

Minority Target Class Detection for Short Text Classification

by

Fatima Chiroma

The thesis is submitted in partial fulfilment of the requirements for the award of the degree
of Doctor of Philosophy of the University of Portsmouth



January 2021

To the memory of my father.

Declaration

Whilst registered as a candidate for the above degree, I have not been registered for any other research award. The results and conclusions embodied in this thesis are the work of the named candidate and have not been submitted for any other academic award. Parts of the work presented in this thesis draws from the following publications:

- Fatima Chiroma, Han Liu, and Mihaela Cocca. Text classification for suicide related tweets. In 2018 International Conference on Machine Learning and Cybernetics (ICMLC), volume 2, pages 587–592. IEEE, 2018.
(Chapter 3)
- Fatima Chiroma, Han Liu, and Mihaela Cocca. Suicide related text classification with prism algorithm. In 2018 International Conference on Machine Learning and Cybernetics (ICMLC), volume 2, pages 575-580. IEEE, 2018.
(Chapter 3)
- Fatima Chiroma, Mihaela Cocca, and Han Liu. Detection of suicidal Twitter posts. In UK Workshop on Computational Intelligence, pages 307–318. Springer, 2019.
(Chapter 3)
- Fatima Chiroma and Ella Haig. Disambiguation of features for improving target class detection from social media text. In Proceedings of the IEEE World Congress on Computational Intelligence (WCCI) 2020. Institute of Electrical and Electronics Engineers, 2020.
(Chapter 4)

Fatima Chiroma
January 2021

Abstract

The rise of social media has resulted in large and socially relevant informational contents, and unhealthy behaviours such as cyberbullying, suicidal ideation and hate speech. These behaviours are shown to have offline consequences and measures have been put in place by lawmakers and social media platforms to detect such behaviours. However, the measures are manual and unscalable, hence making them ineffective for the evolving web. Numerous research has been done from both computational linguistics, and machine learning point of view for the effective and robust automatic detection and identification of such contents (target classes), which make up only a small percentage of the overall social media posts and needs to be distinguished from other discourse on social media that may discuss such behaviours without displaying that behaviour (non-target classes), thus, making this a challenging task. In this thesis, we employ short text classification to improve the detection of the target classes from Twitter. We reviewed the literature related to short text classification of unhealthy social media behaviours, highlighting the impact of text ambiguity on classification performance when distinguishing target classes from the non-target classes. In addition, relevant machine learning techniques and methods were identified where performance of the most popular machine learning algorithms for short text classification of unhealthy social media behaviours on Twitter data were empirically investigated. Besides, we introduce two methods that aim to improve the detection of the target class in a binary classification problem by minimizing common or ambiguous terms. We refer to the minimization process as “term disambiguation”. The first method, Short Text Term Disambiguation (STTD), increases the target and non-target class terms by identifying and

minimizing terms that are common to the two classes. The second method, Partition Based - Short Text Term Disambiguation (PB-STTD), aim to further improve the detection of the target class by explicitly addressing class imbalance as part of the term disambiguation process. Finally, we validated and evaluated the proposed term disambiguation methods on three data sets containing unhealthy social media behaviours, using different machine learning algorithms. The results showed that both proposed term disambiguation methods led to improved detection of the target class (i.e. unhealthy behaviours from Twitter data).

Acknowledgements

I wish to express my deepest gratitude and appreciation to my supervisor, Dr. Ella Haig, for her continuous support, guidance, encouragement, understanding and patience throughout this research. I would also like to extend my appreciation to my co-supervisor, Dr. Han Liu, for his support and guidance.

I would like to thank my sponsors, Petroleum Technology Development Fund (PTDF). I am grateful for the support. Also, I would like to express my gratitude to my family for their dedicated support and encouragement.

Thank you to everyone that supported me during my study.

Table of Contents

Declaration	iii
Abstract	v
Acknowledgements	vi
List of Tables	xiii
List of Figures	xv
List of Abbreviations	xvii
List of Publications	xviii
1 Introduction	1
1.1 Research Motivation	1
1.2 Research Aim	3
1.3 Thesis Overview	4
2 Literature Review	6
2.1 Background on Machine Learning	6
2.1.1 Relevant Methods and Techniques	7
2.1.1.1 Decision Tree (DT)	8
2.1.1.2 Ensemble Methods	9
2.1.1.3 k -Nearest Neighbor (k NN)	10

2.1.1.4	Logistic Regression (LR)	11
2.1.1.5	Naïve Bayes (NB)	11
2.1.1.6	Neural Networks	12
2.1.1.7	Random Forest (RF)	13
2.1.1.8	Support Vector Machine (SVM)	14
2.2	Text Classification	15
2.2.1	Text Classification Process	16
2.2.1.1	Preprocessing	16
2.2.1.2	Feature Engineering	17
2.2.1.3	Classification	27
2.2.1.4	Evaluation	28
2.3	Short Text Classification	29
2.3.1	Social Media Text	30
2.3.2	Challenges of Short Text Classification	31
2.3.2.1	Noisy and High Dimensional	32
2.3.2.2	Short, Informal and Sparse	34
2.3.2.3	Ambiguous	35
2.3.2.4	Imbalanced	37
2.4	Short Text Classification of Unhealthy Social Media Behaviours (USMB)	40
2.4.1	Suicidal Ideation	40
2.4.2	Hate Speech	45
2.4.3	Misogyny	48
2.5	Chapter Conclusion	52
3	Investigating Short Text Classification of Unhealthy Social Media Behaviours	54
3.1	Introduction	54
3.2	Data sets	55
3.2.1	DS1: Suicidal Ideation	55

3.2.2	DS2: Online Misogyny	56
3.2.3	DS3: Online Hate Speech	57
3.3	Proposed Short Text Classification Approach	57
3.4	Data Preparation	60
3.4.1	Text preprocessing	60
3.4.2	Data manipulation	61
3.5	Feature Engineering	63
3.6	Experiments	64
3.6.1	Results and Discussion	66
3.6.1.1	Baseline Results	66
3.6.1.2	Ensemble Classification Results	71
3.7	Chapter Conclusion	73
4	Short Text Term Disambiguation (STTD)	75
4.1	Introduction	75
4.2	Short Text Term Disambiguation (STTD) Method	77
4.3	Validation of STTD Method	80
4.3.1	Results and Discussion	83
4.4	Chapter Conclusion	89
5	Partition Based - Short Text Term Disambiguation (PB-STTD)	91
5.1	Introduction	91
5.2	Partition Based - Short Text Term Disambiguation (PB-STTD) Method . . .	92
5.3	Validation of PB-STTD Method	96
5.3.1	Results and Discussion	99
5.3.1.1	Real world context	107
5.4	Evaluation of PB-STTD in dealing with class imbalance	107
5.4.1	Results and Discussion	108

5.5 Chapter Conclusion	111
6 Conclusion and Future Work	114
6.1 Research Contributions	117
6.2 Limitations and Direction for Future Work	119
References	121
Appendix A: Research Ethics Review	134
Appendix B: Data Description	136
Appendix C: Baseline Result for Binary-class (Suicide and Non-suicide) without the Flippant Class	137
Appendix D: Full List of Sets' Terms	138
D.1 No Disambiguation	138
D.1.1 DS1: Suicidal Ideation	138
D.1.2 DS2: Misogyny	142
D.1.3 DS3: Hate Speech	151
D.2 Post-STTD	171
D.2.1 DS1: Suicidal Ideation	171
D.2.2 DS2: Misogyny	176
D.2.3 DS3: Hate Speech	184
D.3 Post-PB-STTD	204
D.3.1 DS1: Suicidal Ideation	204
D.3.2 DS2: Misogyny	209
D.3.3 DS3: Hate Speech	218
Appendix E: Confusion Matrix for STTD Results in Chapter 4	239

List of Tables

3.1	Summary of manipulated data sets with their Class Imbalance Probability (CIP) measures	63
3.2	Summary of feature sets	65
3.3	Baseline Results: <i>Set1</i>	68
3.4	Baseline Results: <i>Set2</i>	69
3.5	Baseline Results: <i>Set3</i>	70
4.1	Sample terms for DS1 prior to the application of STTD	77
4.2	Sample terms for the T, O and B(T,O) sets from DS1 after the application of STTD	80
4.3	Short Text Term Disambiguation (STTD) feature count	83
4.4	Baseline Results	84
4.5	STTD Results	85
4.6	Impact of STTD method based on the difference in F-measure where “ \downarrow ” implies decrease in performance after application of STTD	86
5.1	Sample terms for each data set prior to term disambiguation	93
5.2	Sample terms for T, O and B(T,O) sets for DS1, DS2 ad DS3 after applying PB-STTD	96
5.3	Data sets description	97
5.4	Term count for each data set before (original) and after (post) applying the term disambiguation methods	98

5.5	Baseline Results	100
5.6	STTD Results	101
5.7	PB-STTD Results	102
5.8	FastText Results	103
5.9	Comparison of STTD and PB-STTD methods based on the difference in F-measure where ‘−’ implies higher F-measure for STTD and ‘+’ implies higher F-measure for PB-STTD	103
5.10	SMOTE Results	109
5.11	SMOTE FastText Results	111
B.1	DS1 (suicidal ideation data set) attributes	136
B.2	Labelled suicidal ideation (DS1) data set class description and weight (adapted from Burnap et al. 2015)	136
C.1	Baseline results without the flippant class	137
E.1	Confusion Matrix: Baseline Results	239
E.2	Confusion Matrix: STTD Results	240
F.1	PB-STTD target class significance test with the Baseline and STTD; where the null hypothesis (i.e. the target class had no improved performance de- tection with the application of PB-STTD) is measured based on the signif- icance level where $p\text{-value} < 0.05$	241

List of Figures

2.1	A common ensemble architecture, where x represents the input features and y represents the final prediction (Zhou 2012)	9
2.2	Artificial neural network architecture	13
2.3	Illustration of SVM	14
2.4	Conventional Text Classification Process	16
2.5	Sample: Initial location of 25 fireflies (L) and location after iteration (R) (Yang and He 2013)	25
3.1	Proposed short text classification approach	58
3.2	Baselines results for the overall F-measure	67
3.3	Ensemble results for the overall F-measure	72
4.1	Disambiguation of terms; I is the set of textual instances; T is the set of terms that occur only in the target class text; O is the set of terms that occur only in the non-target class text (designated as other); $B(T, O)$ represents the set of terms that occurs in both the target class and the other class text. Our proposed method aims to increase the size of the T and O sets and minimise the size of the $B(T, O)$ set.	76
4.2	Proposed Framework	81
4.3	Impact of STTD method	87
5.1	Partitioning the data set instances to get a balanced distribution of the target and other class.	94

5.2 Comparison of STTD and PB-STTD based on the difference in F-measure . 104

Abbreviations

API Application Programming Interface.

B Both.

CIP Class Imbalance Probability.

DS Data Set.

DT Decision Tree.

F F-Measure.

GB Gradient Boosting.

IDF Inverse Document Frequency.

kNN k-Nearest Neighbour.

LDA Latent Dirichlet Allocation.

LLDA Labelled Latent Dirichlet Allocation.

LR Logistic Regression.

NB Naïve Bayes.

O Other.

P Precision.

PB-STTD Partition Based - Short Text Term Disambiguation.

PCA Principal Component Analysis.

POS Part of Speech.

R Recall.

RF Random Forest.

SMOTE Synthetic Minority Over-sampling Technique.

STTD Short Text Term Disambiguation.

SVM Support Vector Machine.

T Target.

TF Term Frequency.

USMB Unhealthy Social Media Behaviours.

XGBoost Extreme Gradient Boosting.

Publications

- **Fatima Chiroma** and Ella Haig. Disambiguation of features for improving target class detection from social media text. In Proceedings of the IEEE World Congress on Computational Intelligence (WCCI) 2020. Institute of Electrical and Electronics Engineers, 2020.
- **Fatima Chiroma**, Mihaela Cocca, and Han Liu. Detection of suicidal Twitter posts. In UK Workshop on Computational Intelligence, pages 307–318. Springer, 2019.
- **Fatima Chiroma**, Han Liu, and Mihaela Cocca. Text classification for suicide related tweets. In 2018 International Conference on Machine Learning and Cybernetics (ICMLC), volume 2, pages 587–592. IEEE, 2018.
- **Fatima Chiroma**, Han Liu, and Mihaela Cocca. Suicide related text classification with prism algorithm. In 2018 International Conference on Machine Learning and Cybernetics (ICMLC), volume 2, pages 575-580. IEEE, 2018.
- **Fatima Chiroma**, Mihaela Cocca, and Han Liu. Evaluation of rule-based learning and feature selection approaches for classification. In 2018 Imperial College Computing Student Workshop (ICCSW 2018). Schloss Dagstuhl-Leibniz-Zentrum fuer Informatik, 2019.

Chapter 1

Introduction

In this chapter, we describe the motivation for conducting the research in short text classification in Section 1.1 with an overview of the concept of the target class, outline the aim and objectives of the thesis in Section 1.2 and present the structure of the thesis in Section 1.3.

1.1 Research Motivation

The increase in the usage of social media platforms such as Twitter and Facebook, has led to the abundant availability of user-generated data, pro-social behaviours (e.g. campaigns for charities and mobilisation in response to natural disasters) as well as unhealthy behaviours such as hate speech, misogyny and suicidal ideation. While these unhealthy behaviours may be in the minority, they have a disproportionately negative effect on the people targeted by such behaviours including suicidal ideation (e.g. Delgado et al. 2015; Sedgwick et al. 2019). Also, given the nature of social media with continuous vast numbers of new posts, there is a need to address the rise and spread of such behaviours to limit its impact on vulnerable users and improve both policy and user decision making to conform to regulations (e.g. hate speech is considered a crime in some parts of the world, like the UK and parts of the EU, and major social media networks such as Facebook, Twitter and YouTube have internal hate speech regulatory policies (Alkiviadou 2019)) or provide help and support for victims.

Numerous studies (e.g. Burnap et al. 2015; Liu et al. 2019a; Sawhney et al. 2019; Yao et al. 2019) have employed text classification methods and techniques to detect unhealthy behaviours from social media text with no optimal solution. These have shown the challenging nature of this task, given the limitations of classifying social media text such as the non-traditional nature of the text (i.e. short and/or informal), the relatively small proportion of such text among all social media text (i.e. real-world data are often imbalanced and high dimensional) and the necessity to distinguish discourse about such behaviours (e.g. talking about the detrimental effects of cyberhate) from text displaying unhealthy behaviours (e.g. hate speech), to name a few. These behaviours are referred to as *target classes* in the context of machine learning, i.e. the behaviours to be detected, which researchers typically focus on maximizing to distinguish it from other machine learning problems that require models to perform well across two or more classes. Hence, there is a need for automated methods that will address the limitations of classifying short text to improve the detection of the target classes.

The target class, generally known as the *positive class* (Alsmadi and Hoon 2019) or *key class of interest* (Burnap et al. 2015), is the class (label or category) in a data set that is most important or of key interest in a classification problem. Typically, when dealing with real-world data which are mostly imbalanced (Bellinger et al. 2012; Chawla et al. 2002), the target class is usually the minority class (i.e. the class with few examples) (Liu and Cocea 2019) thereby making the minority class (in this case) the most important class in a given data set. This is a problem because the minority class is more sensitive to errors than the majority class (Krawczyk 2016) i.e. the bias of machine learning algorithms which do not consider the underlying distribution of a data set leads to better performance on the detection of majority classes (as the algorithm has more examples to learn from) and poor performance on the minority classes (as the algorithm may not have been exposed to sufficient information to learn reliable patterns).

Moreover, in the case where the target class is the majority class (i.e. the class with the

most examples) or has an even distribution with the non-target classes, does not guarantee an optimal classification performance will be achieved (Provost 2000), hence implying the need for further improvement. In addition, existing methods are not directly comparable across all domains or data sets as their success depend on variety of factors such as the relevance of features selected. Hence, no existing method is currently known to achieve an optimal classification performance for the target class in short text classification of unhealthy social media behaviours. Therefore, we explore this problem domain in this research in subsequent chapters.

1.2 Research Aim

This research aims to develop a machine learning method(s) that will improve the detection of the target class in a binary class problem when classifying short text, particularly unhealthy social media behaviours on Twitter, for text analytics and knowledge discovery. To achieve this aim, we address the following objectives:

1. Identify the relevant machine learning methods and techniques, and research gaps in short text classification of unhealthy social media behaviours.
2. Investigate the performance and influence of popular machine learning methods identified (in objective 1) on short text classification of unhealthy social media behaviours using Twitter data.
3. Develop term disambiguation methods for short text classification to improve the detection of the target class in a binary class problem by addressing the limitations identified in objective 1 and 2.
4. Validate the term disambiguation methods in objective 3 on Twitter data related to unhealthy social media behaviours.
5. Evaluate the best performing term disambiguation method by comparing it with the

most popular class imbalance method employed for short text classification using Twitter data related to the unhealthy social media behaviours.

1.3 Thesis Overview

Chapter 2 reviews the literature related to short text classification of unhealthy social media behaviours, identifying the research gaps and the popular techniques and methods employed in this problem domain.

Chapter 3 investigates the performance of popular machine learning algorithms and ensemble learning on short text classification of social media text. We propose a short text classification approach that accommodates ensemble learning to investigate their performance in distinguishing between target and non-target classes, in the context of suicidal ideation from Twitter for binary and multi-class classification problems. In addition, we provided the details of the data sets employed for this research i.e. for the investigation in Chapter 3, validation in Chapter 4 and 5, and evaluation in Chapter 5.

Chapter 4 introduces short text term disambiguation (STTD), a method for the disambiguation of features in a binary class problem for short text from social media, which addresses the effects of term ambiguity and class imbalance on target classes in short text classification. This chapter also presents the validation of the proposed method on real-world data using a combination of five machine learning classifiers and eight machine learning methods. The results are presented and discussed, including the strength and limitations of the STTD method.

Chapter 5 introduces partition based - short text term disambiguation (PB-STTD), an extension of the STTD method introduced in Chapter 4, which addresses the influence or bias towards the non-target majority class in STTD. This chapter also presents the validation

of the PB-STTD method on real-world data using a combination of four machine classifiers and five machine learning methods. The evaluation of the methods against Synthetic Minority Over-sampling Technique (SMOTE), a method for handling class imbalance, is presented with the results and discussion, including the strengths and limitations of the PB-STTD method.

Chapter 6 concludes this thesis with a description of our main contributions. Also, the limitations of the research and directions for future improvements in this research area are highlighted.

Chapter 2

Literature Review

This chapter presents the review of related studies in short text classification of unhealthy social media behaviours. First, in Section 2.1, we provide a background on machine learning and the relevant methods and techniques for the research. Following that, in Section 2.2, we present a detailed description of text classification and its procedure. In Section 2.3, we review related works in short text classification of social media text from Twitter and in Section 2.4 we review additional works relating to the automatic detection of unhealthy social media behaviours from Twitter, in particular suicidal ideation, misogyny and hate speech. Section 2.5 presents the conclusion and findings from previous studies that we seek to address in this thesis.

2.1 Background on Machine Learning

Machine learning aims to make sensible estimation, prediction, and classification of new or unseen data based on patterns discovered from similar existing data without much human intervention (Meng et al. 2020). Machine learning is pervasive in modern society and research due to its data-driven methods and capabilities. These methods can be broadly grouped into supervised learning, unsupervised learning and reinforcement learning (Schmidt et al. 2019). However, the vast majority of research in short text classification concentrates on supervised and unsupervised learning.

Supervised learning (Kadhim 2019; Zhou 2012) is the most common machine learn-

ing method and one of the most studied in text classification (both short and long text). It learns by example, i.e. the examples or instances of the data used for learning is completely labelled. In other words, it learns by using the output variable to find patterns in the input variable. Moreover, supervised learning problems can further be grouped into two (Liu et al. 2017; Zhou 2012): classification and regression. The former predicts a categorical or discrete label generally in binary classification (i.e. classifying instances into one of two predefined labels) or multi-class classification (i.e. classifying instances into one of multiple predefined labels). In contrast, the latter (i.e. regression) predicts a numerical or continuous value. Unlike supervised learning, unsupervised learning (Meng et al. 2020; Zhou 2012) learns by discovering patterns using only the input variable, i.e. it uses unlabeled data to group similar features in the same group known as a cluster.

Although supervised learning is the most studied in short text classification problems, it does have some generic drawbacks in its applicability. For example, supervised learning is dependent on labelled training data that requires human annotation which is a manual and time-intensive task (Colombo et al. 2016). On the other hand, unsupervised learning does not provide information or feedback based on the prediction results, and it is known to give less accurate results than supervised learning (Liu et al. 2004). With the drawbacks in mind, in this thesis, the supervised learning approach, text classification, was employed due to the problem domain but explores methods from both approaches in the classification of short text. Moreover, the effectiveness of methods applied to the short text classification problem depends on factors such as uniqueness of the problem domain, combination of techniques applied, data size and class distribution, to name a few. In the next section, the most commonly used machine learning algorithms in text classification are described.

2.1.1 Relevant Methods and Techniques

The most popular machine learning methods for short text classification includes **Naïve Bayes** (Abboute et al. 2014; Burnap et al. 2015; Davidson et al. 2017; Liu et al. 2019a;

Nina-Alcocer 2018; Pak and Paroubek 2010; Parwez, Abulaish, et al. 2019; Ramachandran et al. 2020; Roth 1998; Shushkevich and Cardiff 2018; Sriram et al. 2010; Wang et al. 2012; Wang et al. 2017b; Weissbock et al. 2013), **Decision Tree** (Balakrishnan et al. 2020; Burnap et al. 2015; Davidson et al. 2017; Fodeh et al. 2019; Liu et al. 2019a; Parwez, Abulaish, et al. 2019; Weissbock et al. 2013), **Support Vector Machine** (Badjatiya et al. 2017; Burnap et al. 2015; Canós 2018; Davidson et al. 2017; Indurthi et al. 2019; Laboreiro et al. 2010; Liu et al. 2019a; Liu et al. 2013; Nina-Alcocer 2018; O’Dea et al. 2015; Pak and Paroubek 2010; Parwez, Abulaish, et al. 2019; Putri et al. 2020; Ramachandran et al. 2020; Sawhney et al. 2018b; Shushkevich and Cardiff 2018; Sureka and Agarwal 2014; Wang et al. 2012; Weissbock et al. 2013; Xu and Cai 2019), **Neural Networks** (Badjatiya et al. 2017; Elouali et al. 2020; Liu et al. 2019a; Trappenberg and Back 2000; Yang et al. 2018), **k-Nearest Neighbor** (Alsmadi and Hoon 2019; Bashar et al. 2018; Liu et al. 2019a; Sureka and Agarwal 2014; Trappenberg and Back 2000), **Logistic Regression** (Badjatiya et al. 2017; Davidson et al. 2017; Indurthi et al. 2019; O’Dea et al. 2015; Ramachandran et al. 2020; Sawhney et al. 2018b; Shushkevich and Cardiff 2018), **Random Forest** (Abboute et al. 2014; Badjatiya et al. 2017; Balakrishnan et al. 2020; Davidson et al. 2017; Indurthi et al. 2019; Parwez, Abulaish, et al. 2019; Ramachandran et al. 2020; Sawhney et al. 2018b) and **ensemble methods** (Burnap et al. 2015; Sawhney et al. 2018b; Shushkevich and Cardiff 2018).

2.1.1.1 Decision Tree (DT)

DT (Kotsiantis et al. 2006) is a supervised learning algorithm that classifies instances by constructing a tree-like model based on all the input feature values where each feature value is represented as a node. DT is also simple to understand and interpret. However, they tend to be unstable as altering (adding or removing) the features could result in the construction of a totally different tree and are prone to over-fitting.

