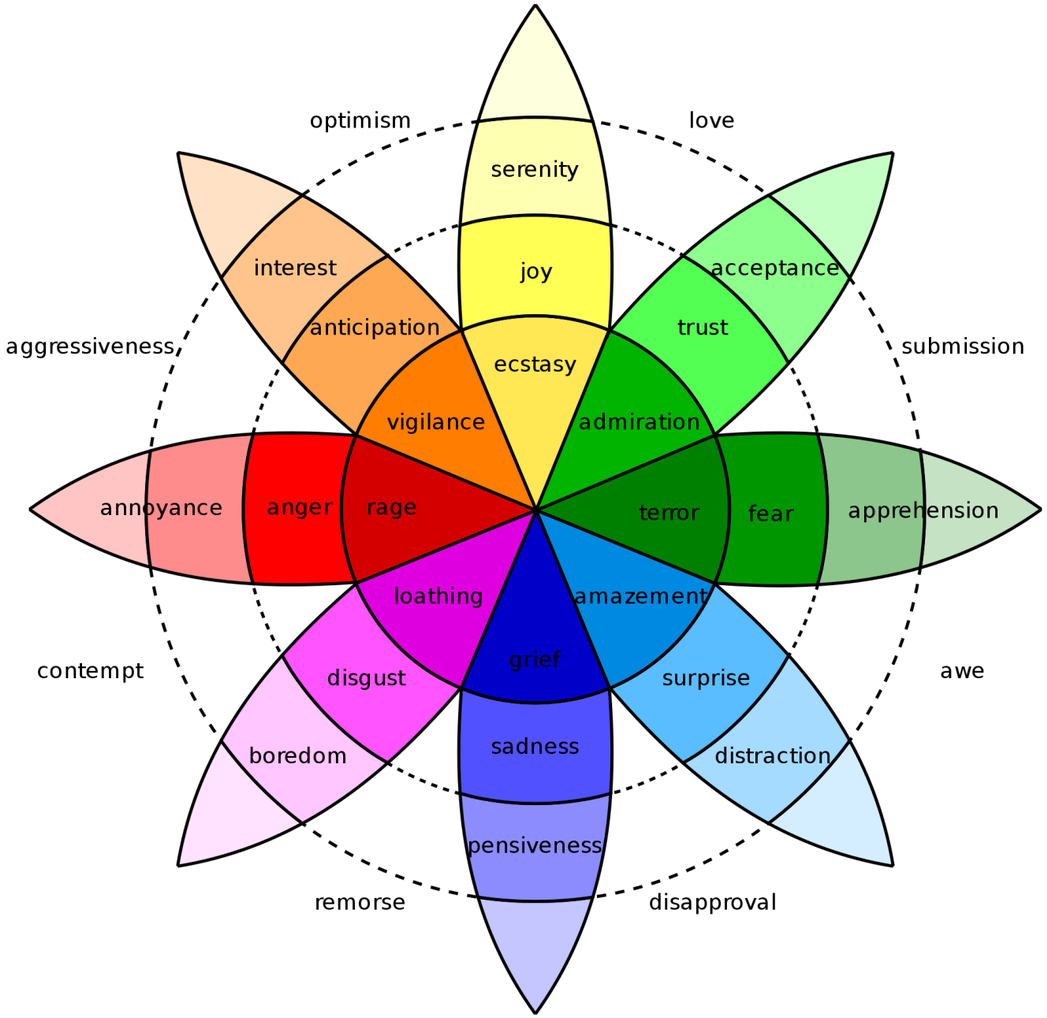
Plutchik's wheel of emotion, polarity vs. sentiment

