Online-Appendix zu

„Die Verwendung von Emojis in der Konsumentenkommunikation – Eine stimmungsanalytische Betrachtung von Kurznachrichten im Social Web“

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Junior Management Science 2(2) (2017) 1-42

Anhang

Anhang A: Emoji-Tab.

Nr.	Emoji	Benennung	Emoji-Code	Kategorie	Starbucks		McDonald‘s	
					Häufigkeit	Stimmungswert	Häufigkeit	Stimmungswert
1		Two Hearts	<ed><U+00A0><U+00BD><ed><U+00B2><U+0095>	Hearts	3.164	0,84	372	0,78
2		Black Heart Suit	<U+2665><U+FE0F>	Hearts	85	0,85	12	1,00
3		Heavy Black Heart	<U+2764><U+FE0F>	Hearts	5.295	0,81	1.175	0,75
4		Smiling face with open mouth and smiling eyes	<ed><U+00A0><U+00BD><ed><U+00B8><U+0084>	Happy faces	869	0,77	260	0,60
5		Smiling face with open mouth	<ed><U+00A0><U+00BD><ed><U+00B8><U+0083>	Happy faces	389	0,83	124	0,59
6		Grinning face	<ed><U+00A0><U+00BD><ed><U+00B8><U+0080>	Happy faces	572	0,74	165	0,61
7		Smiling face with smiling eyes	<ed><U+00A0><U+00BD><ed><U+00B8><U+008A>	Happy faces	4.663	0,78	1.001	0,53
8		White smiling face	<U+263A><U+FE0F>	Happy faces	1.818	0,78	277	0,50
9		Winking face	<ed><U+00A0><U+00BD><ed><U+00B8><U+0089>	Happy faces	1.354	0,85	412	0,89
10		Smiling face with heart-shaped eyes	<ed><U+00A0><U+00BD><ed><U+00B8><U+008D>	Happy faces	10.225	0,81	1.948	0,66

11	😘	Face throwing a kiss	<ed><U+00A0><U+00BD><ed><U+00B8><U+0098>	Happy faces	1.765	0,89	426	0,80
12	😚	Kissing face with closed eyes	<ed><U+00A0><U+00BD><ed><U+00B8><U+009A>	Happy faces	227	0,87	78	0,90
13	😗	Kissing face	<ed><U+00A0><U+00BD><ed><U+00B8><U+0097>	Happy faces	26	0,60	14	1,00
14	😙	Kissing face with smiling eyes	<ed><U+00A0><U+00BD><ed><U+00B8><U+0099>	Happy faces	111	0,91	48	0,71
15	😜	Face with stuck-out tongue and winking eye	<ed><U+00A0><U+00BD><ed><U+00B8><U+009C>	Happy faces	1.060	0,70	322	0,74
16	😝	Face with stuck-out tongue and tightly-closed eyes	<ed><U+00A0><U+00BD><ed><U+00B8><U+009D>	Happy faces	586	0,54	228	0,44
17	😛	Face with stuck-out tongue	<ed><U+00A0><U+00BD><ed><U+00B8><U+009B>	Happy faces	1.487	0,73	302	0,42
18	😳	Flushed face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00B3>	Sad faces	1.182	-0,03	435	-0,17
19	😁	Grinning face with smiling eyes	<ed><U+00A0><U+00BD><ed><U+00B8><U+0081>	Happy faces	2.363	0,71	585	0,44
20	😔	Pensive face	<ed><U+00A0><U+00BD><ed><U+00B8><U+0094>	Sad faces	904	-0,56	315	-0,58
21	😌	Relieved face	<ed><U+00A0><U+00BD><ed><U+00B8><U+008C>	Happy faces	1.416	0,74	319	0,44
22	😒	Unamused face	<ed><U+00A0><U+00BD><ed><U+00B8><U+0092>	Sad faces	2.181	-0,47	1.061	-0,65
23	😞	Disappointed face	<ed><U+00A0><U+00BD><ed><U+00B8><U+009E>	Sad faces	615	-0,55	194	-0,74
24	😣	Persevering face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00A3>	Sad faces	296	-0,63	115	-0,59
25	😢	Crying face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00A2>	Sad faces	1.198	-0,48	419	-0,64

26	😂	Face with tears of joy	<ed><U+00A0><U+00BD><ed><U+00B8><U+0082>	Happy faces	16.600	0,33	9.086	-0,04
27	😭	Loudly crying face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00AD>	Sad faces	9.492	-0,16	2.801	-0,58
28	😪	Sleepy face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00AA>	Sad faces	683	-0,59	260	-0,67
29	😥	Disappointed but relieved face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00A5>	Sad faces	242	-0,49	119	-0,82
30	😰	Face with open mouth and cold sweat	<ed><U+00A0><U+00BD><ed><U+00B8><U+00B0>	Sad faces	215	-0,53	94	-0,31
31	😅	Smiling face with open mouth and cold sweat	<ed><U+00A0><U+00BD><ed><U+00B8><U+0085>	Happy faces	2.326	-0,01	623	-0,24
32	😓	Face with cold sweat	<ed><U+00A0><U+00BD><ed><U+00B8><U+0093>	Sad faces	361	-0,60	122	-0,85
33	😩	Weary face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00A9>	Sad faces	6.293	-0,25	2.107	-0,57
34	😫	Tired face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00AB>	Sad faces	1.248	-0,39	388	-0,68
35	😨	Fearful face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00A8>	Sad faces	99	-0,33	52	-0,43
36	😱	Face screaming in fear	<ed><U+00A0><U+00BD><ed><U+00B8><U+00B1>	Sad faces	536	0,23	230	0,03
37	😠	Angry face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00A0>	Sad faces	196	-0,60	132	-0,66
38	😡	Pouting face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00A1>	Sad faces	751	-0,58	542	-0,68
39	😤	Face with look of triumph	<ed><U+00A0><U+00BD><ed><U+00B8><U+00A4>	Sad faces	426	-0,63	317	-0,63
40	😖	Confounded face	<ed><U+00A0><U+00BD><ed><U+00B8><U+0096>	Sad faces	321	-0,47	173	-0,75
41	😆	Smiling face with open mouth and tightly-closed eyes	<ed><U+00A0><U+00BD><ed><U+00B8><U+0086>	Happy faces	594	0,66	215	0,65

42		Face savouring delicious food	<ed><U+00A0><U+00BD><ed><U+00B8><U+008B>	Happy faces	4.167	0,81	1.206	0,65
43		Face with medical mask	<ed><U+00A0><U+00BD><ed><U+00B8><U+00B7>	Sad faces	435	-0,32	817	-0,68
44		Smiling face with sunglasses	<ed><U+00A0><U+00BD><ed><U+00B8><U+008E>	Happy faces	1.426	0,72	358	0,65
45		Sleeping face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00B4>	Happy faces	897	-0,14	216	-0,49
46		Dizzy face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00B5>	Sad faces	113	-0,35	33	-0,50
47		Astonished face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00B2>	Sad faces	102	0,00	38	0,09
48		Worried face	<ed><U+00A0><U+00BD><ed><U+00B8><U+009F>	Sad faces	168	-0,57	73	-0,64
49		Frowning face with open mouth	<ed><U+00A0><U+00BD><ed><U+00B8><U+00A6>	Sad faces	71	-0,20	33	-0,50
50		Anguished face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00A7>	Sad faces	126	-0,55	67	-0,44
51		Smiling face with horns	<ed><U+00A0><U+00BD><ed><U+00B8><U+0088>	Happy faces	306	0,48	122	0,31
52		Imp	<ed><U+00A0><U+00BD><ed><U+00B1><U+00BF>	Sad faces	64	-0,45	48	-0,50
53		Face with open mouth	<ed><U+00A0><U+00BD><ed><U+00B8><U+00AE>	Sad faces	89	0,47	25	-0,33
54		Grimacing face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00AC>	Happy faces	585	0,22	161	-0,22
55		Neutral face	<ed><U+00A0><U+00BD><ed><U+00B8><U+0090>	Sad faces	772	-0,48	393	-0,58
56		Confused face	<ed><U+00A0><U+00BD><ed><U+00B8><U+0095>	Sad faces	872	-0,61	344	-0,55
57		Hushed face	<ed><U+00A0><U+00BD><ed><U+00B8><U+00AF>	Sad faces	60	-0,13	34	-0,71
58		Face without mouth	<ed><U+00A0><U+00BD><ed><U+00B8><U+00B6>	Sad faces	211	-0,29	95	-0,45