DT-based algorithms such as random forest, C4.5 (Quinlan 2014), and ID3 (Quinlan

1986) are widely used in classification problems. C4.5, which is an extension of the ID3 algorithm, is one of the most widely used in solving short text classification problems due to its reasonable short text classification results (Burnap et al. 2015; Liu et al. 2019a; Parwez, Abulaish, et al. 2019; Weissbock et al. 2013).

2.1.1.2 Ensemble Methods

Ensemble methods (Zhou 2012) make decisions by combining multiple classifiers (known as base learners) to maximize predictive performance. In contrast to typical learning approaches that involve training one classifier, ensemble methods provide a unique learning strategy that helps overcome classifiers' limitations by utilizing both their strengths and weaknesses. This is usually done by merging classifiers of the same kind (known as a homogeneous ensemble, e.g. RF comprises of several DTs) or classifiers of different types (known as a heterogeneous ensemble, e.g. combining SVM and NB) that will complement each other (i.e. other classifiers will likely compensate the error of a single classifier) (Sagi and Rokach 2018; Woźniak et al. 2014; Zhou 2012), as illustrated in Figure 2.1.

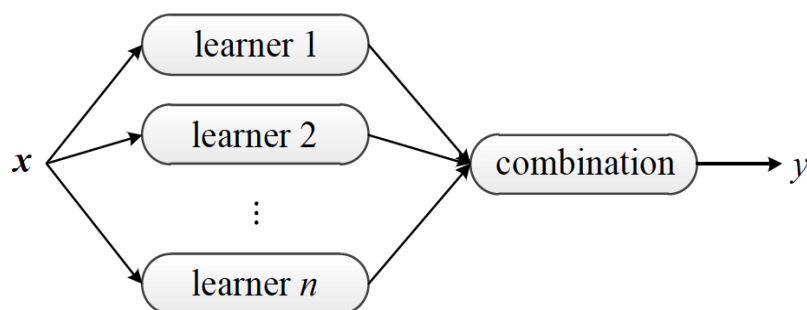


Figure 2.1: A common ensemble architecture, where x represents the input features and y represents the final prediction (Zhou 2012)

The most commonly used ensemble methods are Boosting (Schapire et al. 1998) (e.g. AdaBoost) which combines weak classifiers to form a strong classifier by correcting mistakes made by the weak classifiers to boost the final prediction; and Bagging (Breiman 1996) which was derived from *Bootstrap aggregation*, employs two approaches, namely

bootstrapping to generate various base learners and aggregation to combine the output of the base learners using a combination technique known as voting (for classification problems and averaging for regression problems) (Zhou 2012). Bagging can eliminate instability (Rokach 2010) and is usually more effective when variance is high (Schapire et al. 1998) unlike boosting which is more effective when bias is high and variance is low (Oza and Tumer 2008).

There are numerous voting techniques including average voting and majority voting, to name a few. *Average voting*, also referred to as *averaging*, as the name implies, takes the average of all the models' predictions as the final prediction; and *majority voting*, in classification, involves summing the predictions from multiple models where the final prediction is determined by the label predicted by the majority of the models. Furthermore, the choice of combination plays a key role (Zhou 2012) as ensemble methods are often employed to improve predictive performance because they are generally known to avoid over-fitting and are computationally feasible (Rodriguez et al. 2006; Sagi and Rokach 2018). In fact, in some cases they can be employed to mitigate class imbalance (e.g. Galar et al. 2011; Galar et al. 2013) as well as reduce dimensional space (e.g. Huang et al. 2010; Kumar and Minz 2016).

2.1.1.3 k -Nearest Neighbor (k NN)

The k NN classifier which is simple and easy to implement, is employed for both classification and regression problems. The classifier relies on the assumption that similar features are near to each other. That is, it aims to find the k instances that have the maximum similarity or closest distance to the new or test instance by measuring their similarities using similarity measures (e.g. Euclidean distance) (Alsmadi and Gan 2019; Zhou 2012). On the other hand, this assumption needs to be true for the classifier to be effective. Due to the calculation of distances or similarities for new instances with all instances in the data set, it can be computationally expensive, especially when dealing with large or high dimensional

data. Also, the class label that will be assigned for the new instance will be the label for the majority class among the k neighbours (Zhou 2012). k NN has been successfully employed in short text classification of social media text (e.g. Alsmadi and Hoon 2019; Bashar et al. 2018; Liu et al. 2019a).

2.1.1.4 Logistic Regression (LR)

LR (Starkweather and Moske 2011) is one of the simplest machine classifier employed for binary classification problems. However, it can be extended to accommodate multi-class problems using the multinomial logistic regression. Logistics regression aims to predict the likelihood of an event occurring by modelling the default's class probability i.e. to predict the target class membership probability of a text.

There are numerous advantages to using LR for classification such as its simplicity, interpretability, efficiency when dealing with linearly separable features, and the ability to capture the relationship between features, and scalability, allowing for models to be updated to reflect new data. On the other hand, it may not be feasible when dealing with real-world data which are highly dimensional and mostly non-linearly separable as it will be prone to over-fitting, capturing relationships between complex features will be difficult and it will require removal of unrelated and uncorrelated features for effective performance (hence employing feature engineering is vital). Due to the linear decision surface, it will require non-linearly separable features to be transformed. Nevertheless, numerous studies have employed LR for short text classification (e.g. Badjatiya et al. 2017; Davidson et al. 2017; Indurthi et al. 2019; O'Dea et al. 2015; Ramachandran et al. 2020; Sawhney et al. 2018b; Shushkevich and Cardiff 2018), mostly as a baseline classifier with fair result.

2.1.1.5 Naïve Bayes (NB)

NB is a probabilistic classifier that combines all the features in a given class to predict the class membership probability of a document. This classifier is based on Bayes theorem (Equation 2.1), with a strong independence assumption, i.e. it assumes the features in a

class are independent of each other.

$$P(A|B) = \frac{P(B|A)P(A)}{P(B)} \quad (2.1)$$

Where $P(A|B)$ is the probability of event A occurring, given event B has occurred, $P(B|A)$ is the probability of event B occurring, given event A has occurred, $P(A)$ is the probability of event A, and $P(B)$ is the probability of event B.

Compared to less erroneous algorithms which tends to be slower and more complex (Rennie et al. 2003), the NB classifier is computationally efficient, works well with high-dimensional data, is simple to implement, and its predictive performance is relatively good (Chen et al. 2009; Kotsiantis et al. 2006). Hence, it is often used as a baseline classifier to compare with more sophisticated algorithms.

2.1.1.6 Neural Networks

Neural Networks (NN) or Artificial Neural Networks (ANN) (Zhou 2012), is a machine learning technique which finds the underlying patterns in a data by mimicking the workings of the human brain (i.e. the biological neural network) to create models. NN is made of layers of neurons - the basic computational component or core processing unit of the network, linked to form a network through weighted connections. NN typically consist of three layers as illustrated in Figure 2.2, namely the input layer, hidden layer and output layer. The input layer is where the input samples are presented as neurons and connected through the channel to the neurons of the hidden layer (one or more hidden layers can be used) where the computation is performed, and the prediction is presented as the final output in the output layer.

NN does not work well with short text due to data sparsity problem (Xu and Cai 2019) and it lacks the ability to reason about its performance or output in a manner that be conveyed effectively (Kotsiantis et al. 2006). Nevertheless, it has been successfully applied in short text classification problems (e.g. Badjatiya et al. 2017; Elouali et al. 2020; Liu et al. 2019a).

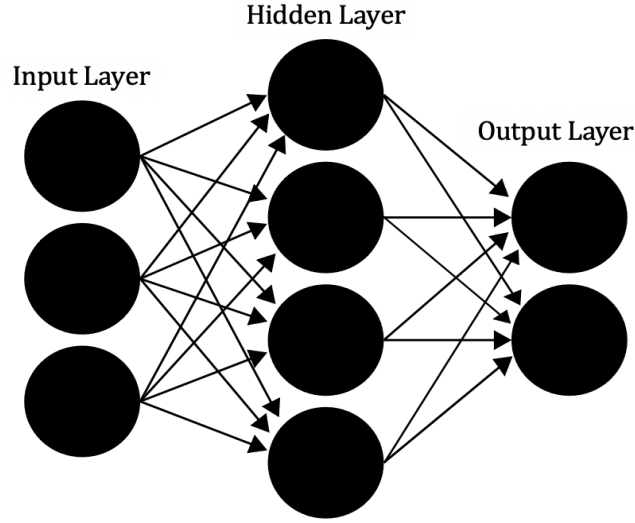


Figure 2.2: Artificial neural network architecture

2.1.1.7 Random Forest (RF)

RF (Breiman 2001) is an ensemble classifier, an extension of the bagging method, that builds its model by combining multiple DTs. In contrast to the bagging method, RF incorporates randomized feature selection, i.e. it generates trees by randomly selecting within the subset of features, resulting in various trees and the final decision is made by voting on the most popular class. RF is versatile and can handle large data sets (Rokach 2010; Sagi and Rokach 2018); hence it does not overfit (Breiman 2001) and can be employed for both classification and regression problems. The random feature selection makes the training for RF more efficient than bagging method (Zhou 2012) and the results are as good as AdaBoost (Breiman 2001). Additionally, parameter hyper-tuning is typically not required with RF as good results are often achieved using the default parameters. On the other hand, the prediction is slow, especially when dealing with many generated trees. RF has been employed for short text classification, in general it yields a good result (e.g. Ramachandran et al. 2020; Balakrishnan et al. 2020; Sawhney et al. 2018; Abboute et al. 2014; Davidson et al. 2017).

2.1.1.8 Support Vector Machine (SVM)

SVM (Cortes and Vapnik 1995) is a statistical classifier used for both classification and regression problems. This supervised learning algorithm was originally designed for binary classification but is also employed for multi-class classification. SVM aims to find the optimal hyperplanes to separate the features (support vectors) of different classes by maximizing the margin (i.e. the distance between the hyperplane and the nearest feature) between them (Alsmadi and Gan 2019; Cortes and Vapnik 1995), as illustrated in Figure 2.3

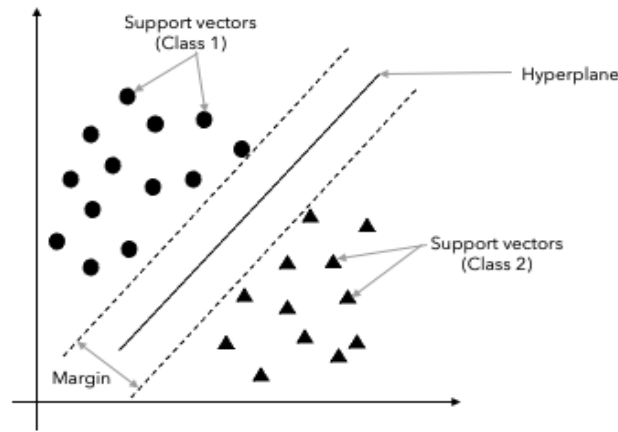


Figure 2.3: Illustration of SVM

SVM has been shown to work considerably well with text classification, including short text classification due to its ability to handle high dimensional features as well as sparse data (Allahyari et al. 2017; Alsmadi and Gan 2019). On the other hand, SVM can be computationally expensive, especially when dealing with large and non-linear data (Kotsiantis et al. 2006; Zhou 2012). A kernel function can be applied to address this limitation, of which the most popular are the linear kernel, polynomial kernel and radial basis function (RBF) or Gaussian kernel (Zhou 2012). The polynomial kernel and RBF are non-linear kernels, unlike linear kernel which separates data using a straight decision boundary, these two use curved decision boundaries to fit in the non-linearly separable features of different classes.

The methods and techniques discussed in this section are relevant in both text classification and short text classification, based on related studies that will be discussed in Sections 2.2 and 2.3, some of which will be used in this research. However, in the context of short text classification pertaining to the detection of unhealthy social media behaviours, the most employed methods and techniques will be highlighted in Section 2.4 and further investigation will be carried out in subsequent chapters.

2.2 Text Classification

Text classification is one of the most prominent supervised machine learning task with many applications, such as sentiment analysis (e.g. Barbosa and Feng 2010; Thelwall et al. 2010), intent classification (e.g. Purohit et al. 2015) and topic classification (e.g. Wang and Manning 2012), to name a few. A text classification problem could be defined as the task of appropriately assigning a fixed set of predefined labels (also known as classes or categories) to textual instances in a given data set (Allahyari et al. 2017). Text classification has been applied to different texts including tweets, and overall, it is a well-studied field (Catal and Nangir 2017; Kiritchenko et al. 2014; Maynard et al. 2017; Nigam et al. 2000; Sriram et al. 2010).

Typically, the goal of text classification is to appropriately and automatically classify text which involves a set of processes that comprises of four key components: preprocessing, feature engineering, classification and evaluation. Feature engineering is perhaps considered the most crucial in text classification (Rafeeqe and Sendhilkumar 2011) as selecting distinctive features is essential in making text classification effective. The conventional text classification process is depicted in Figure 2.4.

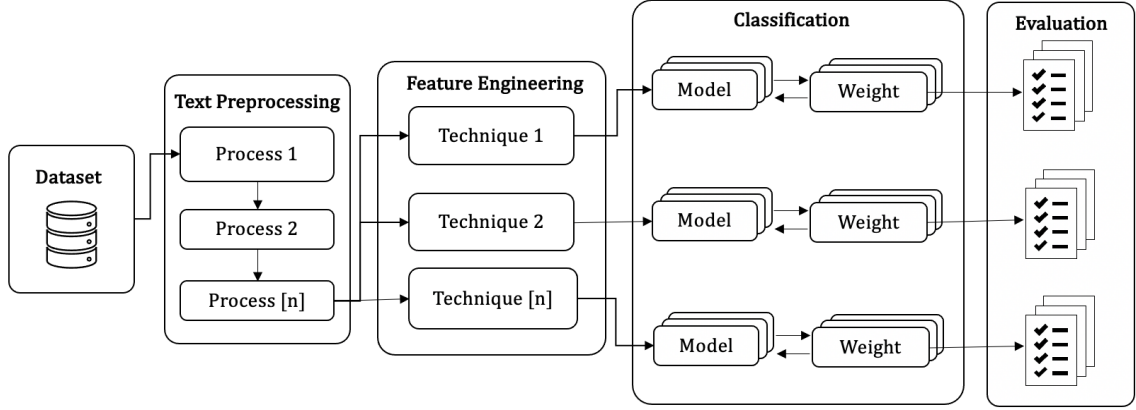


Figure 2.4: Conventional Text Classification Process

2.2.1 Text Classification Process

2.2.1.1 Preprocessing

Preprocessing is an essential step in text classification, including short text classification, which is known to alter classification performance (Haddi et al. 2013; Uysal 2016; Uysal and Gunal 2014). The primary aim of text preprocessing is to cleanse and transform the raw text into a suitable input format for an algorithm. This reduce outliers and dimensional space, and standardizes the text which aids in improving classifier performance as well as minimizing time complexity. On the other hand, preprocessing could also cause loss of important features hence degrading the classification performance (e.g. Mohammad 2018).

The standard preprocessing techniques include tokenization which involves splitting the text into a list of tokens or terms; text normalization such as case conversion; noise removal such as removal of stop words, numbers and punctuation; and stemming which reduces terms to their root (Allahyari et al. 2017; Alsmadi and Gan 2019; Uysal and Gunal 2014). Moreover, to effectively employ preprocessing, the choice and combination of techniques are essential which is usually determined by factors such as the problem domain (e.g. social media text), language, length of the text and class distribution (Bao et al. 2014; Kumar and Harish 2018; Mohammad 2018; Uysal and Gunal 2014), to name a few. This implies that additional techniques may need to be employed or implemented, which will

not compromise the quality of the text.

2.2.1.2 Feature Engineering

Feature engineering is arguably the most crucial step besides classification, in text classification (Rafeeqe and Sendhilkumar 2011) mainly due to the selection of relevant features which aids in improving predictive performance and the transformation of these features into suitable (i.e. numeric or vector values) format for modelling. Moreover, one of the main challenges in machine learning, specifically text classification, is implementing effective methods to identify relevant features with a high-dimensional data set. Dimensionality reduction, which comprises of feature extraction and feature selection, is one of the most effective methods used to address this problem (Ksieniewicz and Woźniak 2017; Li et al. 2017a). Hence, the feature engineering phase is employed to identify and transform the most relevant subset of features; this typically involves text representation, feature selection, feature extraction and feature weighting.

1. **Text representation** is the process of representing a text into a set of terms (Alsmadi and Gan 2019; Song et al. 2005). The two popular approaches for text representation in a structured format are bag-of-words and word embedding (Lai et al. 2015).

Bag-of-words

Bag-of-words representation is the most popular representation in text classification (Allaahyari et al. 2017; Cunningham et al. 1997; Gabrilovich and Markovitch 2004; Radovanović and Ivanović 2006). Also known as unigram representation, the bag-of-words representation extracts single terms from a text treating them as independent features. This representation is simple, efficient and effective (Le and Mikolov 2014). It considers the number of occurrences of each term, hence making it a feasible representation for problems that rely on term occurrences for learning, e.g. document classification.

On the other hand, the bag-of-words representation ignores the semantic and syntac-

tic information, i.e. by extracting single words, it ignores the order and contextual meaning of the instance as instances are represented by the words and phrases that appear in them. However, taking the word order into account can be computationally expensive (Joulin et al. 2016).

To tackle this limitation, n-grams or bag-of-NGrams (Joulin et al. 2016) which is a sequence of words (N words), is used to extract a group of words (i.e. phrases) as features to provide the semantic meaning of a text. Although the word order is only considered in short context with minimal semantic information (Le and Mikolov 2014), it might work well for short text considering how relatively short the texts are. Moreover, these methods are practically efficient and effective when compared to methods that consider the word order (Joulin et al. 2016; Wang and Manning 2012). The most popular types of n-grams are bigrams (two words in consecutive order) and trigrams (three words in consecutive order) as they typically yield better performance results than n-grams that extract more than three consecutive words (e.g. Burnap et al. 2015; Rodriguez et al. 2006).

The bag-of-words representation has been more frequently used, often in combination with other features, such as lexicon features (e.g. Ji et al. 2018; Xiang et al. 2012), topic features extracted through approaches such as Latent Dirichlet Allocation (LDA) (e.g. Ji et al. 2018; Xiang et al. 2012), part-of-speech tags (e.g. Ji et al. 2018; Watanabe et al. 2018), or various combinations of these features (e.g. Ji et al. 2018; Shing et al. 2018; Watanabe et al. 2018; Xiang et al. 2012).

Word Embedding

In contrast to bag-of-words, *Word Embedding* is semantic-based where the representations are obtained by training deep neural networks. In other words, it is a distributed word representation or word vectors where words with the same meaning have a similar representation, and each of these words is represented as unique

vector values. This representation is relatively more recent in comparison with bag-of-words approaches and less explored for the classification of short text specifically from social media. However, there are some recent studies that have employed this representation for short text, particularly for the detection of cyberbullying (e.g. Agrawal and Awekar 2018; Banerjee et al. 2019), hate speech (Pitsilis et al. 2018; Zhang et al. 2018) and suicidal ideation (Coppersmith et al. 2018; Sawhney et al. 2018a).

The advantage of word embedding representation is the reduced dimensionality (Le and Mikolov 2014; Mikolov et al. 2013), state-of-the-art performance for large data sets (Grave et al. 2018) and pre-training (i.e. trained on a larger data set to acquire the embeddings of smaller data sets). On the other hand, this representation performs poorly with small data sets, can be computationally expensive and difficult to understand due to the number representation (unlike bag-of-words). Moreover, the sentiment or word sense (i.e. other meaning of words, e.g. mouse which could mean an animal or a device) is not captured separately.

The most widely used word embeddings are Word2Vec, and GloVe (Li et al. 2018; Rezaeinia et al. 2019): *Word2Vec* (Mikolov et al. 2013) construct vectors from words using neural network methods, namely continuous bag-of-words (CBOW) which uses the neighbouring context words to predict a word (like bag-of-words the order of words is of no importance) and skip-gram (SG) which is the opposite of CBOW, uses the context of a word to predict the neighbouring words. Word2Vec is known to be effective in text classification (Nguyen et al. 2019; Tang et al. 2014), however, it tends to work better with short text (short text classification) than the traditional long text (text classification) (Maslova and Potapov 2017; Tang et al. 2014). On the other hand, Word2Vec highly relies on context, therefore using short text from small data sets, such as tweets which contain not more than 280 characters, might hinder the performance of Word2Vec as many of the words might not be well trained (Chen

et al. 2018)

GloVe (Pennington et al. 2014), in contrast to Word2Vec, generate vectors by incorporating both the contextual information of words and their co-occurrence. It has been employed in short text classification problems, including the detection of unhealthy social media behaviours (e.g. Badjatiya et al. 2017). The advantage of *GloVe* is that it is faster than Word2Vec and produces a better result than other embeddings when pre-trained on large data sets (Rezaeinia et al. 2019). However, as with most word embedding methods, it does not capture the word sense.

Numerous research has been devoted to word embeddings, particularly Word2Vec, by introducing the extensions of the Word2Vec representation such as Doc2Vec (Le and Mikolov 2014) and FastText (Joulin et al. 2016). *Doc2Vec* is an extension of the Word2Vec representation with minimal addition that allows the representation to construct vectors at document-level instead of only word-level. The Doc2Vec representation comprises of two methods: the distributed memory (DM) and distributed bag-of-words (DBOW) which are similar to CBOW and SG, respectively in the Word2Vec model, except with the addition of document id or paragraph id. This “id” is a unique identifier for each document (or instance) which is used to convert the documents to vectors.

FastText, which is based on the Word2Vec model, is a library for text classification and word embedding representation which transforms text into continuous vectors. It includes a more recent word embedding representation where, unlike Doc2Vec, sub word information (i.e. character n-grams) is taken into account (Bojanowski et al. 2017; Joulin et al. 2016). The aim is to learn the meaning of a word based on surrounding characters as well as utilize the information of the label of the given data set to learn more discriminative embeddings (Yang et al. 2018; Yao et al. 2019). FastText is simple and very efficient (not computationally expensive) (Santos et al. 2017; Yang et al. 2018; Yao et al. 2019).

According to (Yang et al. 2018), FastText when compared to systems that use CNN and RNN, has significantly less training time with comparable results. Moreover, this representation does not provide the freedom to use it in combination with other machine classifiers. Although FastText is fairly new, it has been explored in short text classification for unhealthy social media behaviours including detection of hate speech (e.g. Badjatiya et al. 2017), with a good result.

Moreover, the choice of representation (whether bag-of-words or word embedding) depends on the problem domain, e.g. in sentiment analysis employing bag-of-words might not be feasible due to the lack of semantic context but might be employed for document classification whose training relies on the frequency of a term. On the other hand, although word embeddings are expected to perform better than bag-of-words in semantic-based problems, the size and sparsity of the data set might be better tolerated with bag-of-words. Also, for social media text which is informal, word embeddings generated at character level such as FastText might be more feasible than those generated at document/paragraph/sentence or word -level.

2. Feature Selection

The high dimensionality of the feature space is one of the major challenges in text classification, which is typically caused by irrelevant and redundant features (Deng et al. 2019; Yang and Pedersen 1997). This is problematic due to its negative impact on the effectiveness of machine classifiers and efficiency of computation. Therefore, feature selection which aims at selecting the sub-set of features that are most relevant within a given data set, is typically employed to reduce the dimensional space and ambiguity (Alsmadi and Gan 2019; Chandrashekar and Sahin 2014; Kumar and Minz 2014) for improved computation, classification performance and over-fitting avoidance.

There are four approaches for feature selection (Deng et al. 2019; Yang and Pedersen

1997): filter-based approach which uses statistical methods to evaluate the quality of the features; wrapper approach which depends on classification algorithms for its feature quality evaluation; embedded approach which performs its feature selection as the optimal parameters are being learned and hybrid approach which combines the filter and wrapper methods, consecutively, to select the relevant features.

