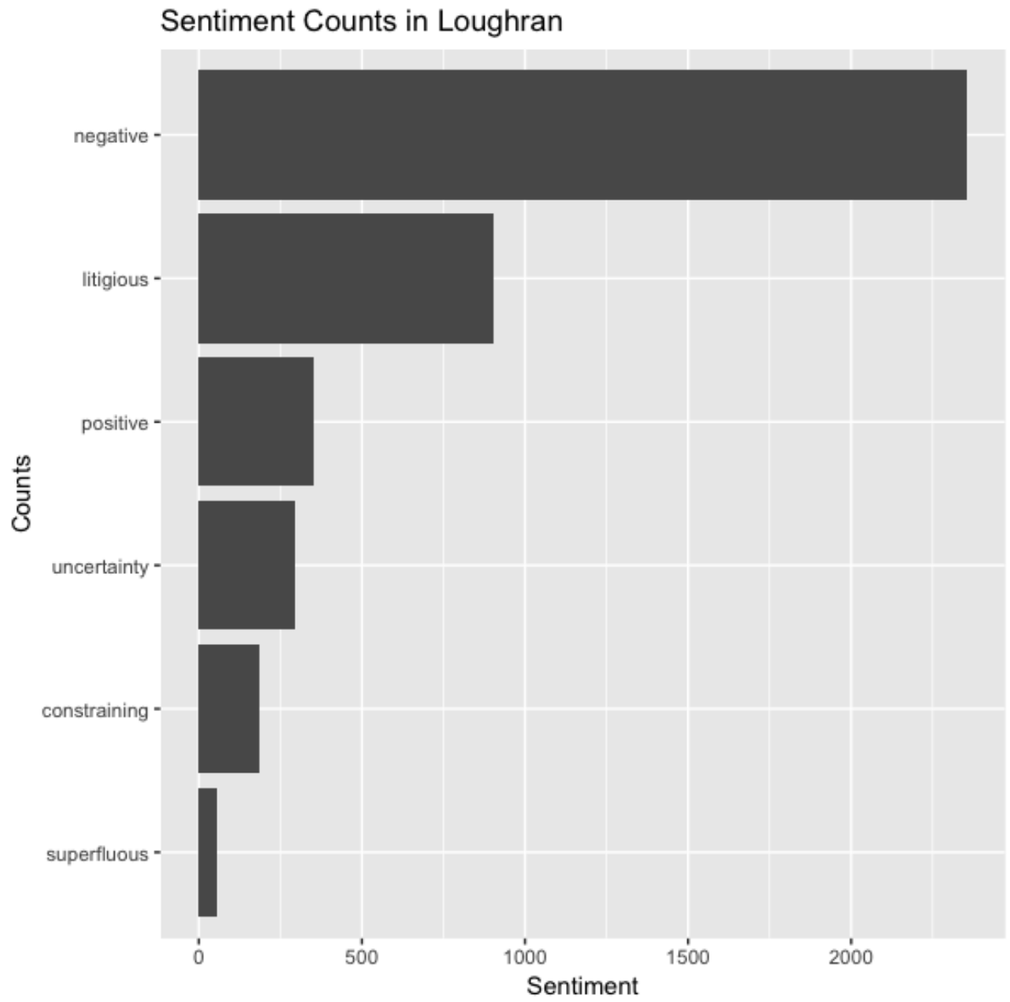
```
# A tibble: 1 x 2
    min   max
  <dbl> <dbl>
1    -5     5
```

Loughran dictionary

```
sentiment_counts <- get_sentiments("loughran") %>%
  count(sentiment) %>%
  mutate(sentiment2 = fct_reorder(sentiment, n))

ggplot(sentiment_counts, aes(x = sentiment2, y = n)) +
  geom_col() +
  coord_flip() +
  labs(
    title = "Sentiment Counts in Loughran",
    x = "Counts",
    y = "Sentiment"
  )
```

Loughran dictionary



Let's practice!

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Appending dictionaries

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Using inner_join()

```
tidy_review %>%
  inner_join(get_sentiments("loughran"))
```

```
# A tibble: 3,960 x 6
      id date     product                     stars word      sentiment
   <int> <chr>    <chr>                       <dbl> <chr>     <chr>
 1     5 12/22/15 iRobot Roomba 650 for Pets     5 slow      negative
 2     5 12/22/15 iRobot Roomba 650 for Pets     5 easily    positive
 3     5 12/22/15 iRobot Roomba 650 for Pets     5 random    uncertainty
 4     5 12/22/15 iRobot Roomba 650 for Pets     5 easy      positive
# … with 3,956 more rows
```

Counting sentiment

```
sentiment_review <- tidy_review %>%
  inner_join(get_sentiments("loughran"))

sentiment_review %>%
  count(sentiment)
```

```
# A tibble: 6 x 2
  sentiment        n
  <chr>        <int>
3 negative      1795
4 positive      1568
# … with 4 more rows
```

Counting sentiment

```
sentiment_review %>%
  count(word, sentiment) %>%
  arrange(desc(n))
```

```
# A tibble: 598 x 3
   word      sentiment      n
   <chr>     <chr>      <int>
 1 easy      positive     297
 2 happy     positive     107
 3 trouble   negative      58
# … with 595 more rows
```