59		Smiling face with halo	<ed><U+00A0><U+00BD><ed><U+00B8><U+0087>	Happy faces	902	0,60	178	0,31
60		Smirking face	<ed><U+00A0><U+00BD><ed><U+00B8><U+008F>	Happy faces	1.259	0,72	402	0,47
61		Expressionless face	<ed><U+00A0><U+00BD><ed><U+00B8><U+0091>	Sad faces	1.150	-0,44	568	-0,73
62		See-no-evil monkey	<ed><U+00A0><U+00BD><ed><U+00B9><U+0088>	Monkeys	982	0,37	338	-0,10
63		Hear-no-evil monkey	<ed><U+00A0><U+00BD><ed><U+00B9><U+0089>	Monkeys	49	0,60	14	0,33
64		Speak-no-evil monkey	<ed><U+00A0><U+00BD><ed><U+00B9><U+008A>	Monkeys	346	0,56	112	0,00
65		Thumbs up sign	<ed><U+00A0><U+00BD><ed><U+00B1><U+008D>	Hand gestures	1.706	0,82	532	0,64
66		Thumbs down sign	<ed><U+00A0><U+00BD><ed><U+00B1><U+008E>	Hand gestures	249	-0,22	157	-0,52

Anhang B: Skripte

Anhang B.1: 01 Installation R Packages

```
########################################
## Installation of the used R packages ##
########################################

install.packages("twitteR")

require(devtools)
install_github("sentiment140", "okugami79", force= TRUE)

install.packages("syuzhet")

install.packages("tm")

install.packages("wordcloud")

install.packages("RCurl")

install.packages("bitops")

install.packages("ROAuth")

install.packages("plyr")

install.packages("SnowballC")

install.packages("slam")
```

Anhang B.2: 02 Library and Authentification

```
####################
## Load Libraries ##
####################

library(twitteR)

library(sentiment)

library(syuzhet)

library(tm)

library(wordcloud)

library(RCurl)

library(bitops)

library(ROAuth)

library(plyr)

library(SnowballC)

library(slam)


#################################
## Authentification for Twitter ##
#################################

consumer_key = [redacted]
consumer_secret = [redacted]
access_token = [redacted]
access_secret = [redacted]
setup_twitter_oauth(consumer_key, consumer_secret, access_token, ac-
cess_secret)
```

Anhang B.3: 04 Search Tweets of One Day_Starbucks (gilt analog für McDonald's)

```
#########################################################
## Daily extraction of tweets and saving to data file ##
#########################################################

# Set working directory
setwd(paste0("C:", Sys.getenv("homepath"), "/Dropbox/M.A. 2/R Stu-
dio/Daten/Starbucks Tweets in Listenformat/"))

# Searching for tweets including the word Starbucks (Starbucks, @Star-
bucks, #Starbucks, also in lowercase)
Search_Text = "Starbucks"

# Day (The date has to be manually changed)
Day = "2016-05-18"
Next_Day = "2016-05-19"
# It is only possible to extract data 14 days from today

# Filename
Filename = paste0("Tweets_", Search_Text, "_of_", Day, ".RData")

#While-Loop (The command is running until no more tweets are found for
the specific date)
New_Tweets = 1
while (length (New_Tweets) > 0) {

  # Check if list of tweets for the specific date already exists
  if (file.exists(Filename)) {
    # Load tweets that have already been extracted
    load(Filename)
    # Read ID of the last extracted tweet and use it as Start_ID
    Oldest_ID = tail(Tweets, n = 1)[[1]]$id

    New_Tweets = searchTwitter(Search_Text, n = 5000, lang = "en", maxID
    = Oldest_ID, since = Day, resultType = "recent", retryOnRateLimit =
    1)

    # Deleate the first tweet
    New_Tweets[[1]] = NULL

    # Amount of new tweets
    print(length(New_Tweets))

    # The first and the last time indication
    print(head(New_Tweets, n=1)[[1]]$created)
    print(tail(New_Tweets, n=1)[[1]]$created)

    # Add list "New_Tweets" to the list "Tweets"
    Tweets = append(Tweets, New_Tweets)

  } else {
    # Initiate (Starts at midnight of "Day")

    # Search for tweets and create list "Tweets"
    Tweets = searchTwitter(Search_Text, n = 5000, lang = "en", since =
Day, until = Next_Day, resultType = "recent", retryOnRateLimit = 1)

    # The first and the last time indication
    print(head(Tweets, n=1)[[1]]$created)
    print(tail(Tweets, n=1)[[1]]$created)
  }

  save(Tweets, file = Filename)

}
```

Anhang B.4: 05a Convert List of Tweets to Dataframes_Starbucks (gilt analog für McDonald's)

```
#########################################################
## Convert lists of Tweets to Dataframes (Starbucks)##
#########################################################

# Remove elements of the global environment
rm(list = ls())

# Set working directory
setwd(paste0("C:", Sys.getenv("homepath"), "/Dropbox/M.A. 2/R Stu-
dio/Daten/"))

head = "Tweets_Starbucks_of_2016-"

# Please change the date to convert the specific data files
for ( date in c("05-18")) {

  filename = paste0("Starbucks Tweets in Listenformat/", head, date,
".RData")
    load(filename)

    Tweets = twListToDF(Tweets)

    filename_df = paste0("Starbucks/", head, date, "_df.RData")
    save(Tweets, file = filename_df)

}
```

Anhang B.5: 05b Merging Searched Tweets_Starbucks (gilt analog für McDonald's)

```
#########################################################
## Merging the daily lists of tweets in one dataframe  ##
## "Tweets_Observation_Period"                         ##
#########################################################

# Set working directory
setwd(paste0("C:", Sys.getenv("homepath"), "/Dropbox/M.A. 2/R Stu-
dio/Daten"))

# Create final data frame
Tweets_Observation_Period = NULL

head = "Starbucks/Tweets_Starbucks_of_2016-"

for (date in c("04-18", "04-19", "04-20", "04-21", "04-22", "04-23", "04-
24", "04-25", "04-26", "04-27", "04-28", "04-29",
               "04-30", "05-01", "05-02", "05-03", "05-04", "05-05", "05-
06", "05-07", "05-08", "05-09", "05-10", "05-11",
               "05-12", "05-13", "05-14", "05-15", "05-16", "05-17", "05-
18")) {

  filename = paste0(head, date, "_df.RData")

  print(paste0("Load data of ", date))
  load(filename)

  # Merge daily lists of Tweets
  Tweets_Observation_Period = rbind(Tweets, Tweets_Observation_Period)

}

# Renaming for better handling
Tweets = Tweets_Observation_Period

save(Tweets, file = "Tweets_Starbucks_Full_Observation_Period.RData")
```