The wrapper and embedded methods are considered infeasible for text classification as they are very computationally expensive (Deng et al. 2019; Suto et al. 2016) hence more feasible for relatively small and/or numerical features. Although, the wrapper method usually achieves a better performance than the filter-based method. The combination of the filter-based and wrapper methods employed for the hybrid method can still result in the selection of very large features, hence the utilization of the wrapper approach will make the hybrid method computationally expensive. Therefore, the filter method is favoured in a real-world application, particularly text classification (Deng et al. 2019; Suto et al. 2016) due to its simplicity and efficiency when dealing with high dimensional data. Moreover, majority of classifiers do not scale to a high dimensional feature space (Yang and Pedersen 1997), and the best feature selection method should select features that are non-redundant and strongly relevant, and whose best subset is selected and validated using real-world data-sets which are highly dimensional (Li et al. 2017b).

There are numerous methods used for feature selection in text classification with the most commonly employed being information gain, mutual information, document frequency (term frequency-inverse document frequency), Chi-square and term strength (Uysal and Gunal 2014; Yang and Pedersen 1997). The values of terms for Chi-square and information gain are strongly correlated, and the two methods are said to be most effective in text classification than mutual information, and term strength (Yang and Pedersen 1997). According to (Faguo et al. 2010), employing Chi-square when training homogenous distribution gives slightly better results than

other statistical methods such as information gain and cross-entropy. However, these two tend to perform better with unhomogenous data sets. Although these three methods (Chi-square, information gain and cross-entropy) perform similarly when dealing with more than 10,000 data dimensions.

Therefore, in this research, we investigate six feature selection methods, i.e. two frequency-based: Term frequency and inverse document frequency; three information theory-based: Chi-square, entropy and low variance; and one evolution based: firefly algorithm. These are described in the following paragraphs.

Term frequency - inverse document frequency (TF-IDF) is another statistical measure derived from term frequency (TF) and inverse document frequency (IDF), to calculate the weights of features by combining its frequency in a document (TF) with its rareness in a document set (IDF), defined as:

$$tfidf(t, d, D) = tf(t, d) * idf(t) \quad (2.2)$$

where t is the term, d is the document and D is the corpus.

Term frequency calculates the number of occurrences (f) of a term (t) in a document (d), defined as:

$$tf(t, d) = f_t, d \quad (2.3)$$

Whereas inverse document frequency is measured using the document frequency (df_t) metric which calculates the number of documents that contain a particular term, the inverse of the document frequency (i.e. idf) calculates how rare a term is across all documents (i.e. rare features will have high idf), defined as:

$$idf(t) = \log \frac{N}{df_t} \quad (2.4)$$

Where N is the total number of documents in a corpus, and t is the number of documents containing the term. $TF - IDF$ has proven to be robust with comparable

performance when compared to other more advanced models, and theories (Robertson 2004).

Chi-square test: is a statistical metric used to measure the independence of two events, i.e. the independence between the occurrence of a specific term and the occurrence of a specific class where a high Chi-square score indicates a dependency between them, expressed as:

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i} \quad (2.5)$$

where O_i is the observed value and E_i is the expected value.

Entropy-based metrics: Entropy (Shannon 1948) is an information theory based method which is widely used to measure the level of impurity or uncertainty. Entropy (E) can be calculated using the following formula:

$$E = - \sum_{i=0}^n p_i \cdot \log_2 p_i \quad (2.6)$$

where n is the number of occurrences, p is the probability of the event happening, and i is the index of the corresponding event. Entropy can be employed in feature selection to compute the information entropy of each term in a document.

Low variance: variance is a statistical metric that measures the spread of a data set by calculating the average of the squared differences from the mean, mathematically defined as:

$$\sigma^2 = \frac{\sum (X - \mu)^2}{N} \quad (2.7)$$

where X is the random variable, and N is the number of terms in the distribution. Low variance, on the other hand, measures the variance of each term and filters out the term with low variance (i.e. based on threshold value given) where a term with a variance of 0 implies that the term is of no relevance in distinguishing between classes in a given data set.

Firefly: The firefly algorithm (Yang 2008) is a stochastic algorithm inspired by the flashing patterns and behaviour of fireflies which is constructed using three sets of rules (Yang and He 2013; Zhang et al. 2016): (1) fireflies are attracted to each other (unisexual), (2) attractiveness is proportional to brightness; therefore the attractiveness of a firefly decreases as the distance between the fireflies increases and (3) brighter fireflies attract the less bright ones, i.e. the movements of fireflies is based on the generated lights and its intensity. An illustration of the firefly algorithm is presented in Figure 2.5.

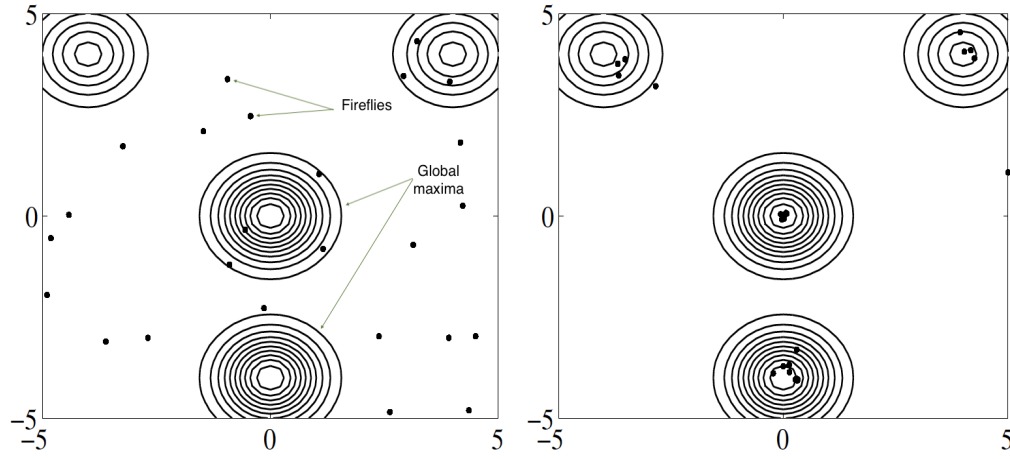


Figure 2.5: Sample: Initial location of 25 fireflies (L) and location after iteration (R) (Yang and He 2013)

According to (Lindfield and Penny 2017; Yang and He 2013), the firefly algorithm has been successfully applied to many real-world problems including as a feature selection method for text classification (e.g. Marie-Sainte and Alalyani 2020) and short text classification (e.g. Kumar and Khorwal 2017), with good performance. The advantage of the firefly algorithm is its efficiency, suitability for highly nonlinear, multimodal optimisation problems and flexibility when dealing with continuous problems such as clustering and classification (Yang and He 2013). On the other hand, the parameters need to be properly set, and the algorithm requires a large number of iterations (Zhang et al. 2016).

3. Feature Extraction

Feature extraction is the process of extracting features by generating a set of new features from the original features. In contrast to feature selection, where the original representation of features are removed (Suto et al. 2016; Uğuz 2011), feature extraction does not remove the features rather transforms them into a new set of features (Alsmadi and Gan 2019; Uğuz 2011). Typically, employing feature extraction reduces more dimensional space than feature selection due to the transformation of the original features, reducing the size, thereby improving efficiency. On the other hand, the transformation of these features is most effective when there are less irrelevant features (Alsmadi and Gan 2019).

For text classification in general and classification of unhealthy social media behaviours, in particular, feature extraction methods such as Latent Dirichlet Allocation (LDA) (Blei et al. 2003), and Principal Component Analysis (PCA) have been widely used (e.g. Burnap et al. 2017; Burnap et al. 2015; Ji et al. 2018; Xiang et al. 2012). *LDA* is a generative probabilistic model whose aim is to find underlying topics in a text and assign the words in that text to the topics. *LDA* is typically used for topic modelling but has also been used to extract domain specific features for text classification problems. However, due to the data sparsity problem with short text, *LDA* fails to draw a statistical conclusion due to the lack of word occurrences. To address the drawbacks of *LDA*, a supervised extension of *LDA* was proposed by (Ramage et al. 2009), known as Labelled Latent Dirichlet Allocation (*LLDA*). Unlike *LDA*, which is unsupervised, *LLDA* generates the topics using the label that corresponds to the document (Ramage et al. 2009). The advantage of *LLDA* over *LDA* is it groups the words based on pre-defined labels, thereby giving a more compressed or smaller sized feature sets with reserved latent structure of the original features which drastically reduces the dimensional space and improves computational efficiency. However, in terms of classification performance when dealing with short text of unhealthy

social media behaviours, to the best of our knowledge, it is yet to be explored; hence it is investigated in this research. Moreover, there are other extensions of LDA such as Multi-Multinomial LDA (MM-LDA), Discriminatively trained LDA (DiscLDA) and Supervised LDA, to name a few.

PCA (Hotelling 1933; Pearson 1901) is a statistical technique employed to reduce the dimensionality of a data set, typically, high dimensional data sets. PCA aims to extract the most relevant information from a data set and transform it into a smaller data set with simpler uncorrelated variables with mostly preserved data set information contents (Fodor 2002; Jolliffe and Cadima 2016; Miner et al. 2012). PCA effectively reduces the dimensional space and building a model from it is efficient due to the low dimensional patterns discovered which aid the performance of algorithms. Like most feature extraction methods, reducing the dimensions or number of features help overcome over-fitting (Khalid et al. 2014). Therefore, it has been applied to numerous real-world data sets, including short text classification (e.g. Burnap et al. 2017; Burnap et al. 2015; Ji et al. 2018; Xiang et al. 2012). However, it is difficult to read and interpret the extracted components (independent variables) which are based on feature correlation rather than frequency (Miner et al. 2012).

2.2.1.3 Classification

As highlighted in Section 2.1, the most common machine classifiers in short text classification are NB, DT, SVM, NN, *k*NN, LR, RF and ensemble classifiers. In this step, the machine classifiers of choice are trained using the labelled features extracted from the feature engineering phase to learn how to distinguish different classes' instances when validated using evaluation methods. One of two methods is usually employed in most cases, namely splitting percentage (also known as train/test split) and cross-validation (Zhou 2012). The splitting percentage involves splitting the data set into training and testing sets with most instances used for training to provide sufficient information for the classifiers to learn from

while the test set is usually the smaller percentage used for the validation. On the other hand, the cross-validation randomly splits the data using stratified sampling. This procedure is often referred to as the k-fold cross validation where k is the number of partitions a data set will split data into. The k-fold cross-validation is preferred for validation over splitting percentage due to its ability to limit the level of influence of randomly selected training sets on the overall results (Zhou 2012).

2.2.1.4 Evaluation

Evaluation as a process allows us to determine the extent to which an objective has been attained (Steele 1970). The most common evaluation metrics used in short text classification are Precision, Recall, and F-measure to measure classification performance (Allahyari et al. 2017). A brief description of these metrics is provided below using the following concepts, namely:

1. **True Positive (TP):** are the number of positive instances that have been correctly classified as positive.
2. **False Positive (FP):** are the number of negative instances incorrectly classified as positive.
3. **True Negative (TN):** are the number of negative instances correctly classified as negative.
4. **False Negative (FN):** are the number of positive instances incorrectly classified as negative.

Accuracy is the overall accuracy, i.e. is the ratio of the number of instances correctly classified across all classes which is not typically used for measuring the performance of text classification, especially for data with class imbalance, as the higher results of the majority class (which is often not the one of interest) gives the false impression of a good performance.

1. **Precision:** The ratio of the number of correctly identified instances from all instances which is represented as:

$$Precision(P) = \frac{TP}{TP + FP}$$

2. **Recall:** The ratio of the number of correctly identified instances from the subset of relevant instances, represented as:

$$Recall(R) = \frac{TP}{TP + FN}$$

3. **F-measure:** The harmonic mean of the precision and recall, represented as:

$$F1 = \frac{2(P)(R)}{P + R}$$

The F-measure is preferred to accuracy as it can reflect how the overall performance is affected due to the low performance for some classes.

2.3 Short Text Classification

Short Text Classification (STC) can be defined as the classification of short texts using the same set of procedures as the conventional text classification (Alsmadi and Gan 2019). STC is proposed for solving and understanding short texts in the web (Chen et al. 2019; Faguo et al. 2010). Compared to traditional long texts, short texts are documents that have a relatively short length usually not more than 280 characters generated from numerous sources, including blogs, SMS, customer reviews, and social media platforms, to name a few. The generation of short text data has increased enormously, with the explosive growth of social media data such as Facebook and Twitter, making short texts one of the largest, most valuable and complex data. This research focuses on short texts generated from social media; in particular, we focus on text containing unhealthy behaviours from Twitter.

2.3.1 Social Media Text

Social media platforms provide an internet-based service that enable users to communicate with each other, and in the past decade, it has become a vital medium for communication. Currently, there are at least 4.14 billion active social media accounts worldwide, of which 2.7 billion is from Facebook (which is the most popular social media platform), and 353 million is from Twitter (Clement 2020) (which is one of the most popular microblogging platform (Saif et al. 2012)). There are obvious advantages to using social media at both individual and societal level; however, the evolving and rapid spread of unhealthy behaviours such as cyberbullying (Uludasdemir and Kucuk 2019), hate speech (Lingiardi et al. 2019) and suicidal ideation (Burnap et al. 2015; Lopez-Castroman et al. 2019; Sawhney et al. 2019; Sedgwick et al. 2019) which may be in the minority (i.e. they are a small percentage from all social media posts (Colombo et al. 2016)), have a disproportionately negative effect on the people targeted by such behaviours (e.g. Delgado et al. 2015; Sedgwick et al. 2019). Moreover, some of these behaviours (e.g. hate speech) are recognised as criminal offences in some countries.

There are measures put in place by lawmakers as well as social media platforms to address such behaviours. For example, Twitter provides online reporting structures to report any violent, harassment, abusive and/or threatening posts (Hewitt et al. 2016). However, according to Vega (2013) and Badjatiya et al. (2017), these methods are ineffective and unscalable; considering the nature of social media (uncontrollable, large and constant instantaneous user generated posts) and language complexity (Rodríguez-Sánchez et al. 2020). On the other hand, social media platforms are working on building a robust automated identification system for such behaviours (Samghabadi et al. 2020). Nevertheless, in recent years, there has been an increase in research in this area, with various approaches to detect such behaviours automatically (e.g. Burnap et al. 2015; Lingardi et al. 2019; Liu et al. 2019a; Sawhney et al. 2019; Yao et al. 2019).

These studies take advantage of the abundant (large quantity), and socially relevant in-

formational contents of social media data (Phillips et al. 2017). Some of which are easy to acquire, however, to conform to regulations, social media platforms continuously update their policies and therefore making it harder to acquire data from certain sources, e.g. Facebook posts are harder to obtain than Twitter posts due to the complexity of Facebook's privacy issues (Batrincea and Treleaven 2015). Hence, numerous research uses Twitter data. Moreover, an estimate of 5 million tweets are generated on Twitter daily which offers an insight into the daily feelings and thoughts of individual users (Hewitt et al. 2016), making Twitter a rich and logical source of social information (Burnap et al. 2015; Burnap and Williams 2015; Hewitt et al. 2016). Similarly, studies such as (Burnap et al. 2015; Cavazos-Rehg et al. 2016; Homan et al. 2014) have shown that it is more likely for an individual to look for non-professional support through social media instead of professional support due to concerns regarding social stigma. Therefore, our research uses Twitter data due to the aforementioned advantages and to work towards preventing the negative effects of unhealthy behaviours. In the next section, we discuss the challenges of short text classification of Twitter data from related studies.

2.3.2 Challenges of Short Text Classification

Short text classification of social media text, particularly Twitter, is a very challenging task due to the complexity of short text and lack of methods for its classification as most studies tend to use text classification methods which are known to work better with long text. According to (Faguo et al. 2010), sparsity, immediacy (realtime) and un-standard nature (e.g. informality and misspellings) are general features of short text that makes it difficult for machine classifiers to perform well with short text. Moreover, they proposed two-step classification method based on statistics and rules. Although, high performance was achieved, the method is not automated. Additionally, authors in (Wang et al. 2017a) highlighted the limitations of text classification methods such as human-designed features or deep neural networks when dealing with short text is due to lack of natural language

syntax and context, as well as ambiguity. They suggested that to overcome these limitations, there is a need to capture more semantic and syntactic information from short text, and using more advanced text representation models is a crucial step.

2.3.2.1 Noisy and High Dimensional

Authors in (Baldwin et al. 2013; Barbosa and Feng 2010; Kumar and Harish 2018; Zubiaga et al. 2015) highlighted that the syntax of Twitter posts utilized by users include non-standard languages such as lexical variance (e.g. 18r for later), acronyms, emoticons, links to external sources (URL) and genre-specific phenomena such as user mentions (represented with @), retweets (represented with an RT) and hashtags (represented with # symbol). When applying short text classification, these syntax texts are extracted as features and most of them, depending on the focus of the research, are considered noise (i.e. irrelevant). This is typically addressed using preprocessing.

As highlighted in Section 2.2, preprocessing is employed to clean and transform texts, which can either positively or negatively impact classification performance. Authors in (Wang et al. 2016) built upon the work by O’Dea et al. (2015) and achieved an improved performance due to the variation in text preprocessing. In (Kumar and Harish 2018), the authors investigated the impact of preprocessing in relation to short text from Twitter where a combination of preprocessing techniques known to work well with tweets is applied such as removal of URL, username, hashtags, negation, stop words and punctuation, character normalization and stemming. These methods were used on three sets of features (i.e. unigrams, bigrams and trigrams) and the results showed an increase in classification performance when preprocessing is done with a combination of techniques for unigrams and bigrams. On the other hand, the results also indicate the negative impact of removing stop-words and the significant influence of applying stemming in combination with all the preprocessing techniques they used, including stop-words. Likewise, authors in (Bao et al. 2014) applied 5 preprocessing techniques to tweets, including URLs features reservation

(i.e. URLs are reserved as features), negation transformation (e.g., “won’t” to “will not”), repeated letters normalization, stemming and lemmatization, with a linear classifier. However, their result suggests that preprocessing improves classification performance when URLs features reservation, negation transformation and repeated letters normalization are applied, but when stemming and lemmatization are applied, the classification performance reduces.

Contrary, in (Mohammad 2018) authors suggest focusing on selecting the best classification algorithms rather than preprocessing due to the poor result of their study which investigated the impact of 35 preprocessing techniques (including removal of stop words, URL and non-alphabetic words) on state-of-the-art classification models. From these studies, it is clear that the choice of preprocessing techniques can have a major impact on the classification results. Employing preprocessing does not only cleanse and standardize the data but also reduces the dimensional space and ambiguity. However, due to the informality of the text and the inability of preprocessing to recognise distinctive features, it could cause loss of relevant features and only minimally reduce the dimensional space. Therefore, feature selection and extraction methods are typically employed for such tasks. For example, in (Balakrishnan et al. 2020), the authors used Twitter users’ psychological features such as sentiment, personalites and emotion, to improve the detection of cyberbullying. They were able to identify key features using the wrapper method due to its ability to achieve high accuracy, and consider the interaction between the features and predictive models when choosing the relevant features which also reduces the dimensional space. Authors in (Burnap et al. 2015) employed PCA to reduce the dimensionality of the features for the automatic classification of suicide-related communications from Twitter, which converted all the possibly correlated features to new and fewer uncorrelated features.

2.3.2.2 Short, Informal and Sparse

Tweets were limited to 140 characters, recently extended to 280 characters to enable more expressions¹. According to (Chen et al. 2016b; Rafeeqe and Sendhilkumar 2011; Zhang and He 2015), semantic similarity is important but hard to achieve with short text due to the length of the text which lacks context and content making it difficult to construct a feature space; therefore, standard techniques can not achieve the desired result. To address this problem, authors in (Chen et al. 2016b) proposed a method based on LDA topic modelling to measure semantic similarity. Similarly, authors in (Chen et al. 2016b; Rafeeqe and Sendhilkumar 2011) suggested enriching the short text by utilizing search engines or external knowledge sources. On the other hand, (Sriram et al. 2010) argued that using external knowledge to enrich the features could lead to high dimensional features (the curse of dimensionality). Likewise, Alsmadi and Gan (2019) pointed out the challenge that will be encountered due to enriching short text such as the difficulty in obtaining precise features for certain topics.

Authors in (Saif et al. 2012) highlighted data sparsity as another challenge when dealing with short text from social media, specifically Twitter, partly due to its shortness and irregularity (i.e. irregular words, symbols and characters). Authors in (Pan et al. 2012) defined data sparsity as the lack of useful labels or sufficient data for training, leading to overfitting when training a model. To address this issue, in (Saif et al. 2012) authors proposed two methods, namely semantic smoothing and automatic semantic-topics extraction, which are based on word clustering to alleviate data sparsity from Twitter for sentiment analysis. Authors in (Weissbock et al. 2013) proposed a method based on external information to enhance tweets for improved short text classification. The expanded the length and features of tweets by concatenating the information extracted from the web data (page title and most frequent words) in the URLs of the tweets. This improved their classification performance by 14.94% using cross-validation and up to 61.05% using test data. In addition to enriching

¹<https://developer.twitter.com/en/docs/counting-characters>

the features using external information, authors in (Kamath and Caverlee 2011) highlighted two additional approaches, including lexicon and collocation based enrichment. Non-text features such as emoticons and punctuation which are considered noise in certain studies (e.g. (Kumar and Harish 2018; Mohammad 2018)) were explored by (Liu et al. 2013) to build an adaptive multi-class SVM model to tackle sparseness in tweets. Similarly, authors in (Pan et al. 2012) proposed using transfer learning to transfer supervised knowledge from a fully labelled data set for additional knowledge to help address data sparsity problem.

2.3.2.3 Ambiguous

Ambiguity is unavoidable when dealing with real world data including numerical data. For example, in (Trappenberg and Back 2000), the authors proposed a preprocessing method for ambiguous data. They used k NN to determine the class membership of the feature based on the majority (over 80%) neighbouring features where a new class is created for ambiguous data and excluded from classification using feed forward neural network. The aim was to reduce data complexity so that simple classifiers can achieve a good classification performance rather than seeking a complex classifier. Although, the proposed method was validated on numerical data, namely iris and wisconsin breast cancer data sets.

In textual context, high ambiguity particularly in short text makes the task of short text classification a challenge which authors in (Chen et al. 2019) argue is due to lack of enough contextual information in short texts. Authors in (Maurya et al. 2015) highlighted knowledge-based and statistical systems as two potential solutions used in solving ambiguity. The former uses world knowledge to determine the sense of a text (e.g., Chen et al. 2019), whereas the latter uses annotated data to compute the most likely ambiguity resolution determined by conditions such as the word or word classes (e.g., Liu et al. 2019a). Generally, POS (syntactic ambiguity) or word sense disambiguation (semantic disambiguity) (Maurya et al. 2015; Sumanth and Inkpen 2015) are used to resolve lexical ambiguity. According to (Sumanth and Inkpen 2015), the meaning of a word could only be

determined by examining its context, and considering that short text is highly ambiguous, they employed word sense disambiguation (WSD) for a sentiment analysis problem which yielded a better result over not employing it. Similarly, (Warner and Hirschberg 2012) also employed word sense disambiguation for the disambiguation of hate speech problem.

Moreover, many machine learning and statistics-based techniques have been proposed for text disambiguation, most of which have been developed for specific tasks with claims of applicability to other tasks (Roth 1998). More recently, Chen et al. (2019) proposed a short text classification method (STCKA - Short Text Classification with Knowledge Powered Attention) which utilized conceptual information from external knowledge and deep neural network to enhance semantic features of short texts. Contextualized word representations have recently shown to be effective when employed for WSD task. For example, Hadiwinoto et al. (2019) exploited BERT to pre-train models for WSD using simple last layer projection, layer weighting (LW), and gated linear unit (GLU) where the GLU model had the best performance. Likewise authors in (Kutuzov and Kuzmenko 2019) evaluated a WSD task using trained versions of ELMo models for English and Russian languages. The results showed that they yielded small but consistent improvement.

