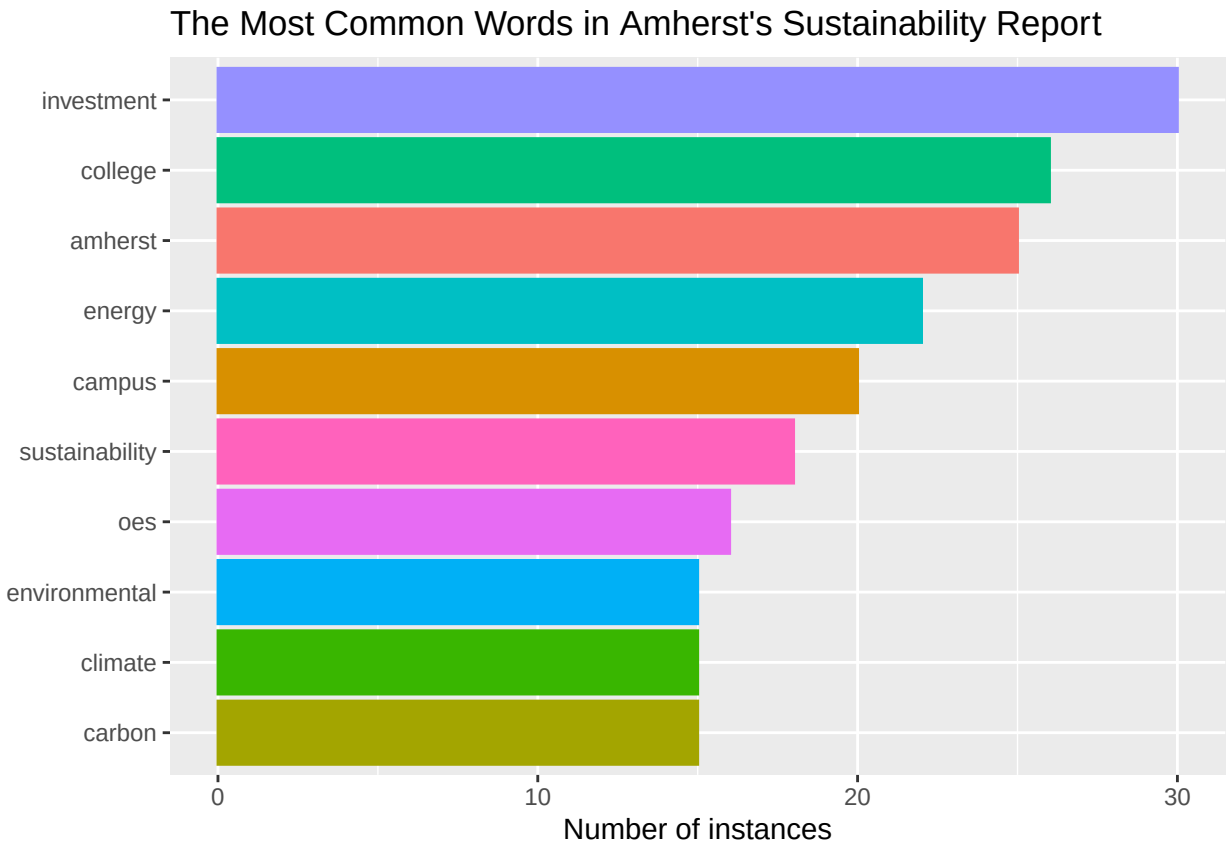
Sentiment Analysis

```
#Read in sustainability report
report <- read_csv("data/amherstsustainabilityreport.txt")
```

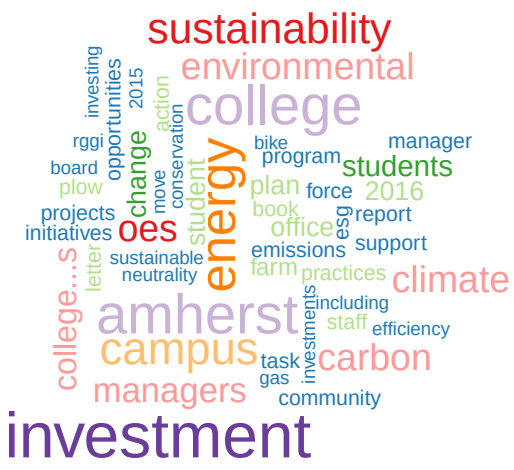
```
##
## -- Column specification --------------------------------------------------------
## cols(
##   x = col_character()
## )
```

```
#Stop word data
data(stop_words)

#Wrangling
word_frequencies <- report %>%
  #Tokenize text into words
  unnest_tokens(output = word, input = x) %>%
  #Remove stop words
  anti_join(stop_words, by = "word") %>%
  #Word frequencies
  count(word, sort = TRUE)
```

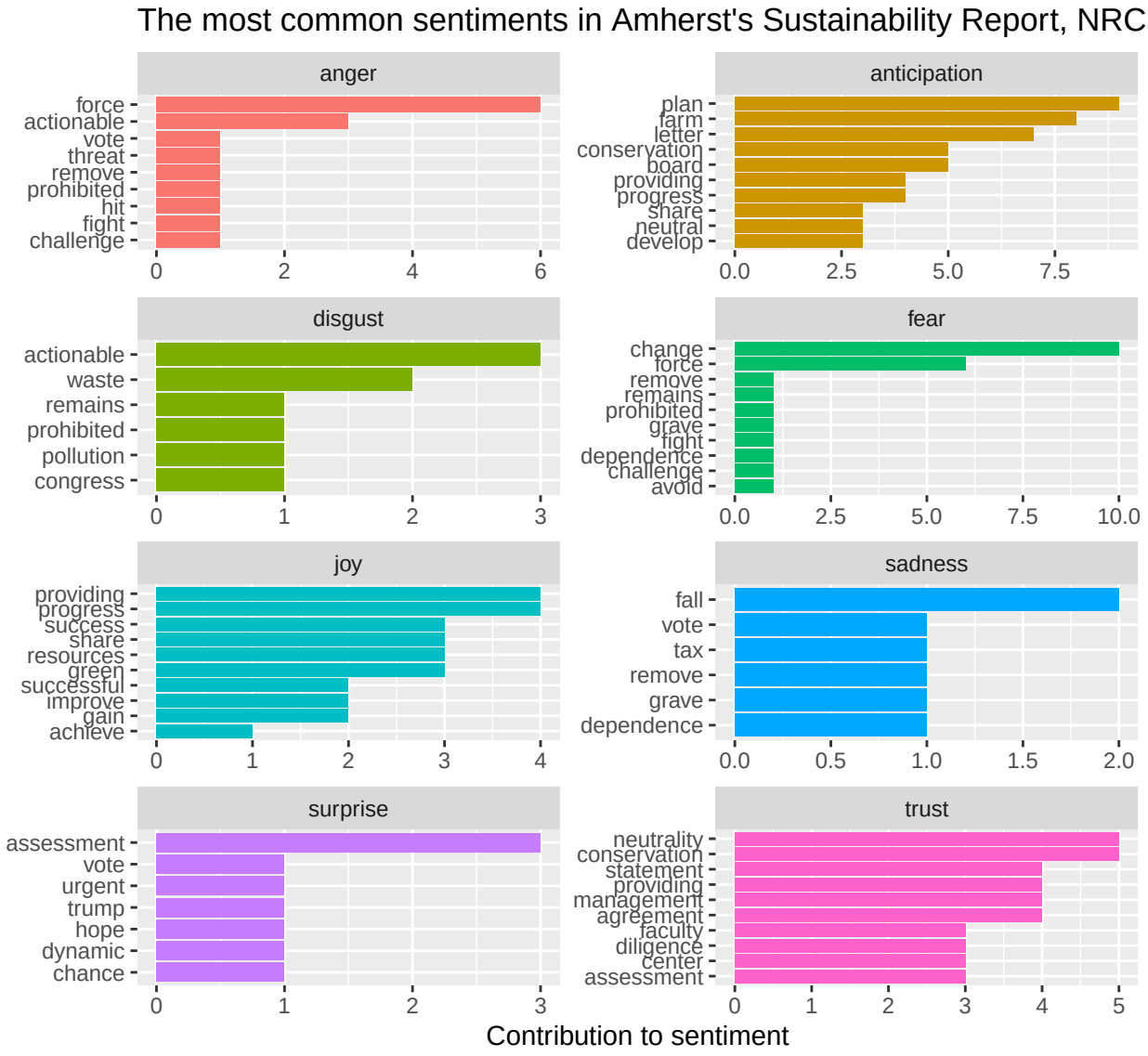
```
#Common words plot
word_frequencies %>%
  slice(1:10) %>%
  ggplot(aes(x = reorder(word, n), y = n,
             color = word, fill = word)) +
  geom_col() +
  coord_flip() +
  guides(color = "none", fill = "none") +
  labs(x = NULL,
       y = "Number of instances",
       title = "The Most Common Words in Amherst's Sustainability Report")
```



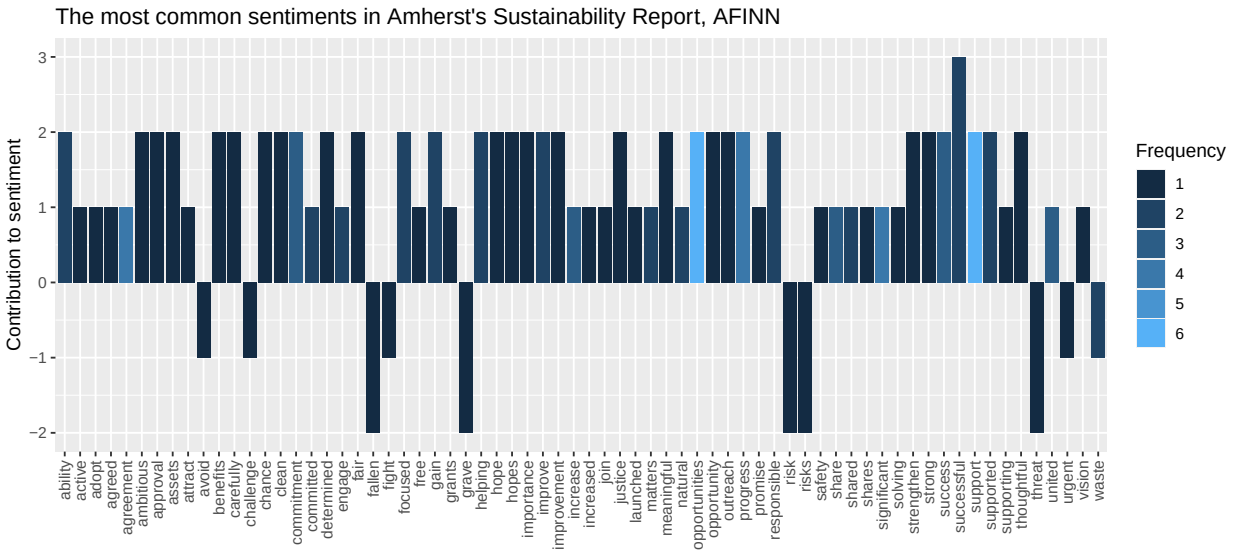

```
#Word Cloud
mypal <- brewer.pal(10, "Paired")