SENTIMENT ANALYSIS IN R

Ted Kwartler
Data Dude

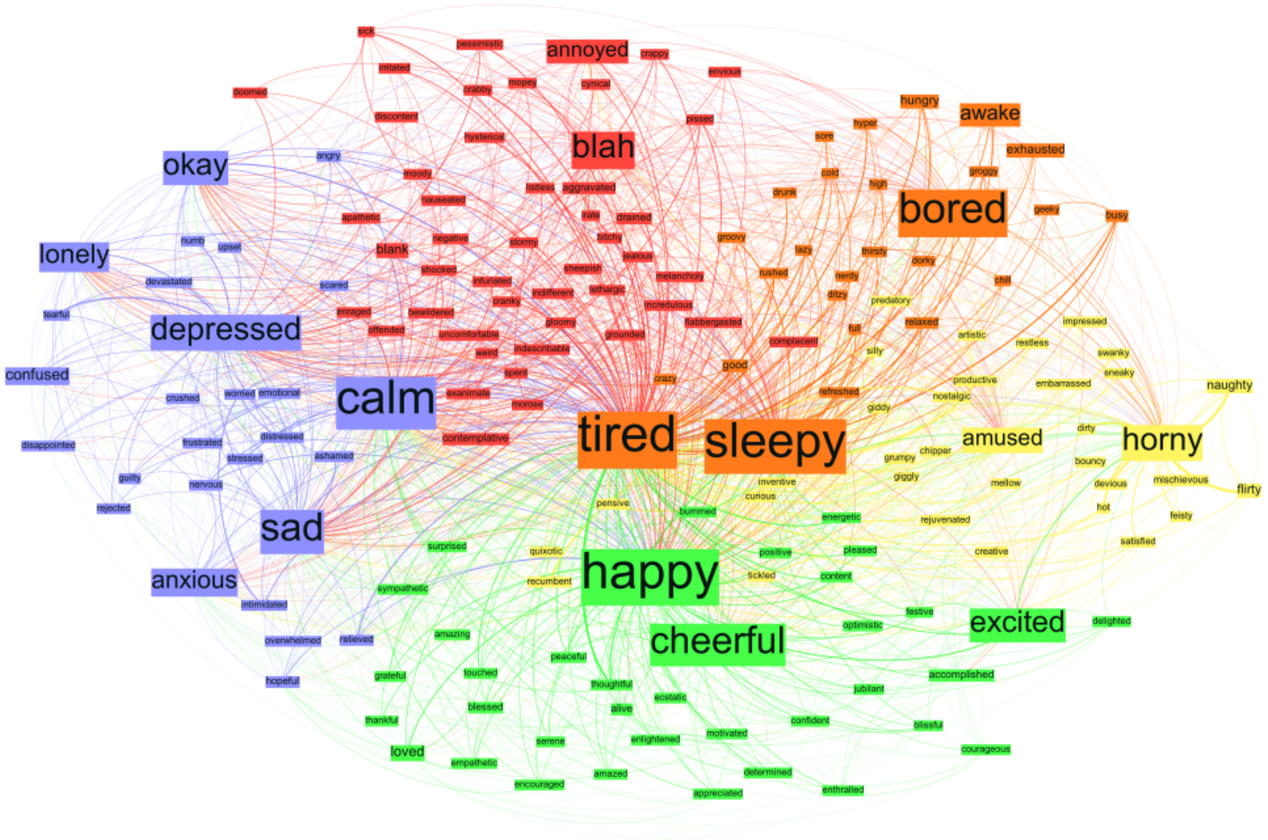
In reality, sentiment is more complex than +/-