Additionally, due to the ability of fuzzy approaches to deal with fuzziness, imprecision and uncertainty of text, authors in (Liu et al. 2019a) proposed a fuzzy method to disambiguate short text for the detection of hate speech posted on Twitter. The fuzzy approach combines each class's membership degree from multiple fuzzy classifiers to identify ambiguous instances where a semi-fixed defuzzification rule based on cosine similarity is used. The proposed method was compared with DT, NB, GB, SVM and DNN.

Authors in (Roth 1998) proposed SNOW, an attribute efficient approach which is appropriate for large attributes. The proposed method utilizes the winnow learning algorithm to learn a network of linear separators for natural language disambiguation. The validated their method on three disambiguation tasks, namely PPA (prepositional phrase attachment), POS (part-of-speech) and Spell (context-sensitive spelling correction). They compared

SNOW with other disambiguation methods including NB, transfer based learning, decision list and the back-off estimation. SNOW either outperformed or had comparable results with the best methods.

2.3.2.4 Imbalanced

Another challenge in classifying short text from Twitter is class imbalance which occurs when the classes are not equally presented where the minority class is usually the target class (Chawla et al. 2002; Liu et al. 2019a; Zhang et al. 2018) i.e. the class to be detected is only a small percentage among all social media posts (Colombo et al. 2016). This is particularly significant as the target, minority class has less sufficient information for an algorithm to learn reliable patterns which could lead to poor detection of the class. For example, authors in (Waseem and Hovy 2016) collected 16,914 hate speech tweets which had 20% sexist and 11% racist contents whereas (Zimmerman et al. 2018) who collected 16,883 tweets of which 20% contained racism and 12% had sexism. Similarly, 36% of 5,000 tweets collected by (Bashar et al. 2018) had misogynistic contents and of 2,000 suicide-related tweets collected by (Burnap et al. 2015) and (O’Dea et al. 2015), 13% and 14%, respectively, were labelled as having evidence of suicidal intent.

Interestingly, authors in (Waseem 2016) re-labelled the data set from (Waseem and Hovy 2016). Those labelled by experts such as feminist and anti-racism activists classified 1% racist and 13% sexist whereas those labelled by amateurs classified approximately 6% as racist and 19% as sexist. The labelling difference could be due to the lack of a general definition of hate speech, thereby emphasizing its impact on implementing effective and robust automatic detection models. Also, most of these tweets were collected using rigorously (typically) identified keywords that relate to unhealthy behaviours, adding some bias. However, considering the large number of available tweets, it ensures that the contents of the tweets collected relate to the unhealthy behaviour investigated. Otherwise, the target class percentages will be much less if the collection was done without any search terms.

Moreover, some factors could trigger the increase or decrease of such behaviours at the time of collection such as protests or campaigns, therefore collecting tweets from certain regions during these periods might contain more instances of such behaviours.

Several approaches have been proposed for handling imbalanced data sets. One-sided learning (e.g. one-class classification and one-class svm) is typically employed to address the imbalance by building a model based on instances of only one class (i.e. the target class) (Bellinger et al. 2012; Padurariu and Breaban 2019). According to Liu et al. (2009), it is effective with extremely skewed data set with high dimensional and irrelevant features. On the other hand, authors in (Ruff et al. 2018) argued that it often fails due to bad computational scalability and high dimensionality therefore will require substantial feature engineering. Authors in (Sureka and Agarwal 2014) employed one-class classification by training two independent classifiers (*k*NN and LibSVM) on a formulated one-class classification problem to classify one million tweets as promoting hate and extremism or unknown.

In addition, resampling is one of the most widely employed approach for handling class imbalance (Padurariu and Breaban 2019) where the minority class is over-sampled or the majority class is under-sampled. Authors in (Chawla et al. 2002) proposed the most widely used resampling technique, Synthetic Minority Over-sampling Technique (SMOTE). SMOTE is an oversampling method which generates synthetic instances for the minority class. The method has been widely employed for text classification problems (e.g. Aladağ et al. 2018; Ryu et al. 2019) including short text classification. For example, authors in (Indurthi et al. 2019) balanced a bilingual (English and Spanish) data set acquired from (Basile et al. 2019) with SMOTE to identify hate speech on Twitter that are directed at immigrants and women; and (Putri et al. 2020) compared the performance of machine learning algorithms in automatically detecting hate speech on Twitter which was compared with features extracted with and without SMOTE, and the found that SMOTE did not have any significant effect on the classification performance with only a slightly higher accuracy and performed

poorly with SVM.

Moreover, other works focus on choosing appropriate and robust techniques which are less influenced by class imbalance. Authors in (Balakrishnan et al. 2020) used an imbalanced data set to detect cyberbullying on Twitter, which was addressed by choosing multiple machine classifiers rather than selecting a single classifier, including DT. Additionally, they used various performance metrics, including AUC and F-measure, which are considered more robust when dealing with an imbalanced data set. To examine the significance in performance difference between the machine classifiers used, t-tests was employed. In the study carried out by Fodeh et al. (2019) to detect suicide risk factors on Twitter using machine learning, class imbalance was addressed using random down-sampling and k-means clustering. They achieved the best result training DT with data set balanced using the k-means approach.

On the contrary, authors like Waseem and Hovy (2016) argue that to provide realistic data with real-world problems (e.g. hate speech), balancing the data set makes it less realistic. Likewise, Zhang et al. (2018) highlighted the main challenge in classifying unhealthy social media behaviours from Twitter, such as hate speech, is the lack of unique, discriminative linguistic characteristics that will distinguish between tweets containing, for example, hate speech and non-hate speech contents, rather than addressing class imbalance using conventional methods such as over-sampling and under-sampling.

The findings in this section highlights the challenges in building robust automated detection methods for short text classification from social media text specifically Twitter text including ambiguity, noise, high dimensionality, sparsity, shortness and informality of text, and imbalanced distribution of the classes. Although, numerous studies suggest ways to overcome these challenges, we further review literature relating to methods and approaches used to overcome them to build robust automated methods for the detection of unhealthy social media behaviours.

2.4 Short Text Classification of Unhealthy Social Media Behaviours (USMB)

Numerous research interests have been drawn to applying short text classification for the detection of unhealthy social media behaviours as of recent. Some of these studies have explored both traditional machine learning and deep learning approaches. Works such as (Badjatiya et al. 2017; Basile et al. 2019; Elouali et al. 2020; Indurthi et al. 2019; Nina-Alcocer 2018; Samghabadi et al. 2020; Sawhney et al. 2018b) used deep learning including Long Short Term Memory (LSTM), Multi-layer Perceptron (MLP), Convolutional Neural Networks (CNN), Recurrent Neural Networks (RNN), Deep Neural Networks (DNN) and embeddings (word and sentence). While others such as (Abboute et al. 2014; Badjatiya et al. 2017; Burnap et al. 2015; Canós 2018; Davidson et al. 2017; Fodeh et al. 2019; Nina-Alcocer 2018; O’Dea et al. 2015; Ramachandran et al. 2020; Sawhney et al. 2018b; Shushkevich and Cardiff 2018; Waseem and Hovy 2016) employed traditional machine learning methods including clustering, transfer based learning, ensemble learning, rule based learning, statistic based approaches (e.g Chi-square), topic modeling (e.g LDA) and standard methods (e.g. n-grams, bag-of-words and TF-IDF), to name a few. In this section, we review these related studies on the application of short text classification in relation to unhealthy social media behaviours from Twitter, particularly suicidal ideation, hate speech and misogyny.

2.4.1 Suicidal Ideation

Suicide is one of the leading cause of death among young generations worldwide (O’dea et al. 2017; Tadesse et al. 2020) and the second main cause of death among individuals age 15 – 29 years (Cavazos-Rehg et al. 2016; *Suicide* 2018) which is the same age group of the majority of social media users (Duggan and Brenner 2013; Sloan et al. 2015). Moreover, studies have shown the association between social media and suicidal behaviour (Jashinsky et al. 2014; Sinyor et al. 2020; Sueki 2015; Won et al. 2013).

For example, the work in (Jashinsky et al. 2014) demonstrated that users at risk of suicide might be detected using social media. They focused on the United States and identified suicide-related risk factors from Twitter conversations; they found a strong correlation between the Twitter data and the geographic suicide rates. Similarly, authors in (Won et al. 2013) examined the potential of social media in predicting suicide at a population level. They developed and validated predictive models, and their results suggest including social media data when surveilling trends and strategies for prevention related to suicide. This has led to some growing concerns (Cavazos-Rehg et al. 2016; Cheng et al. 2015; Rice et al. 2016) about the impact or influence of social media on these vulnerable users.

According to Burnap et al. (2015), to assist social media users who are suicidal, it is important to understand the communication of suicidal ideation. Authors in (Goldsmith et al. 2002) defined suicidal ideation as the “*thoughts of harming or killing oneself*” while suicidal communication as the “*direct or indirect expressions of suicidal ideation or of intent to harm or kill self, expressed verbally or through writing, artwork, or other means*”. Detecting suicidal ideation on social media can help prevent suicide; however, the detection and timely intervention are major challenges. Twitter, in particular, has been recognised as a platform where suicidal messages are posted (Jashinsky et al. 2014) hence there is a system in place that allows for intervention by Twitter, but it is not automated (Fodeh et al. 2019; O’Dea et al. 2015) hence making it a less reliable measure for early intervention for the prevention of suicide.

To confirm the feasibility of detecting suicide from social media post, particularly Twitter based on the content of the post alone, in (O’Dea et al. 2015) authors used both human coders and automated machine classifiers to distinguish between three suicide-related classes namely, strongly concerning, possibly concerning and safe to ignore. The coders classified 2,000 instances, out of which 14% were considered strongly concerning and the majority classified as possibly concerning. They extracted these instances’ features using unigrams, TF-IDF and Chi-square where features that had a document frequency of

more than 0.7 were removed. Two machine classifiers, SVM and LR, were trained and validated on the remaining instances using 10-fold cross-validation. The evaluation, which was reported using precision, recall and F-measure, showed that an F-measure of up to 0.74 was achieved (by SVM) for the strongly concerning class with 80% of the instances correctly classified as strongly concerning. The majority class (possibly concerning class) did achieve a higher F-measure of up to 0.83. Although there is still room for improvement, this study has proved that Twitter posts can (to an extent) be used to detect suicidal ideation, the content of the post itself can be used to distinguish between different categories of suicidal ideation. However, they suggested to better understand the context, it is essential to consider other factors associated with the account (e.g. followers), the user (e.g. offline activities) as well as the post (e.g. retweets); and machine classifiers are capable of detecting such behaviours using basic methods, also considering the sensitivity of the domain it is essential to aim for optimal performance.

Authors in (Burnap et al. 2015) carried out a study to understand social media communications on the topic of suicide by building a set of models to classify short texts relating to suicide from Twitter. Their research collected 2,000 instances (tweets) from Twitter using the Twitter API and a set of keywords and phrases that suggest possible suicidal intent. Each extracted instance was annotated by 4 expert human annotators from CrowdFlower² into one of seven class, i.e. six suicide-related, namely suicide, campaign, flippant, support, memorial and reports, and one non-suicide related class. These instances were preprocessed by removing the instances with less than three of four annotator agreements on the instance class membership. For the feature engineering, four sets of features were extracted: the first feature set contained lexical features which were extracted using the Stanford part-of-speech tagger, wordnet domain labels for general lexical categories such as home and religion, sentiment scores using SentiWordNet, n-grams (unigrams, bigrams and trigrams) to extract most frequently used words, inclusion of keywords used for the

²a crowdsourcing service which has been re-branded in 2019 to Appen: <https://www.appen.com>

extraction of the tweets during the collection phase and the inclusion of other structural features such as URL, retweets and negations; second feature set contained sentimental, affective and emotional features extracted using a text analysis software, namely Linguistic Inquiry and Word Count (LIWC); third feature set contained languages that are used in short and informal text which are related to social media suicide text, these were extracted using regular expressions and pattern matching rules; and fourth feature set is a combination of all the three feature sets which resulted in a large number of features which they applied PCA to reduce the dimensionality. N-grams was used as a choice for word vector transformation, although 1- to 5-grams was used, the best result was achieved using 1- to 3- grams with 500 words. As for the short text classification, four machine classifiers were trained on weka, namely NB, DT, SVM and Rotation Forest. Rotation forest was employed as an ensemble classifier to improve the results achieved by the three classifiers as it showed better performance over bagging and boosting in a related study (Rodriguez et al. 2006). These were evaluated using the 10-fold cross-validation and reported using precision, recall and F-measure. The best performance of 0.728 and 0.690 for all the seven classes and suicide class was achieved when rotation forest is trained on the combined feature set (fourth feature set) without employing PCA. However, for the detection of the suicide class, interestingly NB and SVM have outperformed rotation forest for the three feature sets. The authors pointed out that the flippant and suicide classes contain many of the same linguistic features (ambiguity), making the classification of these classes difficult; however, applying PCA helps identify certain sentimental attributes. Also, the dominant words and phrases that appeared in the suicide class are related to those identified associated with suicide that was identified in suicide literature.

The authors in (Abboute et al. 2014) created word lists of suicide-related topics and emotions; their studies aimed at classifying tweets into ‘risky’ and ‘non-risky’ language using machine learning. The employed the following machine classifiers: ripper rule based (JRIP), instance based learners (IBK and IB1), decision tree (J48), NB, RF and SVM using

sequential minimal optimization (SMO), and validated them using two validation methods: Leave One Out validation (LOO) and 10-fold Cross-Validation. They obtained an accuracy of approximately 63% when trained with NB (using both validations) and RF (using LOO without depression attributes largely associated with the non-risky tweets). Although the result is good but not optimal, the authors have identified ways to improve their framework, including capturing emotions, additional mental states, capturing additional vocabulary of mental states emotions, non-textual information (e.g. tweet posting frequency) and account information (e.g. age, gender and location). Moreover, their approach is language-independent, hence it can be employed for other languages such as French and Spanish.

Authors in (Fodeh et al. 2019) proposed a machine learning framework to identify suicide risk on Twitter. They collected 12,066 tweets from 3,873 users using suicide-related search terms identified/proposed by Jashinsky et al. (2014), which were balanced using the random down-sampling and k-means clustering to create two additional data sets. They focused on a binary problem where the two classes denoted tweets that contained suicide-related behaviours (i.e. *High-risk* class as the target class), and the remaining tweets were denoted as *at-risk*; however, tweets that did not belong to either class were discarded. Furthermore, three topic clustering algorithms were applied to discover topics discussed by users, namely Latent Semantic Analysis (LSA), Latent Dirichlet Allocation (LDA), and Non-Negative Matrix Factorization (NMF); and two machine classifiers, DT (using Chi-square automatic interaction detector) and k-means clustering, were employed for the classification. They evaluated their results using precision, sensitivity (recall), specificity, and AUC. From the result of their experiment, for each of the clusters formed, the majority class label is the label assigned to the cluster. The DT classifier is the best identifier for the high-risk class using LDA on data set balanced using the k-means approach with a precision of 0.844, sensitivity of 0.912, specificity of 0.829, and AUC of 0.870. However, when trained on the unbalanced data set, both classifiers cannot clearly distinguish between the two classes. The study indicates that employing topic modelling techniques with minimal

human intervention, i.e. using the combination of supervised and unsupervised approach, can detect suicide risk on Twitter; and the DT classifier is capable of distinguishing between the suicide-related communications without employing additional linguistic features of Twitter posts. Similarly, Ramachandran et al. (2020) compared four machine classifiers on a multi-class suicidal ideation data set (tweets) whose features were extracted using TF-IDF. They achieved (from best to worst) an accuracy of 76.3% for LR, 72.1% for NB, 72% for SVM and 67.6% for RF.

An approach was proposed by Sawhney et al. (2018) for detecting suicidal ideation on Tweets based on rule-based, ensemble and deep learning. They collected and preprocessed suicidal ideation tweets from Twitter by removing non-English tweets, usernames, URLs, retweets, stopwords and hashtags with length greater than ten. Five feature sets were derived based on statistical features, LIWC features, Part-of-speech, TF-IDF and LDA. These were trained using eight machine classifiers, namely, LR, RF, gradient boosting decision tree (GBDT) or GB (using DT), XGBoost, LSTM, SVM, rule-based classification and negation resolution. RF had the best performance of 0.844 when all the features are combined, whereas LR (0.832) performed better than all the other classifiers including the two boosting methods, i.e. XGBoost (0.812) and GBDT (0.807) as well as LSTM (0.796).

2.4.2 Hate Speech

There is no universal definition of hate speech as the varying interpretation of freedom of speech has made it difficult to define what constitutes hate speech (Alkiviadou 2019; Davidson et al. 2017). However, to provide some context, authors in (Warner and Hirschberg 2012) defined hate speech as *“a particular form of offensive language that makes use of stereotypes to express an ideology of hate”*. Offensive language could range from simple profanity to more severe types of language (Sigurbergsson and Derczynski 2020, May). Similarly, Facebook defines hate speech as *a direct attack on people based on race, ethnicity, national origin, religious affiliation, sexual orientation, caste, sex, gender,*

gender identity and serious disease or disability (Community Standards).

On the other hand, Twitter does not give a definition but rather warns users of exposure to contents that might be offensive, harmful, inaccurate or otherwise inappropriate which may not be monitored or controlled (Alkiviadou 2019). Moreover, they prohibited direct, specific threats of violence against others and have internal hate speech regulatory policies (Alkiviadou 2019). These are based on manual review with possible bias (Waseem and Hovy 2016) and considering that hate speech is a crime in some parts of the world including the UK and parts of Europe and unsurprising, there is a strong correlation between hate speech and hate crimes (Sigurbergsson and Derczynski 2020, May; Zhang et al. 2018), but there is not an automatic method to detect hate speech (Warner and Hirschberg 2012) which could prevent escalation of hate crimes as well as protect users both online and offline. Authors in (Waseem and Hovy 2016) argue the lack of a general definition of hate speech is the reason research in hate speech has been limited. Although, in spite of this, there have been some growing interests in this domain and studies have employed machine learning for the automatic detection of hate speech.

Authors in (Badjatiya et al. 2017) employed three deep learning architectures, namely FastText, CNN and LSTM which were embedded using either random embedding or GloVe, to handle the complexity of detecting hate speech on Twitter by learning semantic word embeddings. They used 16,000 tweets categorised into three classes: sexist, racist and neither sexist nor racist. They trained their model using LR, RF, SVM, GBDT and DNN. For the baseline, they employed char n-grams (which facilitates the learning of rare words (Padurariu and Breaban 2019)), TF-IDF and bag-of-word vectors were trained with the same machine classifiers. Their results indicate that the worst performance in detecting hate speech was achieved using char n-gram with LR (0.753 F-measure) while the best was using LSTM and random embedding trained with GBDT (0.930 F-measure).

Authors in (Davidson et al. 2017) highlighted the key challenges in the automatic detection of hate speech from the result of their studies which was carried out on 24,802 labelled

tweets collected using hate speech lexicon. They employed standard methods including stemming, POS and TD-IDF to weight unigram, bigram and trigram features and trained five machine classifiers including SVM, NB, DT, RF and LR, although LR was also used before training for dimensionality reduction, it (and SVM) had the best performance but only the result for LR was reported i.e. an F-measure of 0.90, precision of 0.91 and recall of 0.90. The result of their multi-class problem (hate speech, offensive and neither classes) demonstrated the challenge in distinguishing between hate speech and offensive languages due to the overlap in terms (ambiguity) used in both languages therefore suggesting the use of training data which contains hateful contents without using keywords or offensive languages. Moreover, they argued that the presence or absence of a particular offensive or hate speech terms could help and hinder accurate classification, and certain terms are beneficial when distinguishing between offensive contents and hate speech. Additionally, they stated that lexical methods are inaccurate for detecting hate speech and other attributes of hate speech users such as motivation and user characteristics might aid in distinguishing these classes. Another study, Waseem and Hovy (2016), analyzed the impact of various extra-linguistic features in conjunction with character n-grams for hate speech detection on 16,000 labelled tweets.

In (Basile et al. 2019), the authors outlined the challenge of detecting hate speech against women and immigrants. Their study focused on two areas, namely a binary classification problem to detect hate speech; and identifying features in hateful contents to distinguish between hate speech targeted at an individual and group, respectively. The data set they used for the research is composed of 19,600 tweets of which 6,600 is in Spanish and 13,000 is in English distributed across two binary class problems namely, hateful and not hateful, and aggressive and not aggressive. They used sentence embeddings to identify hate speech on Twitter that are directed at immigrants and women.

Authors in (Indurthi et al. 2019) used four machine learning algorithms (LR, RF, SVM and XGBoost) to train models on English hate speech tweets acquired from Basile et

al. (2019), which were used to evaluate six pre-trained sentence embeddings (InferSent, Concat-p mean, Lexical Vectors, Universal Encoder, ELMo and NNLM) for the identification of offence, hate and aggression. A classification performance between 41.5% and 71% was achieved. Their studies found that using simple machine classifiers with pre-trained embedding from state-of-the-art architectures and methods perform well when distinguishing offensive and not offensive tweets.

Authors in (Oberstrass et al. 2019) also employed deep learning methods for the identification and categorization of offensive language, such as ELMo for word representation and LSTM as a classifier where an f-measure of 0.767 was achieved. Likewise, Liu et al. (2019) used LSTM pretrained with BERT, achieving a higher f-measure (0.829).

Some researchers are focused on detecting hate speech in multiple languages (multilingual). For example, Elouali et al. (2020) proposed a multilingual approach based on CNN with character level representation to distinguish between hate speech and non-hate speech in seven languages. They highlighted the necessity of multilingual detection of hate speech in languages as tweets in English makes up only 34% of tweets. They chose to use neural networks due to its language translation independence, i.e. current solutions requiring language translation before modelling, could lead to lose of words or instances meaning. They used two data sets which contained 33,727 tweets in Arabic, Italian, Portuguese, Indonesian, English and German, and 46,173, which contained Hindi-English and German. The data sets were cleaned by removing hashtags, URL links, special characters, diacritics and mentions, and HTML decoding for texts that were not correctly converted. Their proposed model achieved an accuracy of approximately 89%, and 83% for data set one and two, respectively.

2.4.3 Misogyny

Misogyny is a gendered hate speech with aggressive and abusive contents directed at women to offend the victim, which can morally harm or incite physical violence (Frenda,

Bilal, et al. 2018). Social media platforms have been utilized to spread online misogyny and therefore the role of women online has attracted attention in the last years due to the rapid increase of misogyny (Nozza et al. 2019; Rodríguez-Sánchez et al. 2020). Online misogyny has significant offline consequences including social, psychological, financial, physical (e.g. violence) and political (Jane 2016). According to Fersini et al. (2020), 75% of women use social media daily compared to 64% of men, yet social media platforms like Twitter are described as a toxic place for women³ due to the lack of protection against the increasing online misogyny. In recent times, online platforms have made efforts to tackle this problem such as blocking or removing misogynistic tweets and the continuous reviewing of hate speech policies to eradicate such contents from social media platforms like Twitter (Rodríguez-Sánchez et al. 2020). However, as with previously stated measures put in place, it is a suboptimal solution. Hence, numerous research have been done from both computational linguistics, and machine learning point of view (Nozza et al. 2019) for the effective and robust automated detection and identification of such contents.