Visualizing sentiment

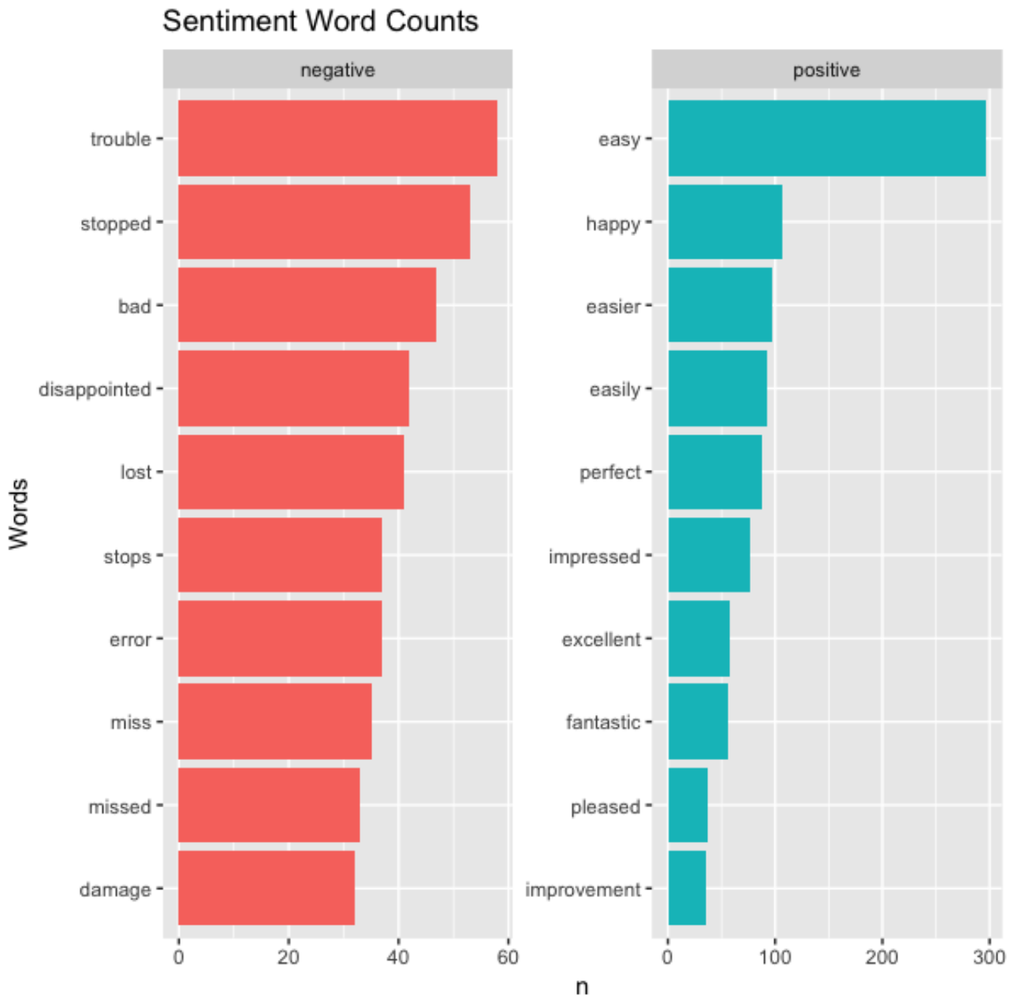
```
sentiment_review2 <- sentiment_review %>%
  filter(sentiment %in% c("positive", "negative"))

word_counts <- sentiment_review2 %>%
  count(word, sentiment) %>%
  group_by(sentiment) %>%
  top_n(10, n) %>%
  ungroup() %>%
  mutate(
    word2 = fct_reorder(word, n)
  )
```

Visualizing sentiment

```
ggplot(word_counts, aes(x = word2, y = n, fill = sentiment)) +
  geom_col(show.legend = FALSE) +
  facet_wrap(~ sentiment, scales = "free") +
  coord_flip() +
  labs(
    title = "Sentiment Word Counts",
    x = "Words"
  )
```

Visualizing sentiment



Let's practice!

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Improving sentiment analysis

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Count sentiment by rating

```
tidy_review %>%
  inner_join(get_sentiments("bing")) %>%
  count(stars, sentiment)
```

```
# A tibble: 10 x 3
   stars sentiment     n
   <dbl> <chr>     <int>
 1     1 negative    381
 2     1 positive    241
 3     2 negative    384
# … with 7 more rows
```

Using spread()

```
tidy_review %>%
  inner_join(get_sentiments("bing")) %>%
  count(stars, sentiment) %>%
  spread(sentiment, n)
```

```
# A tibble: 5 x 3
  stars negative positive
  <dbl>    <int>    <int>
1     1      381      241
2     2      384      247
# … with 3 more rows
```

Computing overall sentiment

```
tidy_review %>%
  inner_join(get_sentiments("bing")) %>%
  count(stars, sentiment) %>%
  spread(sentiment, n) %>%
  mutate(overall_sentiment = positive - negative)
```