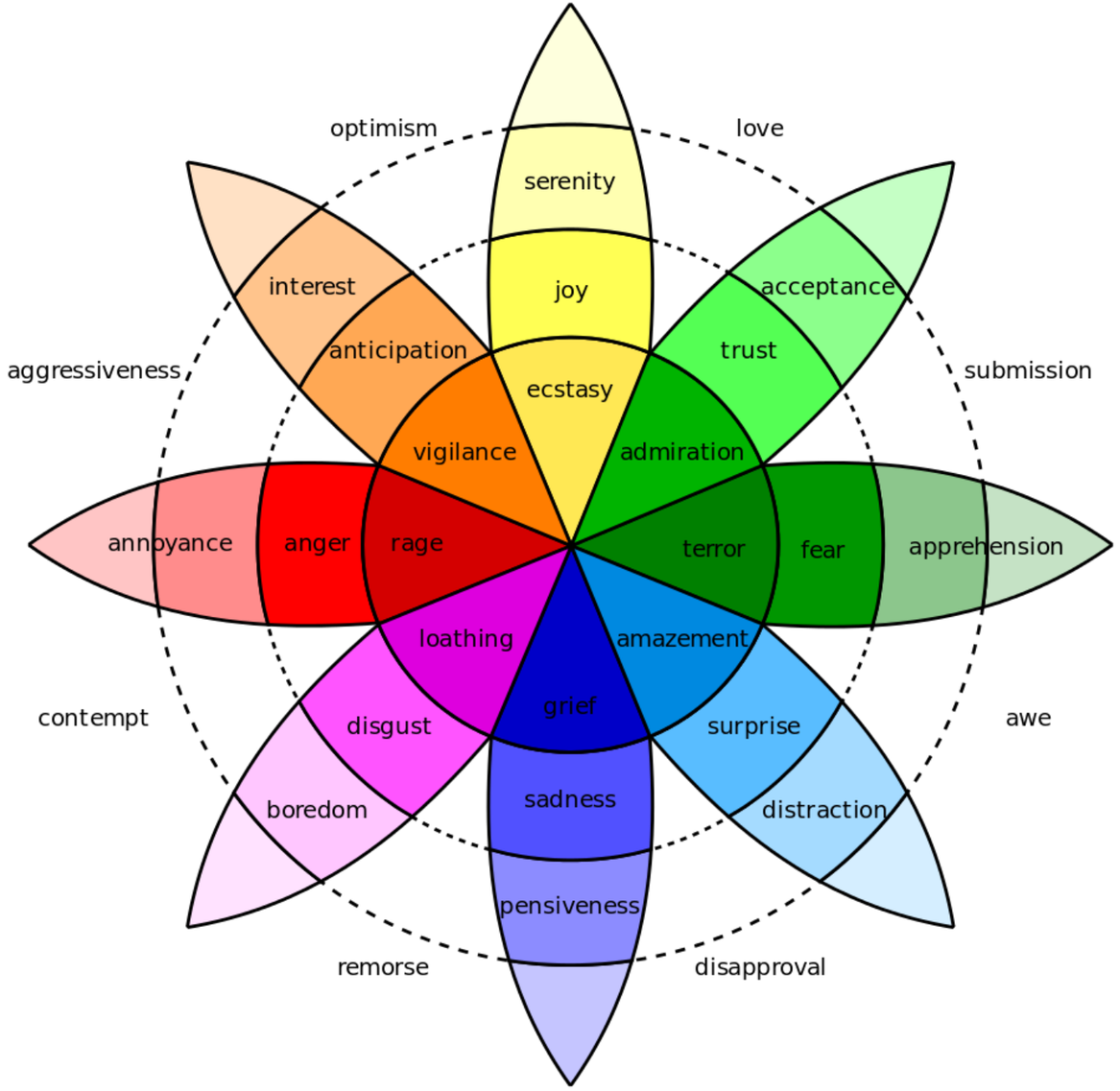
Plutchik's Wheel of Emotion



A more complex emotional framework

from Kanjoya




optimism
love
serenity
interest
joy
acceptance
anticipation
trust
aggressiveness
ecstasy
submission
vigilance
admiration
annoyance
anger
rage
terror
fear
apprehension
loathing
amazement
contempt
grief
awe
disgust
surprise
boredom
sadness
distraction
pensiveness
remorse
disapproval

Let's practice!