Authors in (Fersini et al. 2018) collected misogyny-related Twitter data for their initiative in the automatic misogyny identification campaign using three approaches, i.e. representative keywords, potential victims account monitoring and history of an identified misogynist. Their study aimed at distinguishing between misogynous and non-misogynous contents (binary class problem), categories of misogynous behaviours (six classes: stereotype, dominance, derailing, sexual_harassment, discredit and 0 for not misogynous) as well as classify the target (three classes: active for individual target, passive for generic and 0 for not misogynous) for English and Spanish tweets. These data sets were labelled by annotators, some of whom were from CrowdFlower. The Spanish data set comprised 3307 training and 831 for testing while the English tweets comprised 3251 training and 726 testing. Numerous research teams utilised these data sets, including Canós (2018), Nina-Alcocer (2018), Shushkevich and Cardiff (2018) and Nozza et al. (2019), to name a few.

³<https://www.amnesty.org/en/latest/research/2018/03/online-violence-against-women-chapter-1/>

Authors in (Canós 2018) employed a single machine classifier, SVM, for the automatic identification of English and Spanish misogynous tweets using unigrams and TF-IDF. The model was validated using 10-fold cross-validation and evaluated using F-measure where they achieved an F-measure of 0.75, and 0.81 for English and Spanish, respectively in the identification of misogynous tweets; whereas for the classification based on misogyny type (e.g. stereotype) and target (i.e. generic or specific), F-measure of 0.33 (English) and 0.43 (Spanish) were achieved. Using the same data set, in (Nina-Alcocer 2018) authors employed a different approach to identifying misogyny in the data sets. They considered weights of n-grams, LIWC categories, structural information and lexical analysis specifically, unigrams, bigrams, trigrams, bag-of-words, bag-of-char-grams, TF-IDF and POS. These were trained using SVM, MLP and MNB (MultinomialNB), and validated using 10-fold cross-validation where they achieved an accuracy of up to 0.78 (English tweets) and 0.86 (Spanish tweets) with SVM. Generally, they had better results for the English tweets. These results indicate that using standard approaches can yield a good result when identifying misogynous tweets in different languages.

Likewise, authors in (Shushkevich and Cardiff 2018) proposed a solution for the automatic identification of misogyny based on blended ensemble learning approach where they trained three classifiers: LR, NB and SVM but combined only NB and SVM through averaging. They used only the English tweets which the cleaned by removing punctuations and lowering the text, and used TF-IDF. An F-measure of approximately 0.79, 0.76 and 0.65 were achieved using the blended approach to identify misogyny, classify target categories and misogynistic behaviours (i.e. type of misogyny). Although, they reported the F-measure of the class with the highest average probability, the highlighted the difference in F-measure for the different task is due to the size of the data set, i.e. the data set with more instances achieved higher F-measure.

In addition, authors in (Samghabadi et al. 2020) found a correlation between aggression and misogyny detection, where the latter is easier to detect. However, it could be due to the

classification problem (i.e., misogyny detection is framed as a binary class problem whereas aggression detection as a multi-class problem). Their study employed BERT (Bidirectional Encoder Representations from Transformers) to extract contextualised information to identify aggression and misogynistic aggression in tweets using a multi-lingual (English, Hindi and Bengali as separate data sets), multi-class (three-class and binary-class) data set. Moreover, they employed the multi-lingual BERT for Hindi and Bengali. The three-classes are not aggressive, covertly aggressive and overly aggressive; whereas the binary classes are gendered and non-gender (i.e. whether the person is targeted based on gender, sexuality or stereotypical gender roles). For the identification of misogyny, F-measure of approximately 0.86, 0.80 and 0.92 were achieved for English, Hindi and Bengali, respectively. For the aggression identification, an F-measure of approximately 0.71 (English), 0.72 (Hindi) and 0.74 (Bengali) was achieved. Moreover, they also reported the F-measure for each class, and it is worth mentioning that the target class: overly aggressive, for the aggression identification task had a lower F-measure (overall) than the not aggressive class but higher F-measure than the covertly aggressive class; whereas gendered classification for the identification of misogyny had the lowest F-measure in all languages.

In contrast, authors in (Nozza et al. 2019) investigated the effects of unintended bias (i.e., where a model performs better for texts containing some specific terms frequently associated with a specific class than for text containing other terms) in discriminating misogynous tweets from non-misogynous tweets which could lead a model to associate unreasonably high misogynous scores to a non-misogynous text. Hence, they proposed a framework to measure and mitigate unintended bias in ML models to guarantee fairness. They trained their models on 4,000 tweets and evaluated their framework using manually created synthetic data sets, which comprised 1,464 instances evenly split between misogynous and non-misogynous instances.

The findings in this section highlights the approaches used for the detection of suicidal ideation, hate speech and misogyny, where studies have shown a correlation between

these online behaviours and offline consequences such as suicidal behaviour, hate crime and harassment, respectively. Traditional machine learning and deep learning approaches were widely employed to mitigate or overcome the challenges discussed in section 2.3. Although good results were achieved, considering the impact of these behaviours on users and society, there is need to aim for optimal performance. Studies such as Burnap et al. (2015) and Davidson et al. (2017) highlighted ambiguity between classes as a significant factor affecting the abilities of methods to distinguish between the target class and non-target classes. Yet, studies that deal with ambiguity for these behaviours are limited. Studies such as Liu et al. (2019) have proven that addressing ambiguity can improve the identification of distinctive features thereby improving the detection of the behaviours. Hence, there is need for further research to explicitly address ambiguity as it could lead to building robust automated methods for this problem domain.

2.5 Chapter Conclusion

This chapter provided a brief background on machine learning and text classification, including techniques and methods relevant for this research. The literature related to short text classification of unhealthy behaviours from Twitter, in particular suicidal ideation, hate speech and misogyny, was reviewed and the challenges in this domain were highlighted. The literature revealed that there are no techniques that have been shown to work best with short text classification of unhealthy social media behaviours from Twitter. Hence, related studies explored both traditional machine learning and deep learning approaches to detect such contents where the most popular methods employed are based on frequency (e.g. TF-IDF) and n-grams, and the most employed machine classifiers are NB, LR, SVM and DT. Moreover, findings in the literature highlight texts ambiguity, shortness and informality of social media text (Twitter) as factors impacting the use of advanced techniques such as DNN. In fact, these factors are associated with challenges such as high dimensionality, noise and sparsity.

Most studies focus on improving the detection of these behaviours by proposing approaches that will mitigate these challenges to find unique and discriminative features that will distinguish between tweets containing unhealthy and healthy social media behaviours. These include enriching the semantic features of short text by utilising conceptual information from external sources which risks increasing the dimensionality or non-related features (noise); capturing tweets related details such as user account details which might not be feasible in the long run due to the constant policy updates; employing combination of preprocessing methods which are incapable of selecting distinctive features; and employing feature selection and extraction methods to select relevant features which can still be ambiguous, to name a few.

Limited studies focus on resolving ambiguity in this problem domain. Findings in the literature suggests ambiguity as a factor that affects distinguishing between unhealthy social media related behaviours, in particular, the target (e.g. suicide, misogyny and hate speech, respectively) and neutral (e.g. flippant, aggression and offensive languages, respectively) classes. Moreover, related studies have proven that disambiguation can lead to improved detection of unhealthy behaviours from social media text. Most works employ computational linguistic approaches such as POS and word sense disambiguation to address ambiguity in Twitter data. Moreover, findings in this literature highlight Knowledge-based and statistical-based approaches as two potential solutions for resolving ambiguity.

In contrast to these previous approaches employed, we propose a term disambiguation method for short texts that utilizes machine learning and statistical methods to address ambiguity in short text, specifically Twitter data. Moreover, to develop, validate, and evaluate our proposed term disambiguation methods for improved detection of the target class, we need to investigate the performance of the popular machine learning algorithms identified in this literature for the detection of unhealthy social media behaviours using labelled Twitter data consisting of unhealthy behaviours. We present this investigation in the next chapter.

Chapter 3

Investigating Short Text Classification of Unhealthy Social Media Behaviours

In this chapter, we present the evaluation of popular machine learning approaches used for short text classification discussed in Chapter 2. These evaluations are carried out over real data to investigate the performance of popular machine classifiers in classifying short text containing unhealthy social media behaviours from Twitter, in particular suicidal ideation, while exploring the influence of ensemble learning. The chapter is organised as follows. First, in Section 3.2, we provide details of the data sets for this thesis i.e. for the investigation (this Chapter), validation (in Chapter 4 and 5) and evaluation (in Chapter 5). Following that, we propose a short text classification approach to accommodate ensemble learning in Section 3.3 which consists of four main phases: (i) data preparation, (ii) feature engineering, (iii) individual classification, and (iv) ensemble classification. In Section 3.4, 3.5 and 3.6, we present a detailed description of the experimental procedures based on the proposed approach, the experimental results and discussion on the main findings from the evaluation. In Section 3.7, we conclude the chapter.

3.1 Introduction

Short text classification typically adapts the text classification process as it involves the classification of texts, which are relatively short. However, the challenges discussed in Chapter 2 including ambiguity, sparsity, informality and shortness of the text, to name a

few, significantly affects the performance of machine classifiers, hence complicating the construction of relevant features for classification. This suggests the use of a conventional text classification procedure might not be feasible for short text classification. Moreover, as established in Chapter 2, the classification performance depends on a variety of factors; therefore, the choice and combination of methods can be established only on a case-by-case basis. Hence, we propose a conventional text classification procedure for short text classification that accommodates ensemble learning to investigate popular machine classifiers' performance using established methods for classifying short text, specifically their performance in detecting the target class. This investigation will be carried out on Knime⁴ using real-world data from social media containing suicide-related communications from Twitter. In the next section, the data sets that will be used in this thesis are described.

3.2 Data sets

To empirically investigate, validate and evaluate the methods in this thesis, three labelled real-world data sets were chosen to conduct the experiments based on type (short text), availability, problem domain (unhealthy behaviours) and size. These data sets contain tweets with unhealthy behaviours retrieved from Twitter, namely suicidal ideation (retrieved by Burnap et al. 2015), online misogyny (retrieved by Fersini et al. 2018) and online hate speech (retrieved by Davidson et al. 2017). Only the relevant attributes were used for all the data sets, i.e. attributes that contain the text id, text, and label. Subsequently, these data sets will be referred to as *DS1* for suicidal ideation, *DS2* for online misogyny and *DS3* for online hate speech.

3.2.1 DS1: Suicidal Ideation

This data set will be used for the investigation in this chapter, validation of the short text disambiguation methods in Chapter 4 and Chapter 5, and evaluation in Chapter 5. The

⁴an open-source data analytics platform: <https://www.knime.com>

data set contains short text from Twitter (tweets) with topics about suicide that may or may not imply suicidal intent. This data was acquired from Burnap et al. (2015) who originally collected and labelled it by generating a lexicon of terms using posts from known suicide websites, specifically web forums, blogs and micro-blogs. Each post was annotated to indicate its reference to suicidal ideation. These annotated suicidal posts were used to identify key-words and phrases that suggests possible suicidal intent which resulted in the identification of 62 terms that suggested possible suicidal intent. Furthermore, these terms, as well as names of reported suicide cases in England, were used to collect the data from Twitter using the Twitter Streaming Application Programming Interface (API). This resulted in the collection of 2,000 tweets comprising of 5 attributes: *_trusted_judgements* which contains the number of annotator for each tweet, *class_assigned* which is the attribute that contains the post’s class or label, *date*, i.e. the date the tweet was collected, *tweet* i.e. the post containing short text and *confidence* which contain the annotator agreement. Furthermore, expert human annotators from a crowdsourcing service CrowdFlower, labelled the tweets into one of seven classes (as shown in Appendix B, Table B.2) that best capture the general representation of people when communicating on suicide topics (Burnap et al. 2015). The classes are suicide, campaign, flippant, support, memorial, reports and none, with the *suicide* class being the target class (i.e. our class of interest). The data set is mildly skewed where the majority class is the *flippant* class and the minority classes are the *campaign* and *memorial* classes.

3.2.2 DS2: Online Misogyny

This set of data contain misogynous contents extracted from Twitter by Fersini et al. (2018) which was used for the validation and evaluation of the proposed methods in Chapter 5. The tweets were collected over a four-month period using a set of representative keywords, monitoring potential victims’ accounts, and downloading the history of identified misogynist. Two corpus sets were collected in English and Spanish, containing 83

million and 72 million tweets, respectively. In this thesis, only the English corpus was employed. The labelling of the tweets was carried out using two human annotators with a third experienced contributor to resolve annotator disagreement cases, while the remaining unlabelled tweets were labelled through majority voting using contributors from the CrowdFlower platform (as DS1). This resulted in 5,000 labelled tweets (gold data) comprising of 5 attributes: *id*, *text* (tweets), *misogynous* (i.e. the class where 1 represents misogyny and 0 represents not misogynous), *misogyny category* which denotes the type of misogynistic behaviour and *target* which denotes whether a tweet is targeted at an individual, its generic or none. This data is mildly skewed (i.e. has a mild imbalance), where the majority class is the non-target class (0).

3.2.3 DS3: Online Hate Speech

This data set will also be used in Chapter 5 to validate and evaluate the proposed methods. The text in this data set contains tweets with hate speech contents collected by Davidson et al. (2017) using the Twitter API and hate speech terms or phrases compiled by hate-speech.org. 85.4 million tweets were extracted from 33,458 Twitter users of which 25,000 tweets were randomly chosen and labelled into one of three categories: *hate speech* which contains tweets that are *offensive but not hate speech*, or *neither offensive nor hate speech*, also using annotators from CrowdFlower. At least three annotators coded each tweet and majority voting or decision was used to confirm the label of each tweet. However, only 24,802 tweets were labelled as some of the tweets had no majority label. The data set is highly skewed with the majority class being the *offensive but not hate speech* class and the minority being the target class i.e. *hate speech*.

3.3 Proposed Short Text Classification Approach

We propose an approach, as shown in Figure 3.1, to investigate the performance of popular machine classifiers identified in Chapter 2, in distinguishing between target and

non-target classes, in the context of unhealthy social media behaviours from Twitter for binary and multi-class classification problems. In particular, we are interested in their performance on the target class and how it is impacted by ambiguity. We note that other factors highlighted in Chapter 2 might also impact the classification performance, therefore we take into account the most obvious challenge (class imbalance) that will give a sense of how much it has influenced the classification performance without diverting from the main research focus.

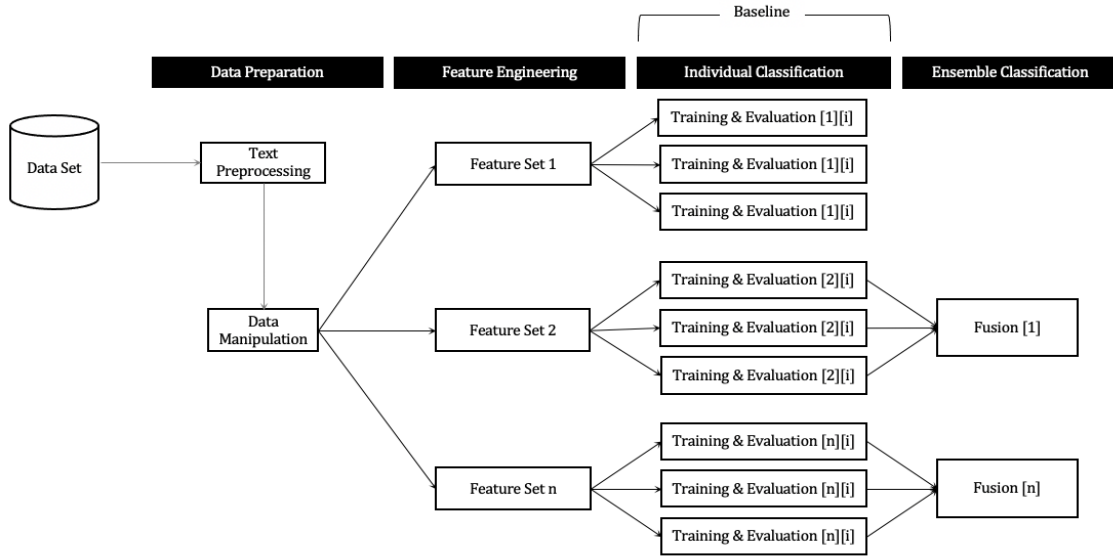


Figure 3.1: Proposed short text classification approach

For the proposed approach, we employed techniques that are popular in related studies for the text representation which includes the extraction of unigrams, bigrams and trigrams using bag-of-words and n-grams models (e.g. Badjatiya et al. 2017; Burnap et al. 2015; Canós 2018; Davidson et al. 2017; Kumar and Harish 2018; Nina-Alcocer 2018; O’Dea et al. 2015); and feature weighting, TF-IDF (e.g., Canós 2018; Davidson et al. 2017; Kumar and Harish 2018; Nina-Alcocer 2018; O’Dea et al. 2015; Ramachandran et al. 2020; Shushkevich and Cardiff 2018). However, unlike related studies, we apply the Term Frequency (TF) and Inverse Document Frequency (IDF) metrics separately to investigate their individual impact in this study which might give use an insight into the significance of

frequently (TF) and rarely (IDF) used words on short text classification.

Similarly, in related studies, we observed that ensemble learning is one of the most employed method for the detection of unhealthy social media behaviours with numerous studies employing Random Forest (RF) over most ensemble classifiers in this domain where it mostly achieves a good performance (e.g. Abboute et al. 2014; Burnap et al. 2015; Indurthi et al. 2019; Ramachandran et al. 2020; Sawhney et al. 2018b). Studies like Sawhney et al. (2018) have shown RF to outperform ensemble classifiers like Gradient Boosting (GB) using DT and Extreme Gradient Boosting (XGBoost) for the detection of suicidal ideation on Twitter data as such, we employ RF in this study. Moreover, rotation forest is said to have a better performance than bagging and boosting (in Rodriguez et al. 2006), however when employed for the detection of suicidal ideation (in Burnap et al. 2015) it only had a good performance when Principal Component Analysis (PCA) was employed but was outperformed by Naïve Bayes (NB) and Support Vector Machine (SVM) without the application of PCA.

In addition to RF, we explore the use of ensemble learning, in particular heterogenous ensemble also known as multi-classifier fusion, to improve on baseline experiments, i.e. we investigated the influence of combining diverse machine classifiers (base learners) on classification performance compared to using individual classifiers to improve predictive performance. Studies employing multi-classifier fusion for unhealthy social media behaviours are limited. Authors in (Shushkevich and Cardiff 2018) employed blended ensemble (multi-classifier fusion or heterogenous ensemble) based on averaging by combining their two best performing classifiers i.e. SVM and NB (the two classifiers that outperformed rotation forest in Burnap et al. 2015) but for misogyny detection. Therefore, we explore the performance of the multi-classifier fusion based on averaging on the detection of suicidal ideation to investigate its classification performance when dealing with suicide-related communications.

3.4 Data Preparation

In data preparation, the data set to be used is prepared to conform to the problem domain’s suitable input format. This consists of the text preprocessing and data manipulation.

3.4.1 Text preprocessing

Text preprocessing is an essential step in machine learning which involves cleaning the data to improve its quality. For this experiment, we followed established methods discussed in Chapter 2 that ensured a clean data for short text while maintaining the level of information. Firstly, we used DS1 which contained 2,000 instances and removed annotator agreement of less than 75% (i.e. confidence of less than 0.75) as 75% or more suggest most annotators (3 of 4) agree on the dominant class, the same approach as Burnap et al. (2015). This removed 906 instances leaving 1064 instances for the experiment. Similar to Kumar and Harish (2018); and Sawhney et al. (2018), we removed irrelevant features for the study such as authors (usernames), hyperlink texts (URL), stop words, punctuation, symbols (including hashtags) and non-ASCII characters.

Although, non-ASCII characters were not mentioned in previous studies, we observed that removing standard symbols and punctuation does not get rid of all the symbols due to Twitter supporting UTF-8 character sets which includes 400 symbols (McFedries 2010) some of which are generated by emoticons and non-English texts (e.g. accented characters). Therefore, explicitly employing the removal of non-ASCII gets rid of these types of characters. Following that, the texts were normalized by converting all instances to lower cases and reducing words to their root form (using the Porter Stemmer algorithm) to reduce term redundancies (as in Bao et al. 2014; Davidson et al. 2017; Kumar and Harish 2018; Shushkevich and Cardiff 2018). Lastly, similar to Davidson et al. (2017); and Nina-Alcocer (2018), the normalized texts were tagged using the English Part of Speech tagger (POS), specifically the Penn Treebank tag set. The preprocessing resulted in 1,060 instances as 906 instances were removed due to annotator disagreement and 4 instances were removed

due to the instances containing only noise e.g. hyperlink text or non-ASCII characters.

We note that employing some of these preprocessing techniques contradicts with the findings from studies that identified stemming (e.g. Bao et al. 2014; Kumar and Harish 2018), stop words removal (e.g. Kumar and Harish 2018; Mohammad 2018) and hyperlink text removal (e.g. Mohammad 2018) as factors that negatively affects classification performance. On the other hand, these were employed by studies that had good performance (e.g. Davidson et al. 2017; Sawhney et al. 2018b).

3.4.2 Data manipulation

Data manipulation is employed to make data readable or more organized. This allows for better exploration and understanding of the data and results according to specific requirements. According to Zhou (2012), it is the most popular mechanism used to generate multiple different data samples in a given data set to provide different views on the data which allows individual classifiers to diversely learn from the different samples. In this experiment, the data manipulation is carried out on the preprocessed data set (i.e. DS1) by organizing the data set into three categories (one binary-class and two multi-class) based on their similarity or dissimilarity as described below. Each of the three categories will be treated as an individual data set and subsequently referred to as “data set”:

1. **Binary-class:** This data set category comprises of the *suicide* and *flippant* classes.

The two classes have similar texts, the *suicide* class contains texts that imply suicidal intent and the *flippant* class contains texts with unserious remarks about suicide. Moreover, authors in (Burnap et al. 2015) found that the flippant and suicide classes are highly ambiguous as they contain many of the same linguistic features, making the classification of these classes difficult. Therefore, this data set will allow for investigation on machine classifiers’ performance in distinguishing the two (similar or ambiguous) classes. The instances for this data set is 289, and the target class is the majority class with a mildly skewed distribution.

2. **Three-class:** This is a multi-class data set category, and as the name implies, it is organized as a three-class data set which comprises of two similar classes: the *suicide* class and *flippant* class, and one distinct class: *non-suicide* class. The *non-suicide* class is a new class made up of the remaining or other classes (*campaign*, *support*, *memorial*, *reports* and *other*) that do not imply suicidal intent (*suicide* class) or unse-rious remarks about suicide (*flippant* class). Unlike the binary-class, by including the *non-suicide* class, this data set allows for a broader investigation such as the impact of class imbalance on the classifiers’ performance when classifying short text. The data set is extremely skewed with the majority class being the *non-suicide* class with 771 instances compared to the *suicide* class with 156 and the *flippant* class with 133 instances. The instances for this data set is 1060.
3. **Seven-class:** This is also a multi-class data set with the original set of classes which has not been manipulated, similar to Burnap et al. (2015). This allows for investi-gation into the classifiers’ classification performance on a multi-class problem with closely balanced classes. The instances for this category is 1060.

Additionally, we measure the class-imbalance extent by computing the imbalance ratio. The imbalance ratio is used to show skewed class distribution which is defined as the “the ratio of the number of instances in the majority class to the number of examples in the minority class” (López et al. 2013). However, in this investigation, we are interested in the imbalance ratio of all classes in the data set, therefore instead of computing the ratio of the majority against minority classes, we compute the ratio of the instances in each class against the total number instances in the data set. We use the following equation (3.1), *class imbalance probability (CIP)*, to calculate the weight (probability) of a given class in the data set.

$$CIP = \frac{I_c}{I} \quad (3.1)$$

where I_c is the number of instances in the class and I is the number of instances in the given data set. Table 3.1 displays the CIP and a summary of data manipulation for the three data sets. Low CIP signifies less instances and high CIP signifies more instances in the given data set.