Anhang B.6: 03 Extraction Emoji Code

```
################################################
## Extraction of emoji codes from user timeline ##
################################################

# Search for tweets in user timeline
Tweets_Usertimeline = userTimeline("Baeumchen90",n=66 )

# Tweet output
Tweets_Usertimeline

# Count tweets
length(Tweets_Usertimeline)

# Creation of dataframe with emoji code and emoji description
Emoji_Table = data.frame(Emoji_Code = character(),
                         Description = character(),
                         Frequency = numeric(),
                         Negative = numeric(),
                         Neutral = numeric(),
                         Positive = numeric(),
                         Percentage_Negative = numeric(),
                         Percentage_Neutral = numeric(),
                         Percentage_Positive = numeric(),
                         Negative_Syuzhet = numeric(),
                         Neutral_Syuzhet = numeric(),
                         Positive_Syuzhet = numeric(),
                         Percentage_Negative_Syuzhet = numeric(),
                         Percentage_Neutral_Syuzhet = numeric(),
                         Percentage_Positive_Syuzhet = numeric(), string-
sAsFactors=FALSE)


for (Laufindex in 1 : 66) {

  # Emoji code and emoji description as text file
  Text = Tweets_Usertimeline[[Laufindex]]$text

   # Emoji is on position 1 and 2 of the text, the description on
     position 3
  Emoji = substr(Text, 1, 2)
  Description = substr(Text, 3, nchar(Text))

  # Change emoji code and description from UTF in Native
  Emoji = enc2native(Emoji)
  Description = enc2native(Description)

  Emoji_Table[Laufindex, 1] = Emoji
  Emoji_Table[Laufindex, 2] = Description
}

# Set the working directory
setwd(paste0("C:", Sys.getenv("homepath"), "/Dropbox/M.A. 2/R Stu-
dio/Daten"))

# Show Emoji_Table
View(Emoji_Table)

# Save Emoji_Table
save(Emoji_Table, file="Emoji_Table.RData")

# Convert Emoji_Table into a csv-file
write.csv2(Emoji_Table, file='Emoji_Table.csv')
```

Anhang B.7: 07 Create Sample for Manual Sentiment Analysis

```
################################################
## Create Sample for Manual Sentiment Analysis ##
################################################

# Set working directory
setwd(paste0("C:", Sys.getenv("homepath"), "/Dropbox/M.A. 2/R Stu-
dio/Daten"))

load("Tweets_Per_Emoji_Starbucks.RData")
Total_Tweets_with_Emojis = data.frame()

for (Laufindex in 1 : length (Tweets_Per_Emoji)) {

  Total_Tweets_with_Emojis = rbind(Total_Tweets_with_Emojis,
Tweets_Per_Emoji[[Laufindex]])
}

# Delete Tweets that occur more than once in the Tweets_Per_Emoji_Star-
bucks list
Total_Tweets_with_Emojis_Unique = unique(Total_Tweets_with_Emojis)

# Ensures that always the same sample can be generated
set.seed(1)

# Generate sample of 100 Tweets
Sample_Index = sample(nrow(Total_Tweets_with_Emojis_Unique), 100)

View(Total_Tweets_with_Emojis_Unique [Sample_Index,])

Sample = Total_Tweets_with_Emojis_Unique [Sample_Index,]

Sample$text

write.csv2(Sample, file='Sample.csv')
```

Anhang B.8: 00 Function Syuzhet Adaption to Sentiment140

```
#####################################################
## Wrapper function for Syuzhet sentiment analysis ##
#####################################################

function(Text) {

  Sentiments = get_nrc_sentiment(Text)
  # Adapts results of Sentiments_Syuzhet to "Positive" (>0), "Neutral"
(==0) and "Negative" (<0)
  Adaption_To_140 = Sentiments$negative * -1 + Sentiments$positive
  Adaption_To_140[Adaption_To_140 >  0] = "positive"
  Adaption_To_140[Adaption_To_140 == 0] = "neutral"
  Adaption_To_140[Adaption_To_140 <  0] = "negative"


  return(Adaption_To_140)
}
```