SENTIMENT ANALYSIS IN R

Bing lexicon with an inner join

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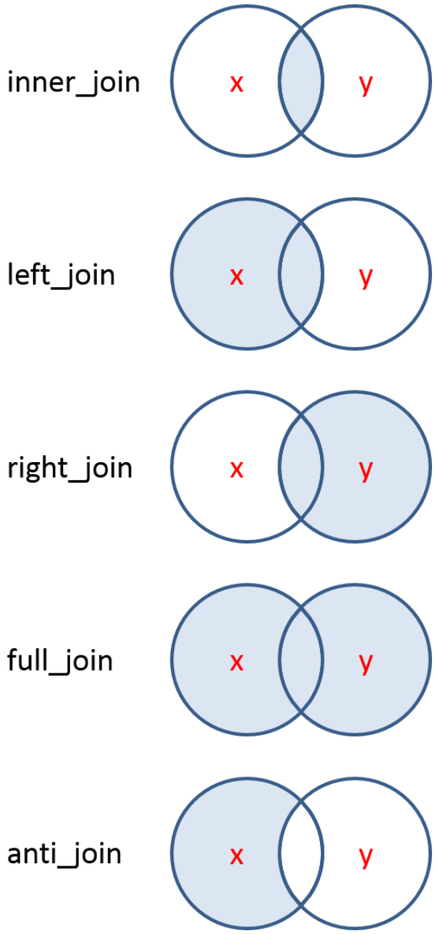
Table joins


inner_join
x
y
left_join
x
y
right_join
x
y
full_join
x
y
anti_join
x
y

`dplyr` joins

```
inner_join(x, y, ...)
left_join(x, y, ...)
right_join(x, y, ...)
full_join(x, y, ...)
semi_join(x, y, ...)
anti_join(x, y, ...)
```

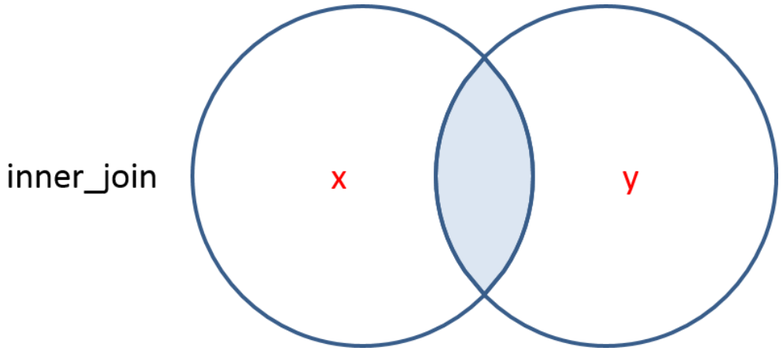
Declaring the `by` parameter:

```
inner_join(x, y, by = "shared_column")
```

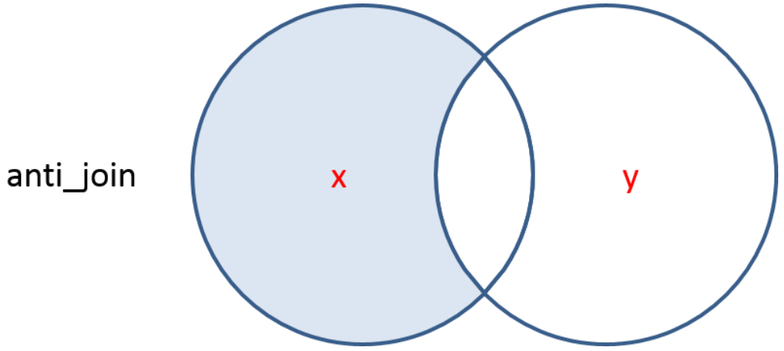
or

```
inner_join(x, y, by = c("a" = "b"))
```