Table 3.1: Summary of manipulated data sets with their CIP measures

Data sets	Description	Class	Original Instances	Processed Instances	CIP
Binary-class	Suicide	0	159	156	0.54
	Flippant	2	133	133	0.46
	<i>Total</i>		292	289	1.00
Three-class	Suicide	0	159	156	0.15
	Flippant	2	133	133	0.12
	Non-suicide	1, 3, 4, 5, 6	772	771	0.73
	<i>Total</i>		1064	1060	1.00
Seven-class	Suicide	0	159	156	0.15
	Campaign	1	158	158	0.15
	Flippant	2	133	133	0.12
	Support	3	178	178	0.17
	Memorial	4	142	142	0.13
	Reports	5	165	165	0.16
	Other	6	129	128	0.12
	<i>Total</i>		1064	1060	1.00

3.5 Feature Engineering

This phase consists of the procedures and methods employed to select and transform relevant features for this investigation. As highlighted in Chapter 2, the selection of distinct features is perhaps the most important step in short text classification. Many weighting schemes have been proposed to make machine classifiers more accurate by selecting only the important features from the subset of the original features and reducing the dimensional space. Hence, based on popularity in related studies, the bag-of-words (BoW) representation with unigrams and n-grams (bigrams and trigrams) were employed to extract the features from the output of the data preparation (which is a set of features). For each of the three prepared data sets, i.e. binary-class, three-class and seven-class, IDF and TF were used as weighting schemes. Three sets of features were extracted, which are briefly

explained below:

1. **Set1:** The bag-of-words was used to extract unigrams weighted by IDF to quantify its significance in this problem domain. This led to the extraction of 647 features for the binary-class data set and 2,393 features for the three-class and seven-class data sets.
2. **Set2:** To extract the second set of unigram features, the bag-of-words was also employed with TF. This resulted in the extraction of 599 features for the binary-class and 2,223 features for the three-class and seven-class.
3. **Set3:** For this set, both bag-of-words and n-gram models were used to extract features between 1 - 3 words based on the TF (only the term frequency is available as a frequency metric for this n-gram version on Knime). Moreover, studies in (Burnap et al. 2015; Rodriguez et al. 2006) suggests extracting up to three consecutive words (i.e. 1-3grams) is more effective than extracting more than three consecutive words. Hence, bag-of-words was used to extract unigram terms, and n-grams (also based on bag-of-words) was used to extract 2-3 consecutive words. This resulted in the extraction of 2,075 features for the binary-class and 10,990 features for the three-class and seven-class, for features between 1 - 3 words.

Using the document vector node in Knime which create vectors from distinct terms based on values specified, e.g. boolean values and IDF values, these features were converted to vectors using their respective feature weighting metric as the vector value. The vectors were fed to the machine classifiers for training. Table 3.2 shows the summary of the feature sets.

3.6 Experiments

In this section, two experiments were carried based on the approach proposed in Section 3.3 (shown in Figure 3.1), namely the baseline experiments (individual classification) and

Table 3.2: Summary of feature sets

Data set	Set1	Set2	Set3
Binary-class	647	599	2,075
Three-class	2,393	2,223	10,990
Seven-class	2,393	2,223	10,990

the ensemble experiment (ensemble classification).

The *baseline experiments* consist of training four individual classifiers, namely DT, NB, SVM and RF, on each feature set (i.e. *Set1*, *Set2* and *Set3*) for the three data sets (binary-class, three-class and seven-class) to establish a baseline. Decision Tree (DT) is known to perform well with imbalanced data sets (Balakrishnan et al. 2020). Moreover, findings in (Fodeh et al. 2019) suggests it works well with balanced data set as well and is capable of distinguishing between suicide-related communications without employing additional linguistic features of tweets. Furthermore, most studies employ Logistic Regression (LR) and NB as baseline classifiers, we chose to employ NB and SVM because they performed well in (Burnap et al. 2015) for suicide and (Shushkevich and Cardiff 2018) for misogyny where they were a choice for ensemble creation. Moreover, SVM works well with short, informal text (Burnap et al. 2015). Also, as earlier stated, RF is the most employed ensemble classifier in related studies with good results.

In the case of the *ensemble experiment*, it was carried out on feature *Set2* and *Set3* due to the feature weighting similarities (i.e. TF), using an ensemble learning approach, specifically the multi-classifier fusion where the outputs of each machine classifier from the baselines (individual classification), i.e. DT, NB and SVM were combined or fused using average voting (i.e. *averaging*). RF was excluded from the combination as it is already an ensemble classifier. Furthermore, two ensemble classifications were carried out, similar to Shushkevich and Cardiff (2018): (1) *Ternary-Ensemble*, involves all the machine classifiers excluding RF i.e. DT + NB + SVM. This will allow for comparison between two ensemble approaches, i.e. multi-classifier fusion and RF; and (2) *Binary-Ensemble* combines two of the best performing classifiers (i.e. DT + SVM) to measure the extent of influence of diverse

classifiers when using the multi-classifier fusion technique over AdaBoost or Bagging as in (Burnap et al. 2015).

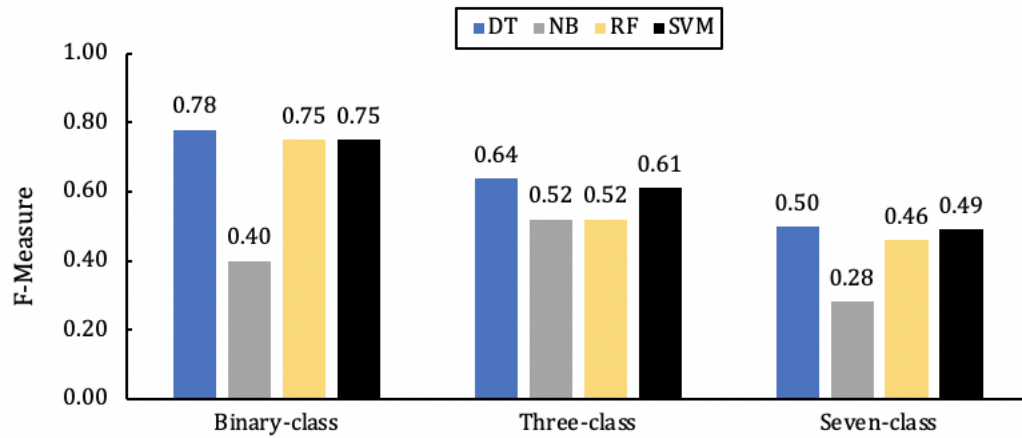
The 10-fold cross-validation approach was used for the evaluation of both experiments given the relatively small size of the data sets, and the stratified sampling parameter was applied to preserve the original class distribution. The 10-fold cross-validation iteratively trained the classifiers by iterating 10 times and calculating the results by taking the mean accuracy across all models on 90% of the training data, whereas the remaining 10% was used for the testing. Moreover, it is the most employed validation approach in related studies (e.g. Abboute et al. 2014; Burnap et al. 2015; O’Dea et al. 2015).

3.6.1 Results and Discussion

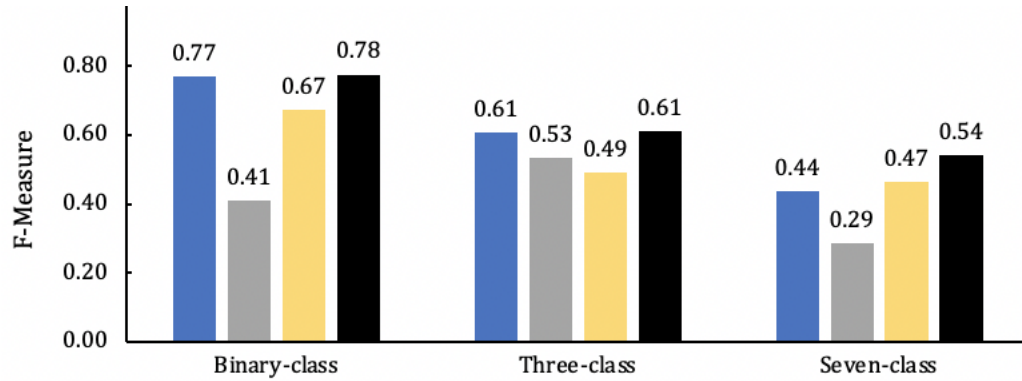
We report the experimental results for the three data sets, using three evaluation metrics: Precision (P), Recall (R) and F-Measure (F), as indices to evaluate the classification performance. The results are presented per class as we are interested in the target class’s performance (suicide) and overall, for both experiments.

3.6.1.1 Baseline Results

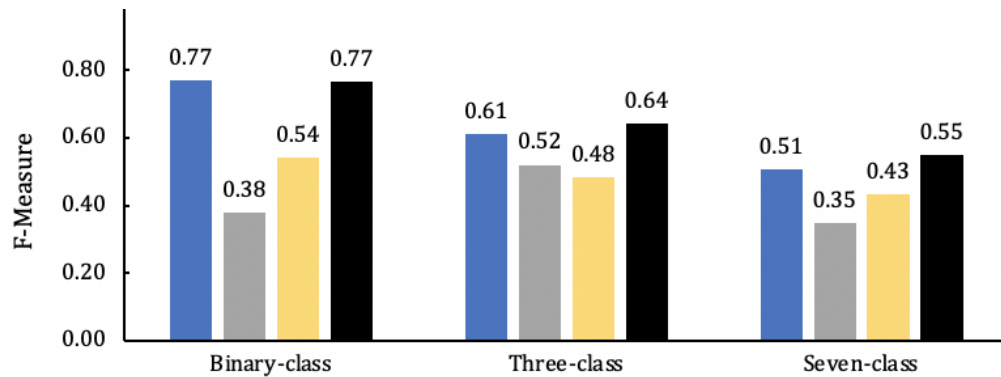
The results given in Figure 3.2a, 3.2b and 3.2c shows the *overall F-measure* (subsequently referred to as “overall”) achieved by each classifier for feature *Set1*, *Set2* and *Set3*, where DT and SVM performed similarly for all the three data sets, with DT obtaining the best overall performance by slightly outperforming SVM. It is interesting that RF which is both a DT-based and ensemble classifier had the worst performance with the three-class data set for all the feature sets (with an equal performance with NB in 1 case - *Set1*). The classification of *Set1* and *Set2* which has the same text representation (unigrams) but different feature weighting scheme, performed similarly with no significant difference.



(a) Baseline Classification Set1



(b) Baseline Classification Set2



(c) Baseline Classification Set3

Figure 3.2: Baselines results for the overall F-measure

Table 3.3: Baseline Results: *Set1*

Data set	Class	DT			NB			RF			SVM		
		P	R	F	P	R	F	P	R	F	P	R	F
Binary-class	Suicide	0.80	0.78	0.79	0.54	0.94	0.69	0.72	0.92	0.81	0.74	0.87	0.80
	Flippant	0.75	0.77	0.76	0.47	0.06	0.11	0.86	0.58	0.69	0.81	0.63	0.71
	<i>Overall</i>	0.78			0.40			0.75			0.75		
Three-class	Suicide	0.56	0.65	0.60	0.86	0.48	0.62	0.59	0.73	0.65	0.53	0.85	0.65
	Flippant	0.55	0.38	0.45	0.21	0.05	0.08	0.43	0.02	0.04	0.38	0.28	0.32
	Non-suicide	0.86	0.89	0.88	0.79	0.97	0.87	0.83	0.92	0.87	0.89	0.82	0.86
	<i>Overall</i>	0.64			0.52			0.52			0.61		
Seven-class	Suicide	0.48	0.74	0.58	0.88	0.46	0.60	0.42	0.91	0.58	0.48	0.83	0.61
	Campaign	0.65	0.68	0.67	0.95	0.23	0.38	0.69	0.70	0.69	0.69	0.60	0.64
	Flippant	0.43	0.44	0.44	0.22	0.03	0.05	0.42	0.15	0.22	0.38	0.35	0.36
	Support	0.69	0.60	0.64	0.21	0.98	0.34	0.48	0.74	0.58	0.67	0.65	0.66
	Memorial	0.32	0.31	0.31	0.48	0.09	0.14	0.43	0.23	0.30	0.39	0.26	0.31
	Reports	0.59	0.44	0.50	0.51	0.11	0.18	0.62	0.29	0.40	0.39	0.39	0.38
	Other	0.40	0.33	0.36	0.73	0.15	0.25	0.62	0.41	0.49	0.56	0.45	0.50
	<i>Overall</i>	0.50			0.28			0.46			0.49		

Although the overall (F-measure) reflects the performance of the classifiers across the classes better than the accuracy measure, it does not provide enough information to better understand how the machine classifiers performed on the class-level and what factors might have influenced the performance, e.g. class distribution, text representation method used, data ambiguity or feature weighting scheme applied. Therefore, we dive into analyzing the individual classes.

Tables 3.3, 3.4 and 3.5 show the performance results of the classifiers for feature *Set1*, *Set2* and *Set3*, respectively. For *Set1* (i.e. Table 3.3) where the features are unigrams extracted based on the IDF weighting scheme, it has been observed that DT had the highest per class F-measure in 42% of cases (i.e. 5 of 12 cases being 1 of 2 cases for the binary-class data set, 2 of 3 cases for the three-class data set and 3 of 7 cases for the seven-class data set), followed by SVM in 25% of cases all of which belong to the seven-class data set, and RF outperformed the other classifiers in 17% of cases. Additionally, RF and SVM both

had the highest performance in 8% of cases belonging to the three-class data set and also SVM and DT had the same F-measure in 8% of cases belonging to the seven-class data set.

Table 3.4: Baseline Results: *Set2*

Data set	Class	DT			NB			RF			SVM		
		P	R	F	P	R	F	P	R	F	P	R	F
Binary-class	Suicide	0.73	0.83	0.78	0.94	0.54	0.69	0.92	0.66	0.77	0.82	0.78	0.80
	Flippant	0.82	0.72	0.77	0.07	0.53	0.13	0.44	0.82	0.58	0.73	0.78	0.75
	<i>Overall</i>	0.77			0.41			0.67			0.78		
Three-class	Suicide	0.60	0.54	0.57	0.51	0.84	0.63	0.61	0.57	0.59	0.64	0.64	0.64
	Flippant	0.32	0.51	0.39	0.05	0.28	0.09	0.02	0.18	0.03	0.23	0.54	0.32
	Non-suicide	0.88	0.85	0.86	0.97	0.79	0.87	0.91	0.80	0.85	0.92	0.84	0.88
	<i>Overall</i>	0.61			0.53			0.49			0.61		
Seven-class	Suicide	0.67	0.54	0.60	0.50	0.87	0.63	0.88	0.43	0.57	0.74	0.58	0.65
	Campaign	0.63	0.59	0.61	0.24	0.91	0.38	0.67	0.68	0.67	0.64	0.67	0.66
	Flippant	0.42	0.35	0.38	0.05	0.54	0.10	0.17	0.48	0.25	0.33	0.41	0.37
	Support	0.55	0.68	0.60	0.98	0.21	0.35	0.77	0.47	0.58	0.70	0.71	0.71
	Memorial	0.36	0.30	0.33	0.08	0.41	0.13	0.23	0.39	0.29	0.47	0.36	0.41
	Reports	0.35	0.45	0.39	0.10	0.55	0.17	0.26	0.60	0.37	0.42	0.54	0.47
	Other	0.28	0.41	0.33	0.16	0.69	0.25	0.44	0.66	0.53	0.49	0.56	0.52
	<i>Overall</i>	0.46			0.29			0.47			0.54		

As for *Set2* which comprises of unigrams features extracted based on the TF weighting scheme, SVM had the best performance for the individual class in 58% of cases, followed by DT in 25% of cases and RF in 17% of cases all of which belongs to the seven-class data set. The results obtained for *Set3*, which is also based on TF but includes 1-3gram words, is similar to *Set2* probably due to the same weighting scheme used (i.e. TF). SVM had the best performance in 67% of cases, followed by DT in 17% of cases, there was an overlap of performance in the remaining with both SVM and DT achieving the highest performance.

With regards to the target class, it has been observed that the highest performance was achieved by SVM for all three data sets, except in two unexpected cases (*Set1*) where RF marginally (by 0.01 F-measure) outperformed SVM on the binary-class data set and performed equally on the three-class data set which could suggest that RF performs better with

unigrams weighted by IDF. It is also interesting that the classifiers (i.e. NB and RF) that achieved the lowest performance, both per class and overall, have performed moderately well on the suicide class, i.e. between 0.60 - 0.72 for NB and 0.57 - 0.81 for RF. The lowest performance achieved for the suicide class is 0.58 (DT and RF) on *Set1* for the seven-class data set, 0.57 by DT (three-class) and RF (seven-class) on *Set2* data set, and 0.56 by DT (three-class) on *Set3*.

Table 3.5: Baseline Results: *Set3*

Data set	Class	DT			NB			RF			SVM		
		P	R	F	P	R	F	P	R	F	P	R	F
Binary-class	Suicide	0.76	0.82	0.79	0.99	0.56	0.72	0.98	0.61	0.75	0.82	0.78	0.80
	Flippant	0.79	0.72	0.75	0.02	0.60	0.04	0.20	0.90	0.33	0.71	0.76	0.73
	<i>Overall</i>	0.77			0.38			0.54			0.77		
Three-class	Suicide	0.60	0.55	0.58	0.48	0.89	0.63	0.54	0.61	0.57	0.67	0.64	0.66
	Flippant	0.29	0.51	0.37	0.02	0.25	0.04	0.00	0.00	0.00	0.28	0.54	0.37
	Non-suicide	0.90	0.86	0.88	0.98	0.82	0.89	0.95	0.82	0.88	0.93	0.88	0.90
	<i>Overall</i>	0.61			0.52			0.48			0.64		
Seven-class	Suicide	0.71	0.46	0.56	0.48	0.91	0.63	0.76	0.50	0.61	0.79	0.54	0.64
	Campaign	0.73	0.68	0.70	0.41	0.99	0.58	0.57	0.79	0.66	0.72	0.77	0.74
	Flippant	0.35	0.39	0.37	0.02	0.60	0.04	0.12	0.52	0.20	0.29	0.41	0.34
	Support	0.66	0.84	0.74	0.99	0.27	0.42	0.95	0.38	0.54	0.74	0.75	0.74
	Memorial	0.46	0.32	0.38	0.14	0.88	0.24	0.12	0.83	0.22	0.52	0.37	0.44
	Reports	0.31	0.43	0.36	0.06	0.83	0.11	0.21	0.68	0.32	0.33	0.55	0.41
	Other	0.36	0.55	0.44	0.26	0.95	0.41	0.35	0.86	0.49	0.50	0.55	0.53
	<i>Overall</i>	0.51			0.35			0.43			0.55		

Studies in (Burnap et al. 2015) found overlap of terms between the suicide and flippant classes which resulted in the difficulty in distinguishing between the two classes. Interestingly, DT consistently had the highest performance on the flippant class for all three data sets across the three feature sets, implying that DT is robust when dealing with highly ambiguous classes. Additionally, SVM performed better with features weighted by TF and DT performed better with IDF. NB did not outperform any machine classifiers when analyzing on a per-class basis, even in a binary classification problem where the classes are

mildly skewed. On the other hand, it was expected that NB would not outperform the other classifiers due to the complexity of the problem.

Although DT achieved the best overall performance and highest F-measure in most cases, it did not have the highest score for the target class, which was achieved by RF (binary-class and three-class data sets) and SVM (three-class and seven class data sets). All the classifiers have achieved a performance between 58% - 81% for the target class which was not achieved by any of the other classes except the non-suicide class (three-class data set) probably due to the influence of class imbalance, i.e. being the majority class. It was also observed that the feature set employed does not have a significant influence on the classification performance on the target class. However, features based on unigrams (*set2*) outperformed features based on the combination of unigrams, bigrams and trigrams (*set3*) in detecting the flippant class (92% of cases) and overall (50%) but only in 33% of cases for the target class where *set3* had a better performance in 42% of cases. This indicates that unigrams are better at distinguishing overlapping classes than consecutive words made up of unigrams, bigrams and trigrams. On the other hand, the combination of these features (i.e. unigram, bigrams and trigrams) is better for the detection of target classes.

3.6.1.2 Ensemble Classification Results

Figures 3.3a and 3.3b present the results of the two ensemble classifications i.e. *Ternary-Ensemble* and *Binary-Ensemble*, which shows that both ensembles had the same results on the binary-class data set with only a marginal difference on multi-class data sets. *Binary-Ensemble* which comprises of the two best performing classifiers (DT and SVM), gave a lower F-measure than *Ternary-Ensemble* whose combination includes both the best performing classifiers (DT and SVM) and the worst performing classifier (NB). This is due to the limitation of the approach employed, i.e. average voting, which requires an equal contribution from each prediction model. Thereby implying that this approach is most effective when the individual classifiers achieve high performance; otherwise, any low performance

will need to be compensated by the other classifiers making the ensemble result poorer than the result of the best performing classifiers.

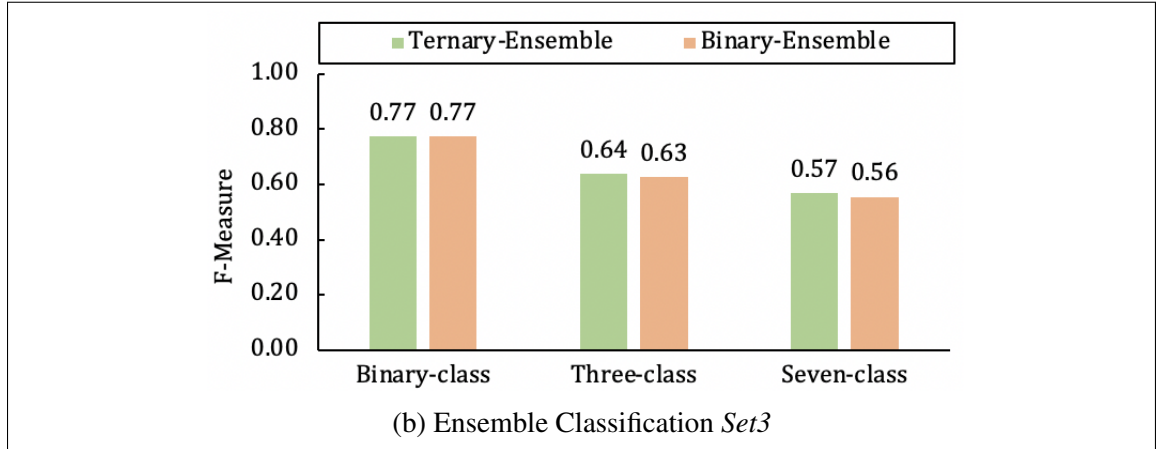
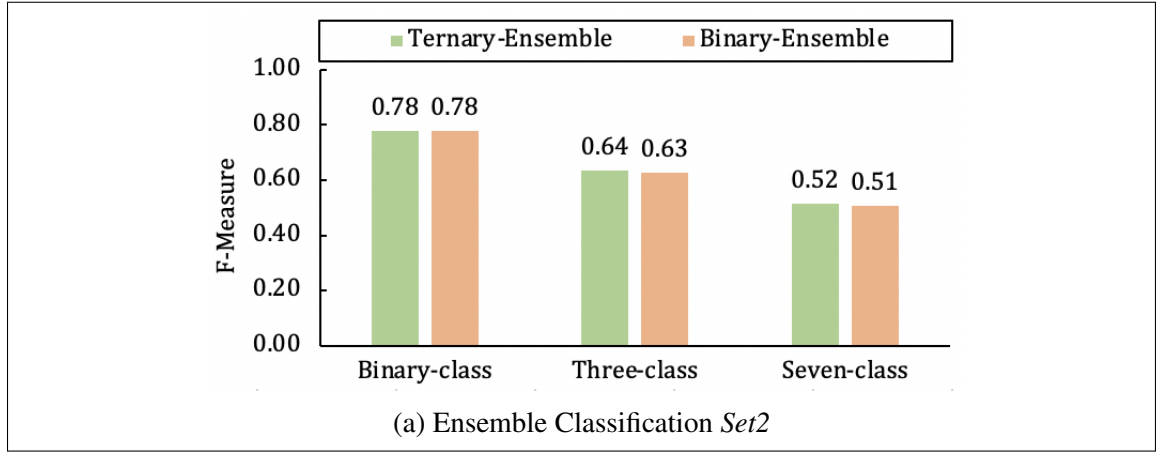


Figure 3.3: Ensemble results for the overall F-measure

Moreover, employing ensemble techniques like Boosting and Bagging to refine the short text classification performance yields better results, as demonstrated in (Burnap et al. 2015) than the average voting method. Also, we observed that there is a difference in performance between *Set2* (which comprises of only unigrams) and *Set3* (which comprises of unigrams, bigrams and trigrams). *Set2* yielded a higher F-measure than *Set3* in 33.3% of cases in *Ternary-Ensemble* and 66.7% of cases in *Binary-Ensemble*. Although, both ensemble methods achieved a higher f-measure than RF for all the feature sets in all data sets. This could suggests employing heterogeneous ensemble (combining diverse classifiers)

might be a better choice than homogeneous ensemble with the right choice of combination or voting.