Anhang B.9: 07a Pretest

```
#################################################################
## Pretest: Sentiment Analysis with Syuzhet and Sentiment140 ##
## in different Text Cleaning Configurations                   ##
#################################################################

# Set working directory
setwd(paste0("C:", Sys.getenv("homepath"), "/Dropbox/M.A. 2/R Studio"))
Sentiment_Syuzhet = dget("00 Function Syuzhet Adaption to Senti-
ment140.R")

# Set working directory
setwd(paste0("C:", Sys.getenv("homepath"), "/Dropbox/M.A. 2/Daten"))

Sample = read.csv2(file='Sample.csv')
Sample$text = as.character(Sample$text)

# Set working directory
setwd(paste0("C:", Sys.getenv("homepath"), "/Dropbox/M.A. 2/Sample
Auswertung Basis SA"))

NROWS = 100

Evaluation_Sentiment140 = data.frame(Tweets = Sample$text,
                          Configuration_1 = character(NROWS),
                          Accordance_with_one_rater = numeric(NROWS),
                          Configuration_2 = character(NROWS),
                          Accordance_with_one_rater = numeric(NROWS),
                          Configuration_3 = character(NROWS),
                          Accordance_with_one_rater = numeric(NROWS),
                          Configuration_4 = character(NROWS),
                          Accordance_with_one_rater = numeric(NROWS),
                          Configuration_5 = character(NROWS),
                          Accordance_with_one_rater = numeric(NROWS),
                          Configuration_6 = character(NROWS),
                          Accordance_with_one_rater = numeric(NROWS),
                          Configuration_7 = character(NROWS),
                          Accordance_with_one_rater = numeric(NROWS),
                          Configuration_8 = character(NROWS),
                          Accordance_with_one_rater = numeric(NROWS),)

# Inherit format
Evaluation_Syuzhet = Evaluation_Sentiment140

## Configuration 1
# - Sentiment Analysis of original Data (Data without text cleaning)
Evaluation_Sentiment140[,2] = sentiment(Sample$text)$polarity
Evaluation_Syuzhet[,2] = Sentiment_Syuzhet(Sample$text)

## Configuration 2
# - Tolower

#Build a corpus, and specify the source to be a character verctor
Sample_Corpus = Corpus(VectorSource(Sample$text))

#Convert Tweet into Native (no error message caused by UTF8)
Sample_Corpus = tm_map(Sample_Corpus, content_transformer(enc2native))

#Transform Tweets into lowercase
Sample_Corpus = tm_map(Sample_Corpus, content_transformer(tolower))

Tweets_Configuration_2 = sapply(Sample_Corpus, content)

Evaluation_Sentiment140[,4] = sentiment(Tweets_Configuration_2)$polarity
Evaluation_Syuzhet[,4] = Sentiment_Syuzhet(Tweets_Configuration_2)

## Configuration 3
# - Tolower
# - Remove URL

#Remove URL
Remove_URL = function(x) gsub("http[^[:space:]]*", " ", x)

Sample_Corpus = tm_map(Sample_Corpus, content_transformer(Remove_URL))

Tweets_Configuration_3 = sapply(Sample_Corpus, content)
```

```
Evaluation_Sentiment140[,6] = sentiment(Tweets_Configuration_3)$polarity
Evaluation_Syuzhet[,6] = Sentiment_Syuzhet(Tweets_Configuration_3)

## Configuration 4
# - Tolower
# - Remove URL
# - Strip Whitespaces

#Remove Whitespaces
Sample_Corpus = tm_map(Sample_Corpus, content_transformer(strip-
Whitespace))

Tweets_Configuration_4 = sapply(Sample_Corpus, content)

Evaluation_Sentiment140[,8] = sentiment(Tweets_Configuration_4)$polarity
Evaluation_Syuzhet[,8] = Sentiment_Syuzhet(Tweets_Configuration_4)

## Configuration 5
# - Tolower
# - Remove URL
# - Strip Whitespaces
# - Remove Emoji Code
# - Strip Whitespaces

# Create function that deletes unicodes
Remove_Emoji_Code = function(x) gsub("<.*>", " ", x)
Sample_Corpus = tm_map(Sample_Corpus, content_transformer(Re-
move_Emoji_Code))

#Strip Whitespaces again
Sample_Corpus = tm_map(Sample_Corpus, content_transformer(strip-
Whitespace))

Tweets_Configuration_5 = sapply(Sample_Corpus, content)

Evaluation_Sentiment140[,10] = sentiment(Tweets_Configuration_5)$polarity
Evaluation_Syuzhet[,10] = Sentiment_Syuzhet(Tweets_Configuration_5)

## Configuration 6
# - Tolower
# - Remove URL
# - Strip Whitespaces
# - Remove Emoji Code
# - Strip Whitespaces
# - Remove HTML Code
# - Strip Whitespaces

#Create function that deletes HTML-Code
Remove_HTML_Code = function(x) gsub("&.*;", " ", x)
Sample_Corpus = tm_map(Sample_Corpus, content_transformer(Re-
move_HTML_Code))

#Strip Whitespaces again
Sample_Corpus = tm_map(Sample_Corpus, content_transformer(strip-
Whitespace))

Tweets_Configuration_6 = sapply(Sample_Corpus, content)

Evaluation_Sentiment140[,12] = sentiment(Tweets_Configuration_6)$polarity
Evaluation_Syuzhet[,12] = Sentiment_Syuzhet(Tweets_Configuration_6)

## Configuration 7
# - Tolower
# - Remove URL
# - Strip Whitespaces
# - Remove Emoji Code
# - Strip Whitespaces
# - Remove HTML Code
# - Strip Whitespaces
# - Remove NumPunct
# - Strip Whitespaces

#Remove anything other than english letters or space
Remove_NumPunct = function(x) gsub("[^[:alpha:][:space:]]*","",x)
Sample_Corpus = tm_map(Sample_Corpus, content_transformer(Re-
move_NumPunct))

#Strip Whitespaces again
```

```
Sample_Corpus = tm_map(Sample_Corpus, content_transformer(strip-
Whitespace))

Tweets_Configuration_7 = sapply(Sample_Corpus, content)

Evaluation_Sentiment140[,14] = sentiment(Tweets_Configuration_7)$polarity
Evaluation_Syuzhet[,14] = Sentiment_Syuzhet(Tweets_Configuration_7)

## Configuration 8
# - Tolower
# - Remove URL
# - Strip Whitespaces
# - Remove Emoji Code
# - Strip Whitespaces
# - Remove HTML Code
# - Strip Whitespaces
# - Remove NumPunct
# - Strip Whitespaces
# - Remove Stopwords
# - Strip Whitespaces

#Remove Stopwords
Sample_Corpus = tm_map(Sample_Corpus, removeWords, stopwords('english'))

#Strip Whitespaces again
Sample_Corpus = tm_map(Sample_Corpus, content_transformer(strip-
Whitespace))

Tweets_Configuration_8 = sapply(Sample_Corpus, content)

Evaluation_Sentiment140[,16] = sentiment(Tweets_Configuration_8)$polarity
Evaluation_Syuzhet[,16] = Sentiment_Syuzhet(Tweets_Configuration_8)


# Combine evaluations
Evaluation = cbind(Evaluation_Sentiment140, Evaluation_Syuzhet)

write.csv2(Evaluation, file= "Evaluation.csv")
```

Anhang B.10: 05c Remove Retweets, Tweets Without Analysed Emojis, Statistics

```
#########################################################################
## Cleaning the dataframe "Tweets_Starbucks_Full_Observation_Period" ##
## from retweets, tweets without the analysed emojis and             ##
## first statistics                                                  ##
#########################################################################

# Set working directory
setwd(paste0("C:", Sys.getenv("homepath"), "/Dropbox/M.A. 2/R Stu-
dio/Daten"))

# Clear global environment
rm(list = ls())

# Uncomment the dataset which shoud be processed and don't forget the
save-function below
# Load data "Tweets_Starbucks_Full_Observation_Period"
load("Tweets_Starbucks_Full_Observation_Period.RData")
load("Emoji_Table.RData")

# Load data "Tweets_McDonalds_Full_Observation_Period"
# load("Tweets_McDonalds_Full_Observation_Period.RData")
# load("Emoji_Table.RData")

Amount_Tweets = nrow(Tweets)

# Remove retweets
# Rearrange the function "strip_retweets" of the twitteR package to han-
dle dataframes
Strip_Retweets_Df = function (Tweets, Strip_Manual = TRUE, Strip_MT =
TRUE) {

  is_retweets = which(Tweets$isRetweet)
```

```
  if (length(is_retweets) > 0) {
    Filtered_Tweets = Tweets[-is_retweets,]

  } else {
    Filtered_Tweets = Tweets
  }

  if (Strip_Manual) {
    Statuses = Filtered_Tweets$text

    if (Strip_MT) {
      RT_Pattern = "(RT|MT)"
    } else {
      RT_Pattern = "RT"
    }

    Split_Tweets = sapply(strsplit(Statuses, paste0("[[:space:]]?",
RT_Pattern)), function(x) x[1])
    Manual_Retweets = which(Split_Tweets == "")
    if (length(Manual_Retweets) > 0) {
      Filtered_Tweets = Filtered_Tweets[-Manual_Retweets,]
    }
  }

  return(Filtered_Tweets)

}

Tweets = Strip_Retweets_Df(Tweets)

Amount_Tweets_Without_Retweets = nrow(Tweets)

# Extract text from list "Tweets"
Tweets_Text = Tweets$text

# Transfer text into Native
Tweets_Text = enc2native(Tweets_Text)

Tweets_Per_Emoji = list()
Search_Results = c()

# Remove tweets without the analysed emojis
for (Laufindex in 1 : nrow (Emoji_Table)) {

  # Search for Emojis in Tweets-Text
  Index_found = grep(Emoji_Table[Laufindex, 1], Tweets_Text, fixed =
TRUE)

  Tweets_Per_Emoji[[Laufindex]] = Tweets[Index_found,]

  Search_Results = append(Search_Results, Index_found)
}

# Save list "Tweets_Per_Emoji"
save(Tweets_Per_Emoji, file = "Tweets_Per_Emoji_Starbucks.RData")
# save(Tweets_Per_Emoji, file = "Tweets_Per_Emoji_McDonalds.RData")



################
## Statistics ##
################

# Percental amount of retweets
100 - Amount_Tweets_Without_Retweets / Amount_Tweets * 100

# Percental amount of tweets without retweets with emojis
Amount_Tweets_With_Emojis_Without_Retweets = length(unique(Search_Re-
sults))
Amount_Tweets_With_Emojis_Without_Retweets / Amount_Tweets * 100

# Identifying amount of tweets that contain more than one of the 66 Emo-
jis
Different_Emoji_Occurence_Table = table(table(Search_Results))

# Show table of results
print(Different_Emoji_Occurence_Table)
```