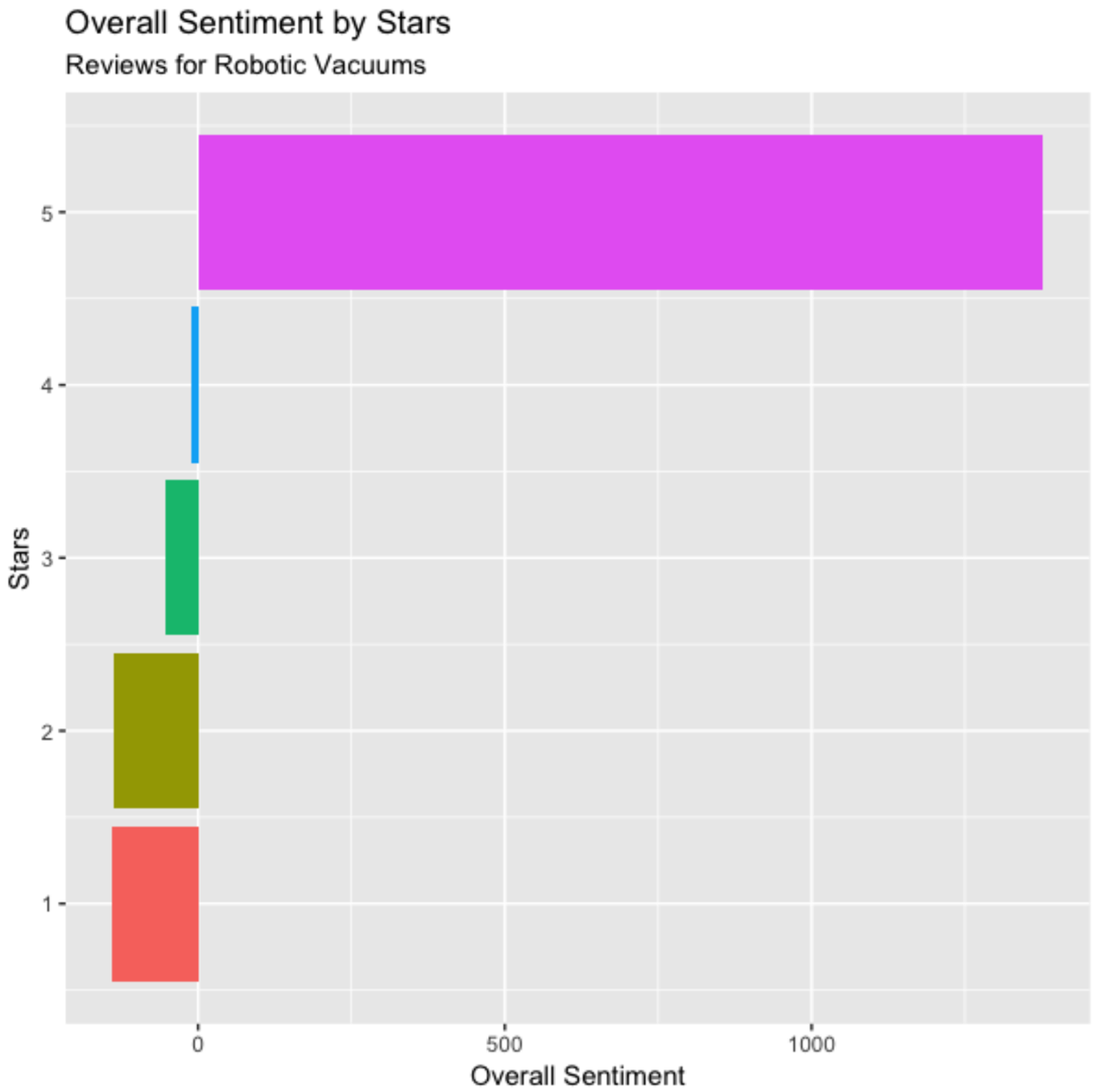
```
# A tibble: 5 x 4
  stars negative positive overall_sentiment
  <dbl>    <int>    <int>             <int>
1     1      381      241              -140 ...
5     5     3705     5083              1378
```

Visualize sentiment by rating

```
sentiment_stars <- tidy_review %>%
  inner_join(get_sentiments("bing")) %>%
  count(stars, sentiment) %>%
  spread(sentiment, n) %>%
  mutate(
    overall_sentiment = positive - negative,
    stars = fct_reorder(stars, overall_sentiment)
  )
```

Visualize sentiment by rating

```
ggplot(
  sentiment_stars,
  aes(x = stars, y = overall_sentiment, fill = as.factor(stars))
) +
  geom_col(show.legend = FALSE) +
  coord_flip() +
  labs(
    title = "Overall Sentiment by Stars",
    subtitle = "Reviews for Robotic Vacuums",
    x = "Stars",
    y = "Overall Sentiment"
  )
```


Overall Sentiment by Stars
Reviews for Robotic Vacuums
Stars
5
4
3
2
1
0
500
1000
Overall Sentiment

Let's practice!

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