Comparing inner and anti joins

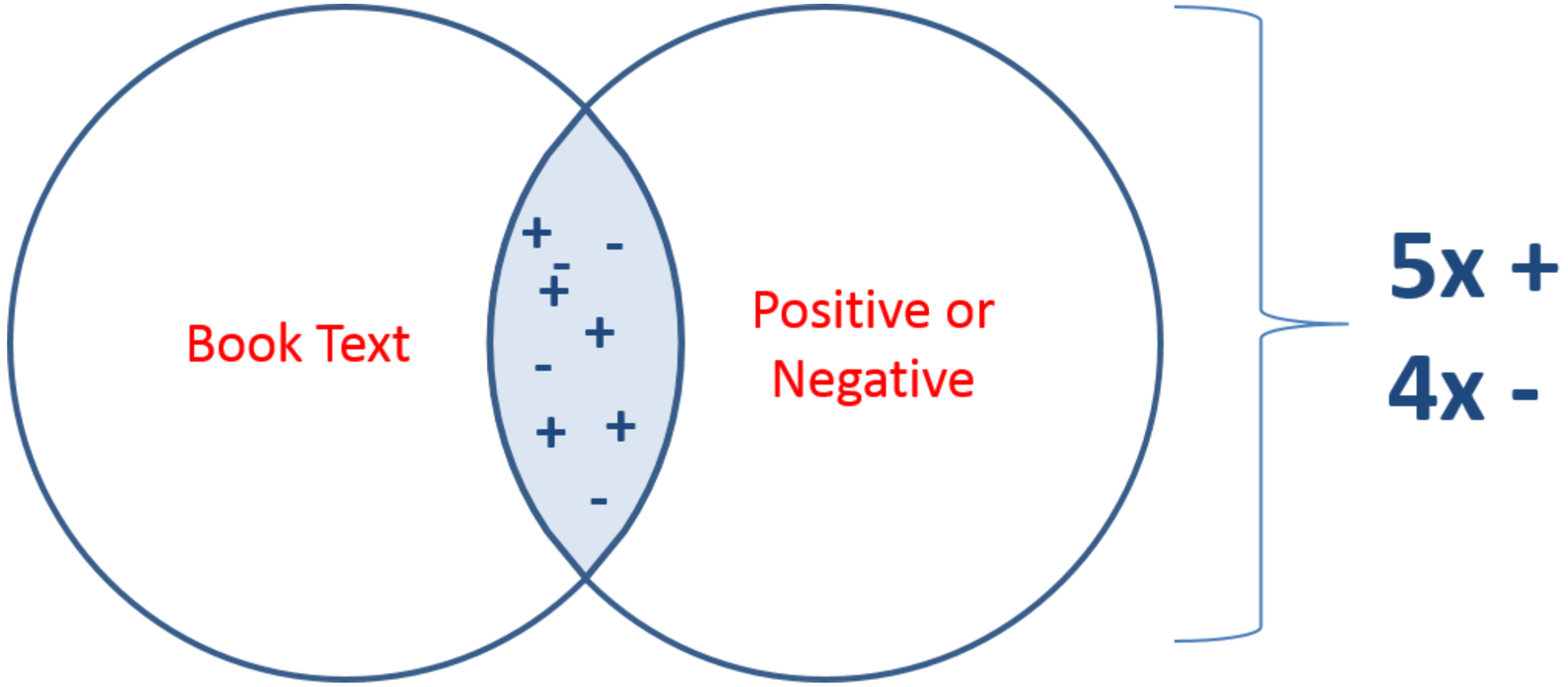



```
inner_join(
  text_table,
  subjectivity_lexicon,
  by = "word_column"
)
```




```
anti_join(
  text_table,
  stopwords_table,
  by = "word_column"
)
```

Starting with positive/negative



Let's practice!