Anhang B.11: 00 Function for Text cleaning

```
################################
## Function for Text cleaning ##
################################

## Configuration 3
# - Tolower
# - Remove URL

## The other steps for possible text cleaning configuratione are com-
mented out
# - Strip Whitespaces
# - Remove Emoji Code
# - Strip Whitespaces
# - Remove HTML Code
# - Strip Whitespaces
# - Remove NumPunct
# - Strip Whitespaces
# - Remove Stopwords
# - Strip Whitespaces


function(Tweets_Text) {

  # Build a corpus, and specify the source to be a character verctor
  Tweets_Per_Emoji_Corpus = Corpus(VectorSource(Tweets_Text))

  # Convert Tweet into Native
  Tweets_Per_Emoji_Corpus = tm_map(Tweets_Per_Emoji_Corpus, con-
tent_transformer(enc2native))

  # Convert to lowercase
  Tweets_Per_Emoji_Corpus = tm_map(Tweets_Per_Emoji_Corpus, con-
tent_transformer(tolower))

  # Create function that removes URLs
  Remove_URL = function(x) gsub("http[^[:space:]]*", " ", x)
  Tweets_Per_Emoji_Corpus = tm_map(Tweets_Per_Emoji_Corpus, con-
tent_transformer(Remove_URL))

  # # Strip Whitespaces
  # Tweets_Per_Emoji_Corpus = tm_map(Tweets_Per_Emoji_Corpus, con-
tent_transformer(stripWhitespace))
  #
  # # Create function that removes Emoji Codes
  # Remove_Emoji_Code = function(x) gsub("<.*>", " ", x)
  # Tweets_Per_Emoji_Corpus = tm_map(Tweets_Per_Emoji_Corpus, con-
tent_transformer(Remove_Emoji_Code))
  #
  # # Strip Whitespaces
  # Tweets_Per_Emoji_Corpus = tm_map(Tweets_Per_Emoji_Corpus, con-
tent_transformer(stripWhitespace))
  #
  # # Create function that removes HTML Codes
  # Remove_HTML_Code = function(x) gsub("&.*;", " ", x)
  # Tweets_Per_Emoji_Corpus = tm_map(Tweets_Per_Emoji_Corpus, con-
tent_transformer(Remove_HTML_Code))
  #
  # # Strip Whitespaces
  # Tweets_Per_Emoji_Corpus = tm_map(Tweets_Per_Emoji_Corpus, con-
tent_transformer(stripWhitespace))
  #
  # # Create function that removes anything other than english letters or
space
  # Remove_NumPunct = function(x) gsub("[^[:alpha:][:space:]]*","",x)
  # Tweets_Per_Emoji_Corpus = tm_map(Tweets_Per_Emoji_Corpus, con-
tent_transformer(Remove_NumPunct))
  #
  # # Strip Whitespaces
  # Tweets_Per_Emoji_Corpus = tm_map(Tweets_Per_Emoji_Corpus, con-
tent_transformer(stripWhitespace))
  #
  # # Remove Stopwords
  # Tweets_Per_Emoji_Corpus = tm_map(Tweets_Per_Emoji_Corpus, remove-
Words, stopwords('english'))
  #
  # # Strip Whitespaces
```

```
  # Tweets_Per_Emoji_Corpus = tm_map(Tweets_Per_Emoji_Corpus, con-
tent_transformer(stripWhitespace))

  Cleaned_Tweets = sapply(Tweets_Per_Emoji_Corpus, content)

  return(Cleaned_Tweets)

}
```

Anhang B.12: 06 Text cleaning and Sentiment analysis

Achtung: Es soll darauf hingewiesen werden, dass eine erneute Stimmungsanalyse mit derselben Datenbasis zu marginal veränderten Tweet-Klassifizierungen führt. Dies begründet sich mit dem Ansatz des maschinellen Lernens, dem das Verfahren Sentiment140 folgt.

Es können auch Emoji-spezifische Dateien erstellt werden. Hierfür ist das Skript „06a Tweets Text with Sentiment per Emoji for Starbucks-Tweets“ auf dem Zusatzmaterial (USB-Stick) zu verwenden.

```
##########################################
## Text cleaning and Sentiment Analysis ##
##########################################

# Set working directory and load data
setwd(paste0("C:", Sys.getenv("homepath"), "/Dropbox/M.A. 2/R
Studio/Daten"))

# Uncomment the dataset which shoud be processed and don't forget
the save-function below
load("Tweets_Per_Emoji_Starbucks.RData")
load("Emoji_Table.RData")

# load("Tweets_Per_Emoji_McDonalds.RData")
# load("Emoji_Table.RData")

# Set working directory and load function
setwd(paste0("C:", Sys.getenv("homepath"), "/Dropbox/M.A. 2/R
Studio"))
Text_Cleaning = dget("00 Function for Text cleaning.R")
Sentiment_Syuzhet_Function = dget("00 Function Syuzhet Adaption
to Sentiment140.R")

# Create lists
Sentiments140 = list()
Sentiments_Syuzhet = list()

for (Laufindex in 1 : nrow (Emoji_Table)) {

  cat("\nProcess Emoji ", Laufindex, " ")

  # Text Cleaning
  Cleaned_Tweets = Text_Cleaning(Tweets_Per_Emoji[[Lau-
findex]]$text)

# If there is no tweet with the specific emoji jump to next
iteration
  if (nrow(Tweets_Per_Emoji[[Laufindex]]) == 0) next

  # Sentiment analysis with Sentiment140 of cleaned tweets
  cat('Sentiment140')
```

```
  # Substitute doubled backslashes at the end of tweets for
    sentiment140
  # because it seems that "json" can not handle it
  Sentiments140[[Laufindex]] = sentiment(gsub("\\\\$", "\\",
Cleaned_Tweets))$polarity

  # Fill Emoji_Table with values
  Emoji_Table[Laufindex, 3] = nrow(Tweets_Per_Emoji[[Laufindex]])
  Emoji_Table[Laufindex, 4] = sum(Sentiments140[[Laufindex]] ==
"negative")
  Emoji_Table[Laufindex, 5] = sum(Sentiments140[[Laufindex]] ==
"neutral")
  Emoji_Table[Laufindex, 6] = sum(Sentiments140[[Laufindex]] ==
"positive")
  Emoji_Table[Laufindex, 7] = Emoji_Table[Laufindex,4] /
Emoji_Table[Laufindex,3] * 100
  Emoji_Table[Laufindex, 8] = Emoji_Table[Laufindex,5] /
Emoji_Table[Laufindex,3] * 100
  Emoji_Table[Laufindex, 9] = Emoji_Table[Laufindex,6] /
Emoji_Table[Laufindex,3] * 100

  # Sentiment analysis with Syuzhet of cleaned tweets
  cat('Syuzhet')
  Sentiments_Syuzhet[[Laufindex]] = Sentiment_Syuzhet_Func-
tion(Cleaned_Tweets)

  # Fill Emoji_Table with values
  Emoji_Table[Laufindex, 10] = sum(Sentiments_Syuzhet[[Lau-
findex]] == "negative")
  Emoji_Table[Laufindex, 11] = sum(Sentiments_Syuzhet[[Lau-
findex]] == "neutral")
  Emoji_Table[Laufindex, 12] = sum(Sentiments_Syuzhet[[Lau-
findex]] == "positive")
  Emoji_Table[Laufindex, 13] = Emoji_Table[Laufindex, 10] /
Emoji_Table[Laufindex, 3] * 100
  Emoji_Table[Laufindex, 14] = Emoji_Table[Laufindex, 11] /
Emoji_Table[Laufindex, 3] * 100
  Emoji_Table[Laufindex, 15] = Emoji_Table[Laufindex, 12] /
Emoji_Table[Laufindex, 3] * 100


}

# Set working directory
setwd(paste0("C:", Sys.getenv("homepath"), "/Dropbox/M.A. 2/R
Studio/Daten"))

save(Emoji_Table, file = "Emoji_Table_Starbucks_20160529.RData")
write.csv2(Emoji_Table, file='Emoji_Table_Star-
bucks_20160529.csv')

# save(Emoji_Table, file = "Emoji_Table_McDon-
alds_20160529.RData")
# write.csv2(Emoji_Table, file='Emoji_Table_McDon-
alds_20160529.csv')
```