3.7 Chapter Conclusion

This chapter investigated the performance of popular machine classifiers and ensemble learning on short text classification. Moreover, we proposed an approach to investigate their performance in distinguishing between the target and non-target classes, in the context of unhealthy social media behaviours from Twitter for binary and multi-class classification problems. Real-world data on a problem of suicide-related communications from Twitter was used. The data was manipulated, cleansed and transformed using a combination of the bag-of-words representation, n-grams, TF and IDF. Four machine classifiers were trained. The results were reported using three classification evaluation metrics that showed that, despite the limitations of bag-of-words and n-grams discussed in Chapter 2, a reasonable result is achievable for complex problems. Moreover, employing either TF or IDF makes a minimal difference in the classification performance; however, SVM is more consistent and performs better when TF is employed whereas DT performs better with IDF.

The target class is the least impacted by ambiguity and class imbalance, i.e. when it is not the minority class compared to the neutral (flippant) class. Moreover, NB and RF are sensitive to both ambiguity and class imbalance. In contrast, DT and SVM are more influenced by class imbalance. Ensemble methods such as RF and heterogeneous ensemble (multi-classifier fusion) based on average voting had minimal impact on achieving a high classification performance when dealing with short text. DT is the only classifier to consistently outperform in detecting the ambiguous (i.e. flippant) class. However, ambiguity has less impact in binary-class problems with mildly skewed classes; hence the classification performance is poor in multi-class problems. Also, the investigation indicates that ambiguity has less impact when using unigrams and the target class is better detected using a combination of unigrams, bigrams and trigrams. In the next chapter, we propose a method

to improve the target class detection by addressing these findings where the results showed significant performance improvement from the baseline.

Chapter 4

Short Text Term Disambiguation (STTD)

This chapter introduces Short Text Term Disambiguation (STTD) method which we propose for binary class problems, where the two classes are denoted as the *target class* and the *other class*. The method aims to improve the detection of target classes when dealing with classification of short text from Twitter by minimizing common or ambiguous terms, i.e. terms that are common to both the target class and the other class. In this thesis, we refer to this minimization process as term disambiguation. Section 4.1 introduces and discusses the aim of STTD. Section 4.2 presents the details of this method including a sample of the method's output. Following that, in Section 4.3, we present the validation of the method on the problem of suicidal ideation (i.e. DS1) using several machine learning algorithms. Moreover, we use our approach in conjunction with other approaches, including using two forms of text representation, four feature selection methods, and two methods of feature extraction. We also present the results of the validation and discussion in this section. Section 4.4 concludes the chapter.

4.1 Introduction

As established in Chapter 2, term ambiguity is one of the factors that significantly affects classification performance of machine classifiers. Consequently, research on short text classification has looked into this aspect by experimenting with different sets of fea-

tures (e.g. Burnap et al. 2015), employing feature selection methods (e.g. Sawhney et al. 2019) or developing methods for dealing with ambiguous situations (e.g. Liu et al. 2019a). Authors in (Burnap et al. 2015) reported the difficulty in distinguishing the target class (suicide) from a similar class (flippant) when dealing with unhealthy social media behaviours from Twitter data is associated with overlapping or ambiguous terms. Moreover, our investigation in Chapter 3 highlights the influence of ambiguity on the classification of short text in the context of unhealthy social media behaviours (suicidal ideation). Hence, we propose a method for the disambiguation of features from short text in a binary class problem as illustrated in Figure 4.1, specifically social media text from Twitter which contains unhealthy social media behaviours, to improve the detection of the target class by utilizing machine learning and statistical based methods to address the findings from the literature and investigation (i.e. text ambiguity).

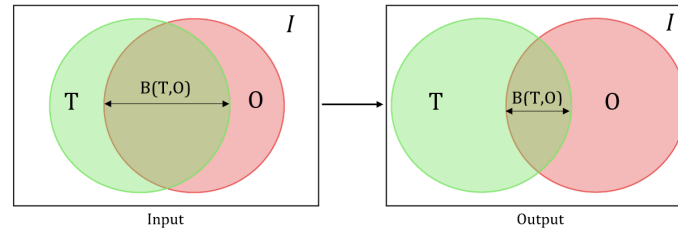


Figure 4.1: Disambiguation of terms; I is the set of textual instances; T is the set of terms that occur only in the target class text; O is the set of terms that occur only in the non-target class text (designated as other); $B(T, O)$ represents the set of terms that occurs in both the target class and the other class text. Our proposed method aims to increase the size of the T and O sets and minimise the size of the $B(T, O)$ set.

We focus on binary classification with one target class and one ‘other’ class; if there are several other classes, these are merged into one generic ‘other’ class as we are particularly interested in the detection of the target class. Our method identifies terms that appear in the target class’s textual instances, the other class or both. Our method aims to minimise the number of common terms to both the target class and the other class; this aim is achieved by using the probability of a term appearing in text labelled with the target class vs text labelled with the other class. Once the number of common terms is minimised, the textual

instances are modified by eliminating terms that occur predominantly in the opposite class, i.e. terms that appear in text labelled with the other class are removed from textual instances labelled with the target class and vice-versa.

Table 4.1: Sample terms for DS1 prior to the application of STTD

T	$B(T, O)$	O
fuke, shipper, choos, lmao, drone, clearli, blue, avid, nearli, bro, saintsfc, probe, thnx, tonsil, argh, neglect, epidem, straighten, ooh, luv, ballin, playin, calv, yhink, expkod, ky, confus	i, hate, myself, for, that, im, tire, and, want, to, die, wa, think, about, kill, don, t, you, mind, my, life, just, sleep, never, wake, up, someon, so, low, like, most, larri, alreadi, be, dead, leav, u, alon	joshiesanud, step, nna, her, equival, who, complet, selfish, ain, help, nobodi, charg, he, problem, left, behind, cope, answer, she, said, phrase, your, ask, fm, which, omfg, ars, pigeon, flew, into, offic

4.2 Short Text Term Disambiguation (STTD) Method

The procedure for Short Text Term Disambiguation (STTD) is illustrated in Algorithm 1. It takes a binary class data set with textual instances I as input, where the binary classes are denoted as the *target class* and the *other class*. Each instance is tokenized into n-gram terms namely, *unigrams*, *bigrams* and *trigrams* (see lines 1 - 4 in Algorithm 1). As established in Chapter 2, these set of features are considered most effective compared to extracting more than three consecutive words. Moreover, our findings from Chapter 3 suggests the combination of these features are effective in the detection of target classes, and unigrams are most effective in distinguishing between ambiguous classes. Additionally, considering the length of the text as well as the lack of semantic context, employing n-grams is feasible as the word order is only considered in short context with minimal semantic information (Le and Mikolov 2014).

Algorithm 1: Short text term disambiguation algorithm

input : Set I of all textual instances; set I_T of target class instances; set I_O of other class instances

output: The sets of terms T , O and $B(T, O)$

- 1: $T = \emptyset$; $O = \emptyset$; $B(T, O) = \emptyset$
- 2: **for** each instance of text in set I **do**
- 3: tokenise text into *unigrams*, *bigrams* and *trigrams*
- 4: **end for**
- 5: **for** each instance of text in set I_T **do**
- 6: append each *unigram* term t_i to set T
- 7: **end for**
- 8: $n = |T|$
- 9: **for** each instance of text in set I_O **do**
- 10: append each *unigram* term t_i to set O
- 11: **end for**
- 12: $m = |O|$
- 13: **for** $i = 1$ to n **do**
- 14: **for** $j = 1$ to m **do**
- 15: **if** $t_i = t_j$ **then**
- 16: $T = T - \{t_i\}$; $O = O - \{t_i\}$; $B(T, O) = B(T, O) \cup \{t_i\}$
- 17: **end if**
- 18: **end for**
- 19: **end for**
- 20: **for** each term t_i in $B(T, O)$ **do**
- 21: calculate term frequency in I : $tf(t_i, I)$; I_T : $tf(t_i, I_T)$; I_O : $tf(t_i, I_O)$
- 22: $P(t_i, T) = \frac{tf(t_i, I_T)}{tf(t_i, I)}$
- 23: $P(t_i, O) = \frac{tf(t_i, I_O)}{tf(t_i, I)}$
- 24: $PD(t_i) = |P(t_i, T) - P(t_i, O)|$
- 25: **if** $PD(t_i) \geq 0.5$ **then**
- 26: **if** $P(t_i, T) > P(t_i, O)$ **then**
- 27: $T = T \cup \{t_i\}$; $B(T, O) = B(T, O) - \{t_i\}$
- 28: **else**
- 29: $O = O \cup \{t_i\}$; $B(T, O) = B(T, O) - \{t_i\}$
- 30: **end if**
- 31: **else**
- 32: repeat steps 20-30 using *bigram* terms
- 33: **end if**
- 34: **if** $B(T, O) \neq \emptyset$ **then**
- 35: repeat steps 20-30 using *trigram* terms
- 36: **end if**
- 37: **end for**
- 38: Return T , O , $B(T, O)$

Following that, the class label of the *unigram* terms are identified, i.e. terms that are exclusive to the target class are stored in a target set T (lines 5 - 8), terms that are exclusive to the other class are stored in the other set O (lines 9 - 12) and likewise overlapping terms are stored in the $B(T, O)$ set, where B stands for both (i.e. terms that are common to both the target class and other class) (lines 13 - 19).

The next set of steps is the minimization of common terms where we utilized unigrams in the first instance as multiword terms are likely to result in the extraction of low-frequency or 0 features in short text than unigrams (Liu et al. 2019a). This is achieved by calculating the probability of unigram terms appearing in the instance (I) with the target class and other class labels, based on term frequency (lines 20 - 24). If a term appears in one class label, three times (threshold) more than the other, the term is removed as a common term (i.e. removed from the $B(T, O)$ set) and re-assigned to the dominant set (lines 25 - 30), which is either the target set (T) or other set (O). Otherwise, the process is repeated for the remaining overlapping terms by looking at terms from the *bigrams* (line 31 - 33). If there are still terms that are overlapping, the process is repeated with the *trigrams* (lines 34 - 37).

The use of term frequency to determine class membership probability is motivated by Chen et al. (2016), who stated that “*a term with much higher frequency or probability of occurrence in a specific class than in other classes can serve as a good discriminator for that class even if it appears in only part of the documents of that class*”. Although, this is in the context of long text which contain abundant features, authors in (O’dea et al. 2017) highlighted words with higher word counts as one of the factors associated with unhealthy social media behaviours in particular suicide risk. Additionally, the threshold value of “three” was derived based on Trappenberg and Back (2000), where a threshold of 80% (i.e. three times in whole number fraction) was used to determine class membership. Moreover, the threshold value can be determined based on the classification performance achieved. Lastly, the set of terms belonging to each set i.e. target set (T), other set (O) and both or overlapping set ($B(T, O)$) (line 38) are returned by the algorithm. The sample of the terms

Table 4.2: Sample terms for the T , O and $B(T,O)$ sets from DS1 after the application of STTD

T	$B(T, O)$	O
fuke, shipper, choos, lmao, drone, clearli, blue, avid, nearli, bro, saintsfc, probe, thnx, tonsil, argh, neglect, epidem, straighten, ooh, luv	myself, hate, bitch, self-harm, mock, leg, oh, album, tire, up, give, can, not, everyth, already, low, much, hu, tho, here	joshiesanud, step, nna, her, equival, who, complet, selfish, ain, help, nobodi, charg, he, problem, left, behind, cope, answer, she, said

can be found in Table 4.2 and the full list can be found in Appendix D (Section D.2.1). The list is used in the next phase to remove terms from textual instances according to their class membership i.e. as given by this algorithm. The process is illustrated in Algorithm 2.

The algorithm checks if a term from the other set O appears in the textual instance of the target class label and removes it (lines 2 - 9). Likewise, if a term from the target set T appears in the textual instance of the other class label (lines 10 -17). Lastly, the set of textual instances with removed terms are returned (line 18).

4.3 Validation of STTD Method

To empirically measure the extent to which our objective: *Develop term disambiguation methods for short text classification to improve the detection of target class in a binary class problem by addressing the limitations identified in objective 1 and 2*, has been achieved with STTD, we validate the method using the conventional text classification process discussed in Chapter 2 as shown in Figure 4.2, with an adjustment to accommodate the method within the pipeline. This validation was done using Knime.

Algorithm 2: Terms removal from textual instances

input : Set I_T of target class instances; set I_O of other class instances; the sets of terms T and O

output: Set J of textual instances after term removal

```
1:  $J = \emptyset$ 
2: for each instance  $I_i$  of text in set  $I_T$  do
3:   for each term  $t_j$  in the instance do
4:     if  $t_j \in O$  then
5:        $I_i = I_i - \{t_j\}$ 
6:     end if
7:    $J = J \cup \{I_i\}$ 
8:   end for
9: end for
10: for each instance  $I_i$  of text in set  $I_O$  do
11:   for each term  $t_j$  in the instance do
12:     if  $t_j \in T$  then
13:        $I_i = I_i - \{t_j\}$ 
14:     end if
15:    $J = J \cup \{I_i\}$ 
16:   end for
17: end for
18: Return  $J$ 
```

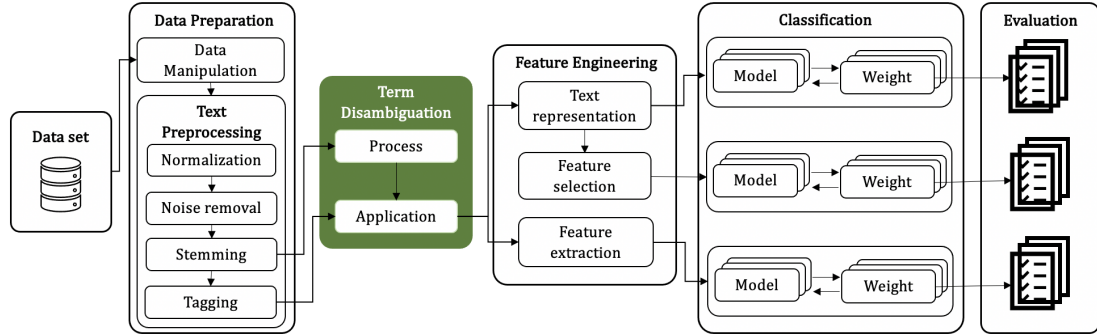


Figure 4.2: Proposed Framework

First, we employ the same text preprocessing techniques in Chapter 3. However, stop words were not removed due to the informality and length of social media texts. To apply the STTD, we manipulated the data set, i.e. DS1, by transforming it into a binary-class distribution to avoid discrepancy between the data set employed for the proposed method and validation; where the suicide class is the target class, and the remaining six classes formed the other class. Following that, the output of the STTD method (Algorithm 1) is

used to further manipulate the pre-processed text as described in Algorithm 2. The feature engineering phase involves employing a combination of techniques on the original data set (pre-STTD) and the data set resulting from STTD (post-STTD). For the text representation, we employ two popular approaches, i.e. bag-of-words which extracted 2,638 unigram terms based on IDF values for pre-STTD and post-STTD, and word embedding specifically Doc2Vec (as in Liu et al. 2018) to directly transform the instances into feature vectors which resulted in 200 features based on the number of layers configured for the technique.

Following that, four feature selection methods were employed with the bag-of-words representation, namely Chi-square with a threshold of 0.1 which resulted in 1,959 features pre-STTD and 1,982 features post-STTD; entropy with a threshold of 0.3 which resulted in the selection of 2,634 relevant features pre-STTD and post-STTD; low variance with a threshold of 0.01 leading to 1,059 pre-STTD features and 1,042 post-STTD features; and firefly which resulted in the extraction of 2,500 features. Also, two feature extraction methods were employed, namely, Latent Dirichlet Allocation (LDA) which led to the extraction of 1,500 features for both pre-STTD and post-STTD based on 150 words per topic (10 topics); and Principal Component Analysis (PCA) with a threshold of 99% information preservation which resulted in the extraction of 914 features pre-STTD and 910 features post-STTD. Table 4.3 summarises the features extracted from the eight techniques for both pre-STTD and post-STTD.

Employing these diverse methods allow for investigation on which text classification techniques work best with the proposed method, since most short text classification tasks are carried out using text classification techniques. Therefore, these methods were selected due to their popularity in text classification and short text classification: Chi-square, entropy and variance; PCA and LDA were employed to extract domain-related information as well as for dimensionality reduction; and firefly, on the other hand, is less explored as a feature selection method in both text classification and short text classification. Hence, we explore it due to its advantages as discussed in Chapter 2 and good result reported in

Table 4.3: Short Text Term Disambiguation (STTD) feature count

Method	Baseline Features	Post-STTD Features
Bag-of-words	2638	2638
Doc2Vec	200	200
Chi-square	1959	1982
Entropy	2634	2634
Low Variance	1059	1042
Firefly	2500	2500
LDA	1500	1500
PCA	914	910

(Kumar and Khorwal 2017).

The difference between the extracted features pre-STTD and post-STTD is due to the difference in textual instances when STTD is applied. In other words, the removal of terms from subsidiary class changes the importance or value of terms when statistical methods are applied as such using the same threshold value to filter or select features will likely result in minor feature disparity. For example, in Chi-square, more features were filtered pre-STTD than post-STTD and the opposite in the case of low variance. Next, the extracted features were used to train five machine classifiers in the classification phase, namely DT, k NN, NB, RF and SVM. These classifiers that have been shown to work well on short text, except NB which is typically employed as a baseline classifier. Also, all the classifiers except k NN was investigated in Chapter 3. Moreover, k NN is popular and has been successfully explored for the detection of unhealthy social media behaviours (e.g. Bashar et al. 2018; Sureka and Agarwal 2014). The 10-fold cross-validation is employed and Precision (P), Recall (R) and F-measure (F) are reported in the next section.

4.3.1 Results and Discussion

The results of the evaluation are displayed in Table 4.4 for the baseline and Table 4.5 for the short text term disambiguation (STTD) method. In addition, Table 4.6, and Figures 4.3a and 4.3b show the overall and target class performance difference between the baseline

results and STTD results. Bold font indicates the best performance under each machine classifier for the target class and overall (i.e. overall F-measure for both the Target and Other class).

Table 4.4: Baseline Results

		DT			kNN			NB			RF			SVM		
		P	R	F	P	R	F	P	R	F	P	R	F	P	R	F
Bag-of-words	Target	0.66	0.64	0.65	0.17	0.77	0.28	0.46	0.86	0.60	0.75	0.66	0.70	0.66	0.77	0.71
	Other	0.94	0.94	0.94	0.90	0.36	0.51	0.97	0.83	0.89	0.94	0.96	0.95	0.96	0.93	0.94
	Overall	0.80			0.40			0.75			0.83			0.83		
Doc2Vec	Target	0.53	0.52	0.52	0.54	0.70	0.61	0.74	0.16	0.26	0.77	0.40	0.52	0.00	0.00	0.00
	Other	0.92	0.92	0.92	0.94	0.89	0.92	0.87	0.99	0.93	0.90	0.98	0.94	0.85	1.00	0.92
	Overall	0.72			0.76			0.59			0.73			0.46		
Chi-square	Target	0.51	0.33	0.40	0.28	0.63	0.39	0.23	0.76	0.35	0.91	0.14	0.25	0.67	0.06	0.11
	Other	0.95	0.97	0.96	0.97	0.86	0.91	0.97	0.78	0.87	0.93	1.00	0.96	0.93	1.00	0.96
	Overall	0.68			0.65			0.61			0.61			0.53		
Entropy	Target	0.65	0.68	0.66	0.14	0.77	0.24	0.33	0.93	0.49	0.71	0.58	0.64	0.64	0.78	0.70
	Other	0.94	0.94	0.94	0.83	0.20	0.32	0.98	0.67	0.80	0.93	0.96	0.94	0.96	0.92	0.94
	Overall	0.80			0.28			0.64			0.79			0.82		
Low Variance	Target	0.61	0.65	0.63	0.33	0.62	0.43	0.52	0.84	0.65	0.75	0.66	0.70	0.61	0.73	0.67
	Other	0.94	0.93	0.93	0.92	0.77	0.84	0.97	0.87	0.91	0.94	0.96	0.95	0.95	0.92	0.94
	Overall	0.78			0.63			0.78			0.83			0.80		
Firefly	Target	0.63	0.70	0.66	0.17	0.73	0.28	0.41	0.87	0.55	0.72	0.54	0.61	0.61	0.76	0.67
	Other	0.95	0.93	0.94	0.89	0.39	0.54	0.97	0.77	0.86	0.92	0.96	0.94	0.96	0.92	0.93
	Overall	0.80			0.41			0.71			0.78			0.80		
LDA	Target	0.62	0.60	0.61	0.54	0.36	0.43	0.53	0.82	0.65	0.76	0.53	0.63	0.68	0.50	0.57
	Other	0.93	0.94	0.93	0.89	0.95	0.92	0.97	0.87	0.92	0.92	0.97	0.95	0.92	0.96	0.94
	Overall	0.77			0.68			0.78			0.79			0.75		
PCA	Target	0.55	0.56	0.55	0.17	0.75	0.28	0.74	0.56	0.64	0.89	0.46	0.61	0.63	0.77	0.69
	Other	0.92	0.92	0.92	0.89	0.35	0.51	0.93	0.97	0.95	0.91	0.99	0.95	0.96	0.92	0.94
	Overall	0.74			0.39			0.79			0.78			0.81		

For the baseline experiment (without the application of STTD), when analyzing the target class performance, Table 4.4 reflects that the SVM classifier achieved both the highest performance when bag-of-words is used and lowest performance when Doc2Vec is used. However, the highest performance is only marginally higher (by 0.01) than when entropy is used as well as when RF is trained with features extracted using the bag-of-words and low variance. For the overall performance, the highest performance of up to 0.83 was also achieved by SVM (using bag-of-words) and RF (using bag-of-words and low vari-

ance). The lowest overall performance was achieved when k NN is used with Entropy. In other words, for the text representations, employing bag-of-words achieved a higher performance in 80% of cases than Doc2Vec except with k NN, which is the worst-performing classifier. This could be due to (1) the size (small) and sparsity of the data set as Doc2Vec relies on large data sets to create dense and relevant vectors and (2) Doc2Vec had only 200 features which reduced the complexity for k NN's learning strategy, i.e. with the small number of features it is expected that k NN will achieve good performance but not necessarily the optimal performance as the proximity of similar features is still vital for its training.