SENTIMENT ANALYSIS IN R

AFINN & NRC inner joins

SENTIMENT ANALYSIS IN R

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AFINN

```
library(textdata)
library(tidytext)
afinn <- get_sentiments('afinn')
```

Result:

```
tail(afinn)
# A tibble: 6 x 2
  word      value
  <chr>     <dbl>
1 youthful      2
2 yucky        -2
3 yummy         3
4 zealot       -2
5 zealots      -2
6 zealous       2
```

NRC

Load & Subset

```
library(textdata)
library(tidytext)
nrc <- get_sentiments('nrc')
```

Result:

```
tail(nrc)
```

```
# A tibble: 6 x 2
  word    sentiment
  <chr>   <chr>
1 zealous trust
2 zest    anticipation
3 zest    joy
4 zest    positive
```

Huckleberry Finn

HUCKLEBERRY FINN.

```
tidy_huck
```

```
# A tibble: 55,198 x 3
   document term          count
   <chr>    <chr>         <dbl>
 1 1        finn              1
 2 1        huckleberry       1
 3 3        ago               1
 4 3        fifty             1
 5 3        forty             1
 6 3        mississippi       1
 7 3        scene             1
 8 3        the               1
 9 3        time              1
10 3        valley            1
# … with 55,188 more rows
```

Huck Finn joined to AFINN

```
huck_finn_join <- tidy_huck %>%
  inner_join(afinn, by = c("term" = "word"))

 huck_finn_join
```

```
# A tibble: 4,849 x 6
   document       term count     value
      <chr>      <chr> <dbl>     <int>
 1       11 adventures     1         2
 2       11     matter     1         1
 3       14       lied     1        -2
 4       17       true     1         2
 5       20        hid     1        -1
 6       20       rich     1         2
# ... with 4,843 more rows
```

Using summarize()

```
sample_df
```

```
# A tibble: 2 x 6
  document  term count  score
     <dbl> <chr> <dbl>  <dbl>
1       22 judge     1     -3
2       22  took     1      1
```

```
sample_df %>%
  group_by(document) %>%
  summarize(total_score = sum(score))
```

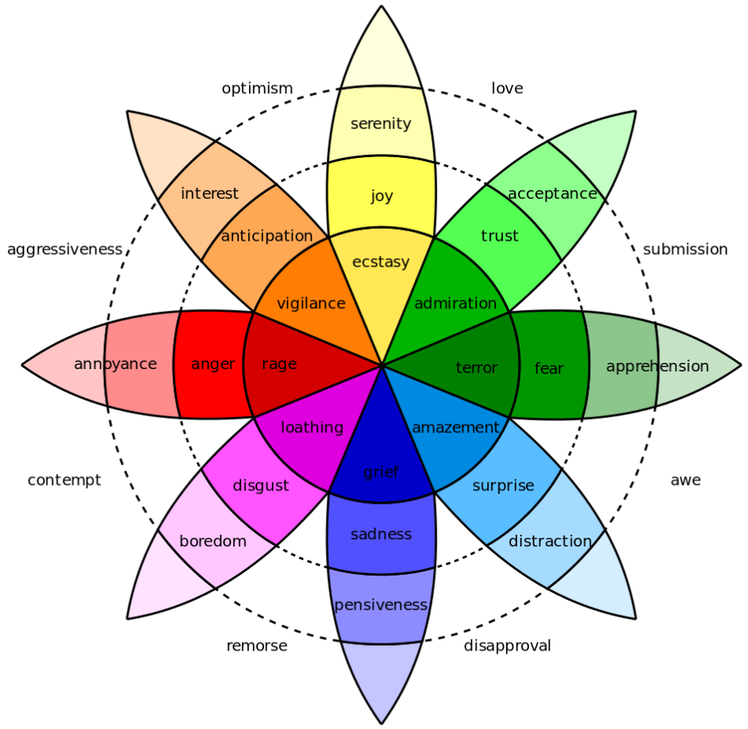
```
# A tibble: 1 x 2
  document total_score
     <dbl>       <dbl>
1       22          -2
```