Anhang B.13: 09 Emotion Mining with Syuzhet (Starbucks-Tweets)

```
############################################################
## Emotion Mining with Syuzhet for Starbucks-Tweets #####
############################################################

# Set working directory and load data
setwd(paste0("C:", Sys.getenv("homepath"), "/Dropbox/M.A. 2/R
Studio/Daten"))

load("Tweets_Per_Emoji_Starbucks.RData")
load("Emoji_Table.RData")

Emoji_Table_Syuzhet = Emoji_Table[, 1 : 13]
colnames(Emoji_Table_Syuzhet) = c('Emoji_code','Descrip-
tion','Frequency','Anger', 'Anticipation', 'Dis-
gust','Fear','Joy','Sadness', 'Surprise','Trust','Negative','Pos-
itive')

setwd(paste0("C:", Sys.getenv("homepath"), "/Dropbox/M.A. 2/R
Studio"))
Text_Cleaning = dget("00 Function for Text cleaning.R")

Sentiments_Syuzhet = list()

for (Laufindex in 1 : nrow (Emoji_Table_Syuzhet)) {

  cat("\nProcess Emoji ", Laufindex, " ")

  # Text Cleaning
  Cleaned_Tweets = Text_Cleaning(Tweets_Per_Emoji[[Lau-
findex]]$text)

  # If there is no tweet with the specific emoji jump to next
  iteration
  if (nrow(Tweets_Per_Emoji[[Laufindex]]) == 0) next

  # Sentiment analysis with Syuzhet of cleaned tweets
  cat('Syuzhet')
  Sentiments_Syuzhet[[Laufindex]]= get_nrc_senti-
ment(Cleaned_Tweets)

  # Fill Emoji_Table with values
  Emoji_Table_Syuzhet[Laufindex, 3] = nrow(Tweets_Per_Emoji[[Lau-
findex]])
  Emoji_Table_Syuzhet[Laufindex, 4] = sum(Sentiments_Syu-
zhet[[Laufindex]]$anger)
  Emoji_Table_Syuzhet[Laufindex, 5] = sum(Sentiments_Syu-
zhet[[Laufindex]]$anticipation)
  Emoji_Table_Syuzhet[Laufindex, 6] = sum(Sentiments_Syu-
zhet[[Laufindex]]$disgust)
  Emoji_Table_Syuzhet[Laufindex, 7] = sum(Sentiments_Syu-
zhet[[Laufindex]]$fear)
  Emoji_Table_Syuzhet[Laufindex, 8] = sum(Sentiments_Syu-
zhet[[Laufindex]]$joy)
  Emoji_Table_Syuzhet[Laufindex, 9] = sum(Sentiments_Syu-
zhet[[Laufindex]]$sadness)
  Emoji_Table_Syuzhet[Laufindex, 10] = sum(Sentiments_Syu-
zhet[[Laufindex]]$surprise)
  Emoji_Table_Syuzhet[Laufindex, 11] = sum(Sentiments_Syu-
zhet[[Laufindex]]$trust)
  Emoji_Table_Syuzhet[Laufindex, 12] = sum(Sentiments_Syu-
zhet[[Laufindex]]$negative)
  Emoji_Table_Syuzhet[Laufindex, 13] = sum(Sentiments_Syu-
zhet[[Laufindex]]$positive)

}

# Set working directory
```

```
setwd(paste0("C:", Sys.getenv("homepath"), "/Dropbox/M.A. 2/R
Studio/Daten"))

save(Emoji_Table_Syuzhet, file = "Emoji_Table_Starbucks_with_Syu-
zhet_20160720.RData")
write.csv2(Emoji_Table_Syuzhet, file='Emoji_Table_Star-
bucks_with_Syuzhet_20160720.csv')
```

Anhang C: Pretest

Emojis, die in der vorliegenden Arbeit nicht berücksichtigt wurden sind durch […] gekennzeichnet. In den Spalten Beurteiler-Übereinstimmung steht eine Eins für eine Übereinstimmung eine Null für eine Abweichung.

		Ohne Emoji			Mit Emoji		
Lfd. Nr.	**Tweet**	Zuordnung Beurteiler A	Zuordnung Beurteiler B	Beurteiler-Übereinstimmung	Zuordnung Beurteiler A	Zuordnung Beurteiler B	Beurteiler-Übereinstimmung
1	@LilianaSotoAZ It Is Starbucks date!! 😜 happy Friday my friend!	pos	pos	1	pos	pos	1
2	Let's be clear I haven't had a sip! that's atleast 25 cents worth! @Starbucks is going downhill! 😒 @starbucksgold https://t.co/RL3uX2T2zz	neg	neg	1	neg	neg	1
3	I'm literally sitting in Starbucks fighting down laughter and it's so hard because I'm actually choking.... WHAT THE FUCK DID I JUST SEE 😂 😂 😂	neg	neutr	0	pos	pos	1
4	I literally spent all day at Starbucks writing that essay 😟	neutr	neutr	1	neg	neutr	0
5	Starbucks addicted to these 😍 😍 https://t.co/bEVmvVrwiF	pos	pos	1	pos	pos	1
6	when you make a Starbucks run for internship cause Monday 😴	neutr	neutr	1	neutr	neutr	1
7	This is the bomb. Come get one from your local Starbucks 😇 https://t.co/mc4bDXOx8J	neutr	neutr	1	neutr	pos	0
8	HIGHKEY craving Starbucks 😭	neutr	neutr	1	neg	neg	1
9	I should've got a banana nut bread from Starbucks 😭	neutr	neutr	1	pos	neg	0
10	Super pleased to find out about @Starbucks new compost-able cups 😊	pos	pos	1	pos	pos	1
11	It's my birthday, I get to go home, it's pay day AND free Starbucks 😍	pos	pos	1	pos	pos	1
12	Chai tea from Starbucks is so good! 😍	pos	pos	1	pos	pos	1
13	I'm really bout to be posted at Starbucks frequently so I can do anything on my phone 😭 😭	neutr	neutr	1	neg	neutr	0