wordcloud(words = word_frequencies$word,
          freq = word_frequencies$n,
          min.freq = 5,
          max.words = 50,
          # plot the words in a random order
          random.order = TRUE,
          # specify the range of the size of the words
          scale = c(2, 0.3),
          # specify proportion of words with 90 degree rotation
          rot.per = 0.15,
          # colors words from least to most frequent
          colors = mypal,
          # font family
          family = "sans")
```




```
#NRC Lexicon
nrc_lexicon <- get_sentiments("nrc")

nrc_lexicon_formatted <- inner_join(nrc_lexicon, word_frequencies, by = c("word" = "word"))

nrc_graphic <- nrc_lexicon_formatted %>%
  filter(sentiment %in% c("anger", "anticipation", "disgust", "sadness", "fear", "joy", "surprise", "tr
  group_by(sentiment) %>%
  arrange(desc(n)) %>%
  slice(1:10) %>%
  ungroup()

nrc_graphic %>%
  ggplot(aes(x = reorder(word, n), y = n,
             fill = sentiment)) +
  geom_col(show.legend = FALSE) +
  coord_flip() +
  facet_wrap(~ sentiment, ncol = 2, scales = "free") +
  labs(x = NULL,
       y = "Contribution to sentiment",
       title = "The most common sentiments in Amherst's Sustainability Report, NRC")
```




```
#AFINN Lexicon
afinn_lexicon <- get_sentiments("afinn")

afinn_lexicon_formatted <- inner_join(afinn_lexicon, word_frequencies, by = c("word" = "word"))

ggplot(afinn_lexicon_formatted, aes(x = word, y = value, fill = n)) +
  geom_col() +
  theme(axis.text.x = element_text(angle = 90, vjust = 0.5, hjust = 1)) +
  labs(x = NULL,
       y = "Contribution to sentiment",
       title = "The most common sentiments in Amherst's Sustainability Report, AFINN") +
        guides(fill = guide_legend(title = "Frequency"))
```




```
#BING Lexicon
bing_words <- word_frequencies %>%
  inner_join(get_sentiments("bing")) %>%
  ungroup()
```

```
## Joining, by = "word"
```

```
ggplot(bing_words, aes(x = word, y = n)) +
  geom_col() +
  theme(axis.text.x = element_text(angle = 90, vjust = 0.5, hjust = 1)) +
  facet_wrap(vars(sentiment), scales = 'free_x') +
  labs(x = NULL,
       y = "Contribution to sentiment",
       title = "The most common sentiments in Amherst's Sustainability Report, BING")
```