Using filter()

```
filter(huck_finn_join, document == 20)
```

```
# A tibble: 2 x 6
  document  term count score
     <chr> <chr> <dbl>  <int>
1       20   hid     1     -1
2       20  rich     1      2
```

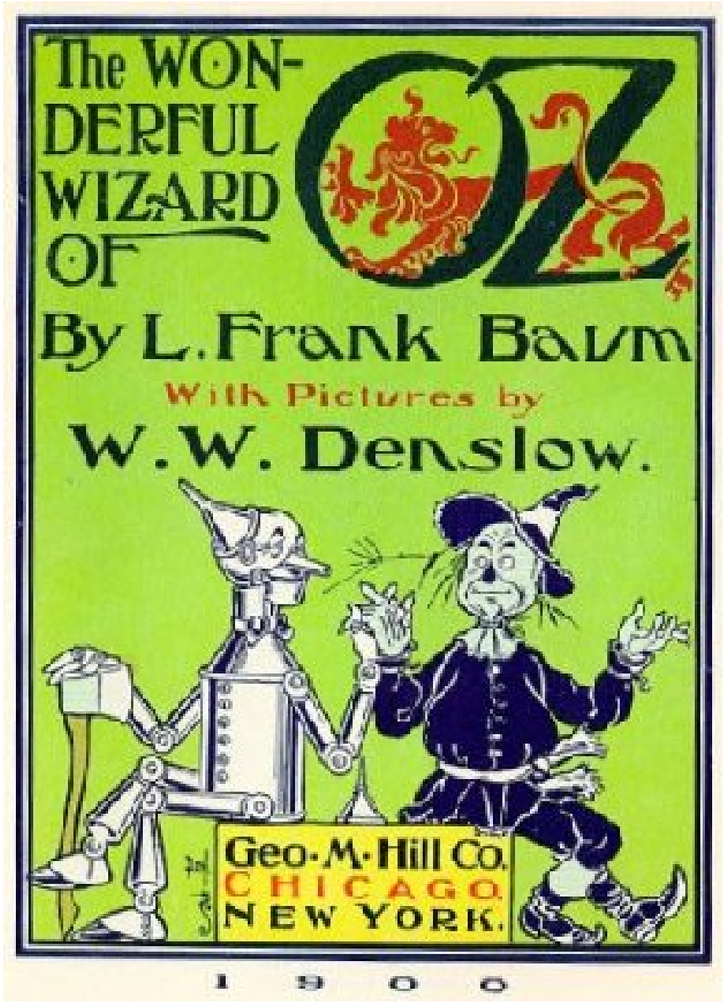
Plutchik & NRC




```
nrc <- get_sentiments("nrc")
head(nrc, 10)
```

```
# A tibble: 10 x 2
   word        sentiment
   <chr>       <chr>
 1 abacus      trust
 2 abandon     fear
 3 abandon     negative
 4 abandon     sadness
 5 abandoned   anger
 6 abandoned   fear
 7 abandoned   negative
 8 abandoned   sadness
 9 abandonment anger
10 abandonment fear
```

The Wonderful Wizard of NRC




```
oz
```

```
# A tibble: 19,007 x 3
   document          term count
      <chr>         <chr> <dbl>
 1        1           the     1
 2        1        wizard     1
 3        1     wonderful     1
 4        6          baum     1
 5        6         frank     1
 6       10     contents     1
 7       12 introduction     1
 8       13      cyclone     1
 9       13           the     1
10       14      council     1
 # … with 18,997 more rows   1
```

%in% operator

```
x <- c("text", "mining", "python")
```

```
y <- c("text", "tm", "qdap", "R", "mining")
```

```
x %in% y
```

```
[1] TRUE TRUE FALSE
```

```
y %in% x
```

```
[1] TRUE FALSE FALSE FALSE TRUE
```

Let's practice!

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