14	when the Starbucks barista is cute but it's the female barista who calls out "next!" 😒	neg	neg	1	neg	neg	1
15	15 minutes late for Starbucks 😩	neg	neg	1	neg	neg	1
16	When a guy asks you what he should get from Starbucks cause you go there everyday 😂😂	pos	pos	1	pos	pos	1
17	Mom said we had to use fake names at Starbucks or she give us Starbucks cards again... 😅	neutr	neutr	1	neutr	pos	0
18	I love when they play Michael Jackson in Starbucks. 👍[…]	pos	pos	1	pos	pos	1
19	When you get your bf into Starbucks rewards and you don't get his stars any more... 😒 @EgODoT @Starbucks	neg	neg	1	neg	neg	1
20	@SamanthaDee87 Starbucks would definately be good right now 😩	pos	pos	1	pos	neg	0
21	I want starbucks 😐	pos	pos	1	pos	neutr	0
22	@Starbucks whoa does that waffle have syrup in it?!! 😍	neutr	neutr	1	pos	pos	1
23	Forgot to get my mark out! 😭😭🙈 I need to go get it; tea or coffee? #Starbucks probs as the decisions are endless	neutr	neutr	1	neg	neg	1
24	And I had @Starbucks_SA yesterday at Mall of Africa. 😍😢 so yum.	pos	pos	1	pos	pos	1
25	2 weeks with out Starbucks down [...] so far so good 😜	pos	pos	1	pos	pos	1
26	@salmanburhan dang it it Starbucks Friday. 😒😒😒	pos	neg	0	neg	neg	1
27	@EllenStreiff @Starbucks On it's way! lol 😃	pos	pos	1	pos	pos	1
28	This morning I was late to work because the Starbucks by my house closed 😒	neg	neg	1	neg	neg	1
29	White chocolate mocha from Starbucks is my ish today 😋😋😋	pos	neutr	0	pos	pos	1
30	Wish someone could bring me Starbucks 😔	pos	pos	1	neg	neg	1
31	@ThatBasqueGuy It's crazy how greedy @Starbucks @starbucksgold is! They realized their program had the best deal -so now it has the worst? 😂	neg	neutr	0	pos	neg	0
32	My last day here 😭 (@ Starbucks Coffee in Johor Bahru, Johor) https://t.co/pl1V8q4shH	neg	neutr	0	neg	neg	1

33	@asacox118 you need to come and get your copy from me. I'm in Starbucks right now 😂	neutr	neutr	1	pos	pos	1
34	Hi @Starbucks 😍 my name is Remy. I'll take a grande Puppichino [...] https://t.co/7OathGcHnP	neutr	neutr	1	pos	pos	1
35	I haven't had my damn #starbucks today... 😤😤😤😤😤 https://t.co/9wWTzM3Igj	neg	neg	1	neg	neg	1
36	Guys there's a Keurig in this break room with Starbucks pods I'm so happy rn 😭	pos	pos	1	neutr	neutr	1
37	This girl has a smoothie from Starbucks in my class and now I really want one ah 😩😋	pos	pos	1	neg	neg	1
38	@LeeWestwick I'm in Vegas in a Starbucks thinkin Mind the Gap.Thought u should know. Where r u? How r u? More importantly what r u wearing 😉	neutr	neutr	1	neutr	pos	0
39	I just spilled coffee all over the floor and myself at Starbucks so THAT'S COOL [...] 😅	pos	pos	1	pos	pos	1
40	Why you always got to fight with me at Starbucks? You know I like to go there 😂😂😂	neg	neg	1	neg	pos	0
41	Why is every Starbucks on campus sold out of strawberry acai refreshers?! Finna make me settle for very berry hibiscus 😡😡😡	neg	neg	1	neg	neg	1
42	@_qveentaee 😭😭 I'm going to need Starbucks	pos	pos	1	neg	neg	1
43	Waited 30 mins at the Starbucks line 😩	neg	neg	1	neg	neg	1
44	Jill: *to the Starbucks barista* no whip, please! Barista: caught me just in time! Jill: I like my whipping different. Thank you. 😂😂😂😂😂	neutr	neutr	1	pos	pos	1
45	#Starbucks always mess up ppl name... [...] 😂😂😂😂😂 https://t.co/mApzQiqOYf	neg	neg	1	pos	pos	1
46	coffee, Starbucks 😩😩	neutr	neutr	1	neg	neg	1
47	dear future boyfriend, the key to my heart is Starbucks so uh if you learn my favorite drinks you're in for the long haul 😊 sincerely, A	pos	pos	1	pos	pos	1
48	@Starbucks I plan on trying on my cheat day... 😂	pos	neutr	0	pos	neutr	0

49	I wish on a bad day like today Starbucks would just appear in my hands 😓😓	neg	neg	1	neg	neg	1
50	was in between starbucks and boost and thank god i went for boost 😭😫 # #healthylol	pos	pos	1	neg	pos	0
51	@mosss_victoria lol tell me why Carmel Macchiato my favorite Starbucks drink 😂	pos	pos	1	pos	pos	1
52	#starbucks yummy 😋 https://t.co/0qugySokhQ	pos	pos	1	pos	pos	1
53	Im always at starbucks 😂 [...]	pos	pos	1	pos	pos	1
54	@JurgenPls I don't know what my supervisor will have to say about me writing 'it's all down to Starbucks large americano's. Thx bae xoxo 😘	neutr	neutr	1	pos	neutr	0
55	The moment school is done and I'm home I'm get Starbucks and Chickfila and seeing @SexyKitten [...] 😊	pos	neutr	0	pos	pos	1
56	It's great when your friend surprises you with Starbucks [...] 💕 I love Tiffany.	pos	pos	1	pos	pos	1
57	@LadyChaaaam starbucks na? 😁	neutr	neutr	1	neutr	pos	0
58	When you're tired of Starbucks spelling your name wrong on the cups 😂😂 https://t.co/qBzfWdJDVI	neg	neg	1	pos	pos	1
59	@Starbucks please stop charging extra for coconut milk poor kids have dairy allergies too 😭	neg	neg	1	neg	neg	1
60	Chipotle and Starbucks the only thing that's gone make this better 😢😢😢😢	neg	neg	1	neg	neg	1
61	who wants to start a streak w me ? 😈 https://t.co/UQLy9OmTbN	neutr	neutr	1	neg	neg	1
62	When you can't find a Starbucks gift card anywhere [...] 😳 like it shouldn't be this hard	neg	neg	1	neg	neg	1
63	@cre8tivename maybe you should stop getting Starbucks everyday 😂	neg	neg	1	pos	pos	1
64	Starbucks. [...] 😔 [...] https://t.co/jjlzdztEqp	neutr	neutr	1	neutr	neg	0
65	You know it's a real friendship when she remembers your drink at Starbucks 😭😭😭 @__aliana	pos	pos	1	pos	pos	1
66	@PointlessBlog what is your common Starbucks order? ❤️ 😘	neutr	neutr	1	neutr	neutr	1
67	@09000gjs @TheEconomist @RoyalSaudiNews @TheWeekUK This article full of lies and bullshit	neg	neg	1	pos	pos	1

	So our women r banned from entering Starbucks 😂 😂 [...]						
68	I just want some Starbucks rn 😩	pos	pos	1	neg	neg	1
69	@carissaduncan @Starbucks Any-thihg for you 😚	pos	pos	1	pos	pos	1
70	That's what I'm finna do go get me some Starbucks and donuts 😋 😋	neutr	neutr	1	neutr	pos	0
71	@Starbucks I have been trying for 2 days to add $ to my card and keep getting this error. 😔 All I want is my coffee! https://t.co/Qhg40fewLj	neg	neg	1	neg	neg	1
72	come to @Starbucks & enjoy a s'mores frappuccino 😋 rewards mem-bers enjoy 1/2 OFF FRAPS from 3-6 for #happyhour [...] https://t.co/Y3DtdLNr8m	pos	pos	1	pos	pos	1
73	Caroline better love me. I got her Star-bucks. 😂 😌	pos	pos	1	pos	pos	1
74	Really want a double chocolate chip frappe from Starbucks 😔	pos	pos	1	neg	neg	1
75	I'm so out of the loop here.. What's a "mobile" order!? LOL 🙈 😂 (@ Star-bucks in Mililani, HI) https://t.co/9IBJZNwNfN	pos	pos	1	pos	pos	1
76	Now am a gold member at starbucks 😎	neutr	neutr	1	neutr	pos	0
77	Off to DECA NATIONALS! But 1st, girlie Starbucks drinks 😋 #DECAICDC @justinweiser @RossWashburn https://t.co/3NUSMph5JN	pos	neutr	0	pos	pos	1
78	@Starbucks I've been a gold member for over 8 months and I still haven't gotten my gold card in the mail 😒 making me sad	neg	neg	1	neg	neg	1
79	Me working at Starbucks Customer: can I just get a vanilla iced coffe Me: FUCC NO MA ITS LAUNCH DAY TODAY 😩 😈	neg	neg	1	neg	neg	1
80	When the Starbucks barista hooks it up with the Carmel 😏	neutr	neutr	1	neutr	pos	0
81	Starbucks, PIZZA (a lot) and DQ..... I have the most generous boss #best-placetowork 😂 😂 😂	pos	pos	1	pos	pos	1
82	Starbucks x2 today 😅 😅	pos	neutr	0	pos	pos	1
83	Wtf, i lost ten followers! Why are my fans leaving me 😢 I need your sup-port ❤ #follow #follow4follow #in-staquote #inspo #starbucks	neg	neg	1	neg	neg	1

84	I'm temporarily wired though 😬😬😬 gotta love my @Starbucks 😬	pos	pos	1	pos	pos	1
85	can someone pls get me dunkin or starbucks tomorrow 😩😩😩	pos	neutr	0	neg	neg	1
86	@zoforoh i got staff vip discount bila beli kat starbucks aeon maluri 😍😍	neutr	neutr	1	pos	pos	1
87	Starbucks already knows my order 😅	pos	pos	1	pos	pos	1
88	@Sofieeey26 ahhhhhh dimples 😍 😍😍 which Starbucks is this girl I need to go Ahahhaha	neutr	neutr	1	pos	pos	1
89	@frappuccino @Starbucks @MnM_meyers coffee date b4 schools out [...] 😘	pos	neutr	0	pos	pos	1
90	Trying this today. 😍💕 https://t.co/MOjChbYFxJ	neutr	neutr	1	pos	pos	1
91	Starbucks [...] 😘😍 #GiovannaNation #GiovannaMagazine https://t.co/vPSk5bayXv	neutr	neutr	1	pos	pos	1
92	Seeing @jesscuhhr at Starbucks this morning before work really put me in a good mood. [...] 😊	pos	pos	1	pos	pos	1
93	Haven't had Starbucks in forever 😭	neutr	neutr	1	neg	neg	1
94	I Want Starbucks 😋	pos	pos	1	neg	pos	0
95	I want some Starbucks! 😩	pos	pos	1	neg	neg	1
96	Starbucks sounds good rn [...] 😩	pos	pos	1	neg	neutr	0
97	@Marlenieee_ I got this drink at Starbucks and it's helping me so far! 😂	pos	pos	1	pos	pos	1
98	I really want Starbucks 😢	pos	pos	1	neg	neg	1
99	I want Starbucks. 😫	pos	pos	1	neg	neg	1
100	I miss @Starbucks so much 😭	neg	neg	1	neg	neg	1
				89%			**80%**

Anhang C.1: Text-Bereinigungskonfigurationen

Konfig.	Textbereinigung
1	Original Textnachricht
2	Konvertieren in Kleinschreibung
3	Konvertieren in Kleinschreibung, Entfernen von URLs
4	Konvertieren in Kleinschreibung, Entfernen von URLs, Entfernen von doppelten Zwischenraumzeichen
5	Konvertieren in Kleinschreibung, Entfernen von URLs, Entfernen des Emoji-Codes, Entfernen von doppelten Zwischenraumzeichen
6	Konvertieren in Kleinschreibung, Entfernen von URLs, Entfernen des Emoji-Codes, Entfernen von HTML-Codes, Entfernen von doppelten Zwischenraumzeichen
7	Konvertieren in Kleinschreibung, Entfernen von URLs, Entfernen von Emoji-Codes, Entfernen von HTML-Codes, Entfernen von Zahlen und Interpunktion, Entfernen von doppelten Zwischenraumzeichen
8	Konvertieren in Kleinschreibung, Entfernen von URLs, Entfernen von Emoji-Codes, Entfernen von HTML-Codes, Entfernen von Zahlen und Interpunktion, Entfernen von Stopwörtern, Entfernen von doppelten Zwischenraumzeichen

Anhang D: Emotion Mining mit dem Verfahren Syuzhet für die Starbucks-Tweets zu den zehn meinst genutzten Emojis

Beispiel zum Verständnis: Der Emoji *Two Hearts* kommt in 3.164 Tweets vor. In diesen Tweets kommen 226 Wörter, die der Emotion Angst zugeordnet werden, 1.176 Wörter die der Emotion Erwartung zugeschrieben werden etc. vor. Ein Emotionswort kann auch mehren Emotionen zugeordnet sein. Zudem wird nicht jedem Emotionswort eine Polarität zugeschrieben.

					Emotionsklassen								Polaritätsklassen	
Nr.	**Emoji**	**Benennung**	**Häufigkeit (abs.)**	**Häufigkeit (%)**	**Ärger (abs.)**	**Erwartung (abs.)**	**Ekel (abs.)**	**Angst (abs.)**	**Freude (abs.)**	**Traurigkeit (abs.)**	**Überraschung (abs.)**	**Vertrauen (abs.)**	**Negativ (abs.)**	**Positiv (abs.)**
26	😂	Face with tears of joy	**16.600**	**16,38**	2.360	4.784	1.766	1.940	4.509	2.198	2.318	4.559	4.845	7.573
10	😍	Smiling face with heart-shaped eyes	**10.225**	**10,09**	844	3.541	571	599	4.342	785	1.817	3.154	1.454	5.825
27	😭	Loudly crying face	**9.492**	**9,37**	1.187	3.000	890	1.026	2.737	1.324	1.323	2.484	2.334	4.229
33	😩	Weary face	**6.293**	**6,21**	842	1.869	605	664	1.452	851	753	1.330	1.531	2.139
3	❤	Heavy Black Heart	**5.295**	**5,22**	430	1.988	321	430	2.725	474	1.005	1.870	819	3.586
7	😊	Smiling face with smiling eyes	**4.663**	**4,60**	345	1.981	257	337	2.144	384	1.007	1.802	746	2.988
42	😋	Face savouring delicious food	**4.167**	**4,11**	347	1.463	195	214	1.477	324	697	1.215	597	1.922
1	💕	Two Hearts	**3.164**	**3,12**	226	1.176	154	212	1.601	247	668	1.092	423	2.093
19	😁	Grinning face with smiling eyes	**2.363**	**2,33**	217	978	171	197	895	226	457	790	440	1.377
31	😅	Smiling face with open mouth and cold sweat	**2.326**	**2,30**	325	733	233	323	587	399	372	618	710	1.006