Table 4.5: STTD Results

		DT			k NN			NB			RF			SVM		
		P	R	F	P	R	F	P	R	F	P	R	F	P	R	F
Bag-of-words	Target	0.88	0.98	0.92	0.89	0.88	0.88	0.81	1.00	0.89	0.96	0.90	0.93	0.89	0.87	0.88
	Other	1.00	0.98	0.99	0.98	0.98	0.98	1.00	0.96	0.98	0.98	0.99	0.99	0.98	0.98	0.98
	Overall	1.00			0.93			0.94			0.96			0.93		
Doc2Vec	Target	0.73	0.79	0.75	0.67	0.88	0.76	0.92	0.14	0.24	0.90	0.75	0.82	0.00	0.00	0.00
	Other	0.96	0.95	0.95	0.98	0.92	0.95	0.87	1.00	0.93	0.96	0.99	0.97	0.85	1.00	0.92
	Overall	0.85			0.86			0.58			0.90			0.46		
Chi-square	Target	1.00	0.89	0.94	1.00	0.68	0.81	0.67	0.96	0.79	1.00	0.82	0.90	1.00	0.89	0.94
	Other	1.00	1.00	1.00	0.99	1.00	0.99	1.00	0.98	0.99	0.99	1.00	1.00	1.00	1.00	1.00
	Overall	0.97			0.90			0.89			0.95			0.97		
Entropy	Target	0.96	0.87	0.91	0.81	0.89	0.85	0.45	0.99	0.62	0.96	0.89	0.92	0.98	0.87	0.92
	Other	0.98	0.99	0.98	0.98	0.96	0.97	1.00	0.79	0.88	0.98	0.99	0.99	0.98	1.00	0.99
	Overall	0.95			0.91			0.75			0.96			0.95		
Low Variance	Target	0.88	0.99	0.93	0.64	0.99	0.78	0.80	1.00	0.89	0.94	0.92	0.93	0.88	0.89	0.88
	Other	1.00	0.98	0.99	1.00	0.90	0.95	1.00	0.96	0.98	0.98	0.99	0.99	0.99	0.98	0.98
	Overall	0.96			0.86			0.93			0.96			0.93		
Firefly	Target	0.84	0.85	0.85	0.64	0.73	0.69	0.59	1.00	0.74	0.90	0.85	0.88	0.86	0.87	0.86
	Other	0.97	0.97	0.97	0.95	0.93	0.94	1.00	0.88	0.93	0.97	0.98	0.98	0.98	0.98	0.98
	Overall	0.91			0.81			0.84			0.93			0.92		
LDA	Target	0.94	0.95	0.94	0.90	0.66	0.76	0.95	0.95	0.95	0.94	0.95	0.95	0.94	0.96	0.95
	Other	0.99	0.99	0.99	0.94	0.99	0.96	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	Overall	0.97			0.86			0.97			0.97			0.97		
PCA	Target	0.90	0.91	0.91	0.89	0.87	0.88	0.84	0.40	0.54	0.98	0.70	0.82	0.88	0.87	0.88
	Other	0.98	0.98	0.98	0.98	0.98	0.98	0.90	0.99	0.94	0.95	1.99	0.97	0.98	0.98	0.98
	Overall	0.94			0.93			0.74			0.90			0.93		

When feature selection methods are employed using the bag-of-words representation, the four methods i.e. Chi-square, entropy, low variance and firefly outperform the bag-of-words representation (with no feature selection or extraction) in 20 - 25% of cases, the

Table 4.6: Impact of STTD method based on the difference in F-measure where “-” implies decrease in performance after application of STTD

Techniques	Target Class					Overall				
	DT	kNN	NB	RF	SVM	DT	kNN	NB	RF	SVM
Bag-of-words	0.27	0.60	0.29	0.23	0.17	0.16	0.54	0.19	0.13	0.10
Doc2Vec	0.23	0.16	-0.02	0.30	0.00	0.13	0.09	-0.01	0.17	0.00
Chi-square	0.54	0.42	0.45	0.65	0.84	0.29	0.25	0.29	0.34	0.44
Entropy	0.25	0.61	0.13	0.29	0.22	0.15	0.63	0.11	0.17	0.13
Low Variance	0.30	0.35	0.24	0.23	0.22	0.18	0.23	0.15	0.13	0.13
Firefly	0.18	0.41	0.19	0.26	0.19	0.11	0.40	0.13	0.15	0.12
LDA	0.33	0.33	0.30	0.32	0.38	0.19	0.19	0.19	0.18	0.22
PCA	0.35	0.60	-0.09	0.21	0.19	0.21	0.54	-0.05	0.12	0.12

cases being Chi-square when trained with *kNN*; low variance when trained with *kNN* and NB; entropy when trained with DT (for the target class); and firefly when trained with DT (for the target class) and *kNN* (for the overall). Moreover, Doc2Vec outperformed all the methods including bag-of-words when trained with only *kNN*. On the other hand, the feature extraction methods employed (i.e. LDA and PCA) yielded a better result than Doc2Vec in 80% of cases except with *kNN* (for both the target class and overall). However, only better than bag-of-words in 30% of cases. This suggests that when dealing with a small and sparse data set, a simple text representation method such as bag-of-words is likely to outperform state-of-the-art methods like Doc2Vec, LDA and PCA. Also, it is no surprise that class imbalance still plays a major role in the classification of the baseline experiment as the majority (i.e. other) class has outperformed the minority (target) class in 100% of cases, hence compensating for the minority class in the overall performance.

As for the classification performance after applying STTD, the results in Table 4.5 and 4.6 show that the proposed method leads to an increase in performance overall and, in particular, for the target class. Interestingly, the increase occurred with and without employing feature selection or feature extraction methods. On the other hand, employing these methods has significantly boosted the target class’s performance in particular cases (e.g. Chi-square and LDA).

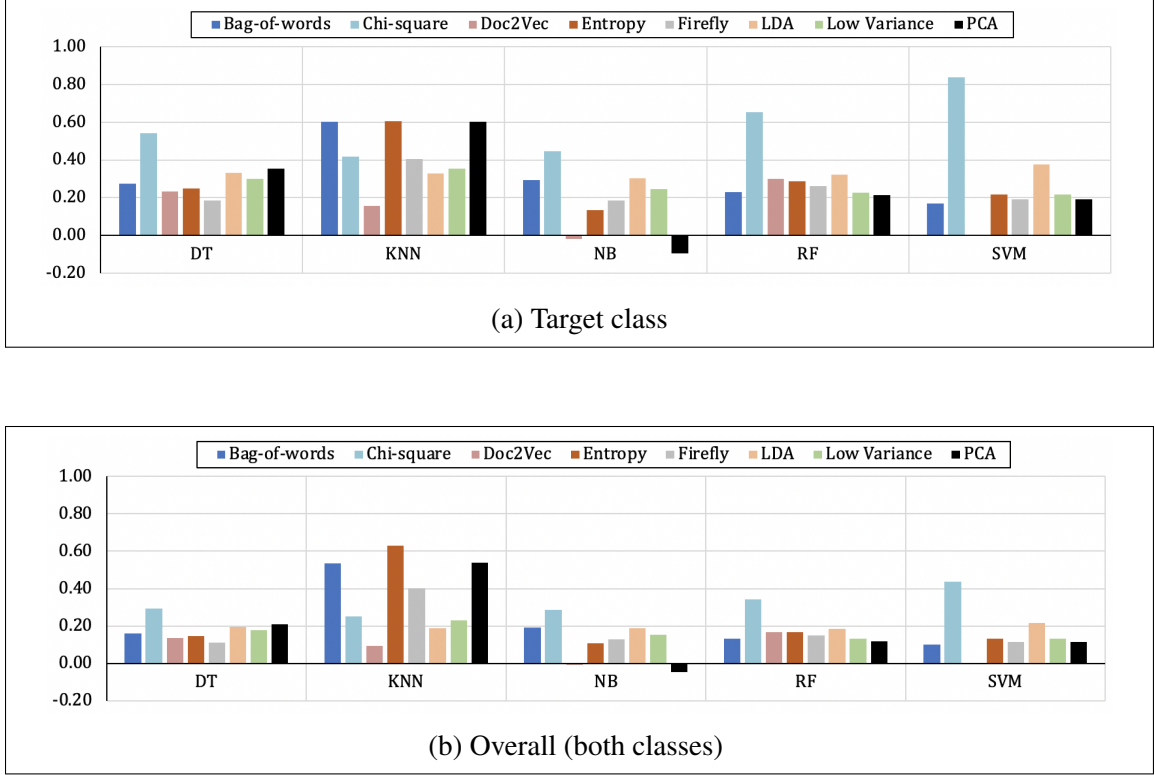


Figure 4.3: Impact of STTD method

For both the target class and overall, the performance has improved in approximately 93% of cases where the remaining 7% where the performance did not improve are: (1) SVM when Doc2Vec is employed; with and without our method the results are the same; (2) NB when Doc2Vec is employed there is a decrease of less than 1% in the overall and a decrease of less than 2% for the target class; (3) NB when PCA is employed for feature extraction, where for both the overall and the target class, the decrease is less than 10%.

STTD had more impact on the target class (class-wise), Chi-square (method-wise) and k NN (classifier-wise). For example, of the 93% cases (i.e. 37 of 40 cases) improved, the overall is improved by up to 10% for 1 case, between 10% and 20% in 24 cases, between 20% and 30% in 6 cases and by more than 30% in 6 cases. For the target class, there is an improvement between 10% and 20% in 7 cases, between 20% and 30% in 15 cases, and over 30% in 15 cases. Method-wise, Chi-square obtained the best average performance improvement across all classifiers for both the overall and target with an average improve-

ment of 32% and 58%, respectively, followed by the bag-of-words representation for the overall (average improvement of 22%) and the LDA feature extraction for the target class (average improvement of 33%). Classifier-wise, improvements can be observed across all five classifiers; however, some of these led to larger improvements, especially for the target class with *k*NN having the larger improvement in approximately 63% of cases, followed by SVM in 25%.

Additionally, as established in Chapter 2, the combination of methods place a significant role in classification performance. From this validation, it has been observed that the best combinations of classifiers and feature representation/feature selection/feature extraction methods, the largest improvement for the overall is achieved when using *k*NN with entropy (63%), *k*NN with PCA (54%) and *k*NN with bag-of-words (54%). For the target class, the largest improvement is obtained when using SVM with Chi-square (84%), followed by the same three combinations as for the overall F-measure (with 61%, 60% and 60% improvement, respectively). Whereas the worst combination which has negatively impacted the classification performance for both the target class and overall is, unsurprisingly, NB when trained with features extracted with Doc2Vec (less than 2%) and PCA (less than 10%).

Lastly, unlike the baseline result which was impacted by class imbalance, these results suggest that STTD minimizes both ambiguity and class imbalance influence for highly skewed data set (CIP of 0.15 for the minority, target class and 0.85 for the majority class as shown in Table 5.3 of Chapter 5). In particular, STTD has significantly boosted the detection of the minority class (i.e. the target class) regardless of the instances available for the machine classifiers to learn. These suggests that ambiguity and class imbalance might be correlated i.e. minimizing ambiguity directly reduces the bias of classifiers towards the majority class.

4.4 Chapter Conclusion

This chapter introduced a term disambiguation method for short text from social media, STTD (short text term disambiguation), to improve the target class detection in a binary class problem when dealing with classification of short text by minimising ambiguous terms. The method addresses two limitations of short text classification: the ambiguity of terms that affect the target class' classification performance and the influence of class imbalance on minority, target classes. Moreover, our method minimises ambiguous terms using the probability of a term's class membership to eliminate terms that are predominantly in the opposite class. The method was validated using the same data set used for the investigation in Chapter 3, i.e. real-world data containing unhealthy social media behaviour from Twitter, specifically suicide-related communications. The conventional text classification process was employed with minimal adjustment to accommodate the proposed method.

Various methods were employed, including two text representation methods, four feature selection methods, two feature extraction methods and five machine classifiers. The validation suggests that employing STTD leads to better detection of the target class with or without employing state-of-the-art text representation like Doc2Vec, feature selection or feature extraction methods. However, employing these methods boosted the performance of the target class in a few cases. Moreover, no specific class imbalance technique was applied to tackle class imbalance explicitly. Employing STTD has minimised its impact on the target (minority) class. This suggests a possible correlation between ambiguity and class imbalance for this problem domain where minimizing ambiguity mitigates the influence of class imbalance. Therefore, we investigate this in the next chapter by addressing both factors (ambiguity and class imbalance) which could further improve the detection of the target class.

In addition, despite the improved detection of the target class, as with many methods we note that there are some limitations with the proposed STTD method: (1) it is currently limited to a binary class problem and employing a multi-class data set will require modifying

the algorithm which might yield a different result; (2) the context and semantic consideration is limited to three consecutive words, hence the method might not suit other problem domain such as sentiment analysis; (3) selecting the terms based on frequency might not be fully discriminative and terms that have a low frequency (class membership probability) which are removed from the less dominant class might be relatively informative for that class; and (4) as we are dealing with informal texts, not normalizing repeated letters could lead to the same words being identified as separate words.

Chapter 5

Partition Based - Short Text Term Disambiguation (PB-STTD)

In this chapter, we introduce Partition Based - Short Text Term Disambiguation (PB-STTD) method, an extension of the STTD method, to further improve the detection of target classes by addressing the class imbalance often present in real-world data. Section 5.1 introduces PB-STTD and Section 5.2 describes its procedures. In Section 5.3 we validate the method on three real-world datasets on the problem of social media suicidal ideation, misogyny and hate speech using several machine learning algorithms, i.e. DT, GB, NB and SVM, in combination with two text representations (bag-of-words and word embedding), one feature selection method (Chi-square) and one feature extraction method (Labelled Latent Dirichlet Allocation), we present the results and discussion within the section. Following that, in Section 5.4, we present an evaluation of the method against SMOTE, a resampling method for addressing class imbalance. The section also presents the results and discussion of the evaluation. Finally, we conclude the chapter in Section 5.5.

5.1 Introduction

The Partition Based - Short Text Term Disambiguation (PB-STTD) method was proposed to further improve the detection of the target class, which is typically the minority class, by explicitly minimizing the impact of class imbalance in a data set. Moreover, re-

sults in Chapter 4 suggests a possible correlation between ambiguity and class imbalance where minimizing ambiguity mitigates the influence of class imbalance, hence we investigate this by addressing both factors (ambiguity and class imbalance) which could further improve the detection of the target class. PB-STTD handles class imbalance as part of the disambiguation process which has the advantage of improving the processing speed for term disambiguation by running the process in parallel for each partition as well as provides an opportunity to observe the results or re-run the process independently. As discussed in Chapter 2, class imbalance is typical when dealing with real-world data. This introduces bias towards the majority class as machine learning algorithms do not consider the underlying distribution of data sets, hence disadvantaging the minority class, which is usually the most important class. In this chapter, we also employ the most widely used method for addressing class imbalance, Synthetic Minority Over-sampling Technique (SMOTE) to evaluate the impact of using SMOTE to handle class imbalance in a highly skewed data set on classification performance compared to using PB-STTD.

5.2 Partition Based - Short Text Term Disambiguation (PB-STTD) Method

The partition based - short text term disambiguation (PB-STTD) method is an extension of STTD introduced in Chapter 4, which is proposed to address the influence of class imbalance on target classes to further improve the detection of the target class. The procedure for PB-STTD is illustrated in Algorithm 3. As with STTD, this method also takes a binary class (denoted as *target* class and *other* class) data set with textual instances I as input. The process checks for a case of imbalance where the number of instances of the other class ($|I_O|$) is higher than that of the target class ($|I_T|$). Next, the number of partitions (n) is determined by calculating the imbalance ratio, i.e. dividing the number of instances of the other (majority) class by the number of instances of the target (minority) class (see lines 2 - 4 in Algorithm 3).

Table 5.1: Sample terms for each data set prior to term disambiguation

Data set	T	$B(T, O)$	O
DS1	fuke, shipper, choos, lmao, drone, clearli, blue, avid, nearli, bro, saintsfc, probe, thnx, tonsil, argh, neglect, epidem, straighten, ooh, luv, ballin, playin, calv	i, hate, myself, for, that, im, tire, and, want, to, die, wa, think, about, kill, don, t, you, mind, my, life, just, sleep, never, wake, up, someone, so, low, like, most, larri, already	joshiesanud, step, nna, her, equival, who, complet, selfish, ain, help, nobodi, charg, he, problem, left, behind, cope, answer, she, said, phrase, your, ask, fm, which, omfg
DS2	pierc, licens, ic, talent, ejecul, dm, ss, imma, aight, dope, sterolin, olli, equailti, charli, wjahjaaj, darl, lick, moe, steak, rice, corn, cuf, shook, twerk	tell, me, why, the, bitch, next, to, in, line, i, so, judgment, about, everyon, she, fuck, see, shut, up, cunt, pleas, when, u, gon, na, get, your, ok, babi	religi, gin, insight, uncov, applaud, threat, inn, ap, bh, cricket, contin, socialist, emul, worship, meal, glamouris, twit, dy, oppress, stun, disembodi
DS3	gaywad, alsarabsss, blacklist, glitter, lassen, youll, blondeproblem, evaaaa, shitmybosssai, smmfh, mongerl, ayo, azflood, clone	queer, he, a, beaner, smh, you, can, tell, mexican, re, fuck, gai, hoe, out, for, anywai, i, why, there, s, black, peopl, and, nigger, least, m, not, snake	shouldn, tyga, dwn, faker, skinni, hobbi, includ, curv, everyon, convers, toe, hardwood, floor, met, trippi, txt, wetter, excit, wrap, app, mane, clown

Following that, as illustrated in Figure 5.1, the next step aims to get a balanced distribution of the target and other class instances to address two problems: the class imbalance that favours the other class (which in most cases is the majority class), and processing speed, i.e. the ability to run the processes in parallel smaller sets for improved speed thereby mitigating situations where a large data set might impede the delivery under specified time constraints. Moreover, the other class instances are split into the number of partitions (n) and each partition (of the instances of other class) is merged with a set of target class instances to form a partition comprised of both classes (see lines 5 - 8). The choice of distribution is motivated by re-sampling techniques where: (1) oversampling the minority class does not add any new information, and (2) under-sampling the majority class removes information (Provost 2000). Hence, employing a balanced distribution in separate partitions allows us to retain and fully utilise the information provided in the data set where each partition is

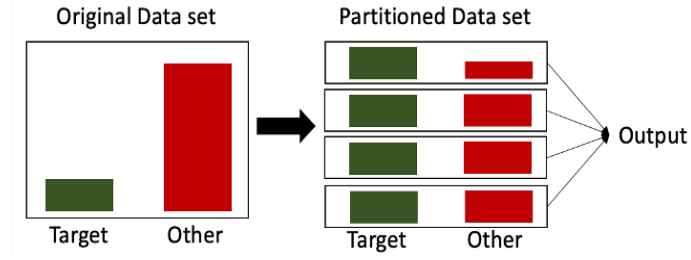


Figure 5.1: Partitioning the data set instances to get a balanced distribution of the target and other class.

treated as a “balanced data set”. However, there may be a case where the last partition has fewer instances of the other class label than the target class label, resulting in an imbalance between the two classes, although favouring the target class, which is our key class of interest.

Algorithm 1 from the STTD method (Chapter 4) is applied to each partition to minimise common terms (lines 9 - 12). The limitation of applying algorithm 1 to each partition independently is when the output of these partitions are merged (line 13), the (1) terms conflict of class membership, i.e. the same terms may appear in several partitions as belonging to more than one class and (2) duplicate terms appearance, i.e. the same terms may appear in several partitions. To address these problems, (1) the set of unique terms are reduced (line 14 - 22) and (2) overlapping terms that appear both in the target and other set are checked and removed from these sets and moved to the set of common words ($B(T, O)$), i.e. it is assumed that since this terms appeared in different classes, it is implied that it is an overlapping term (i.e. $B(T, O)$) (lines 23 - 29). The final step in the algorithm returns the list of the three processed sets i.e. T , O and $B(T, O)$ sets (line 30), a sample of which is displayed in Tables 5.2 with the full list available in Appendix D (Section D.3). As with STTD, the list is used to remove terms from textual instances according to their class membership using Algorithm 2 (Chapter 4).

Algorithm 3: Partition-based short text term disambiguation (PB-STTD) algorithm

input : Set I of all textual instances; set I_T of target class instances; set I_O of other class instances

output: The sets of terms T , O and $B(T, O)$

```
1:  $R = \emptyset$ 
2: if  $|I_T| < |I_O|$  then
3:    $n = |I_O|/|I_T|$ 
4: end if
5: divide  $I_O$  into  $n$  partitions
6: for each partition  $P_i$  do
7:    $P_i = P_i \cup I_T$ 
8: end for
9: for each partition  $P_i$  do
10:   apply Algorithm 1
11:   return  $T_i, O_i, B(T, O)_i$ 
12: end for
13:  $T = \bigcup_{i=1}^n T_i; O = \bigcup_{i=1}^n O_i; B(T, O) = \bigcup_{i=1}^n B(T, O)_i$ 
14: for  $i = 1$  to  $|T|$  do
15:   for  $j = 1$  to  $|T|$  do
16:     if  $t_i = t_j$  then
17:        $R = R \cup \{t_i\}$ 
18:     end if
19:   end for
20: end for
21:  $T = T - R$ 
22: Repeat steps 14-21 for sets  $O$  and  $B(T, O)$ , respectively
23: for  $i = 1$  to  $|T|$  do
24:   for  $j = 1$  to  $|O|$  do
25:     if  $t_i = t_j$  and  $t_i \notin B(T, O)$  then
26:        $B(T, O) = B(T, O) \cup \{t_i\}; T = T - \{t_i\}; O = O - \{t_i\}$ 
27:     end if
28:   end for
29: end for
30: Return  $T, O$  and  $B(T, O)$ 
```

Table 5.2: Sample terms for T , O and $B(T, O)$ sets for DS1, DS2 ad DS3 after applying PB-STTD

Data set	T	$B(T, O)$	O
DS1	fuke, larri, shipper, option, choos, suffer, student, exam, lmao, fun, drone, clearli, dark, blue, avid, nearli, bro, saintsfc, probe, alleg	kill, joshiesanud, it, i, wa, you, made, die, could, the, equival, about, ain, t, face, doesn, to, all, should, like	lack, holiday, joke, disorder, who, struggl, 9th, quot, somewher, due, ignor, these, sign, week, by, them, men, help, continu, attempt
DS2	pierc, judgment, licens, ic, talent, ejecul, sperm, idubbz, dm, ss, imma, aight, dope, sterolin, edit, olli, bye, equailti, charli, wjahjaaj	it, s, to, rais, cancer, not, for, you, i, love, my, brother, and, but, a, ve, won, t, have, then	forbid, speci, friendli, evolut, platform, fantast, denigr, jailhous, funn, perjuri, 1950s, shown, molest, refriger, organ, fruit, veget, individu
DS3	gaywad, alsarabsss, blacklist, hero, glitter, lassen, cc, youll, blondeproblem, evaaaa, shitmybosssai, knife, some1, smmfh, mongerl, slum, sour, spic, kkk, ral	a, woman, you, t, about, clean, up, your, amp, man, should, alwai, take, the, trash, out, boi, cold, bad, for	lag, southern, chubbi, koala, kangaroo, prei, emu, metal, gangbang, lai, relax, reso, inconsider, touchdown, doeeee, understood, percentag, lower, penn, banjo

5.3 Validation of PB-STTD Method

This section describes the application of PB-STTD on unhealthy social media behaviours from Twitter in detecting suicidal ideation, misogyny and hate speech; which is evaluated against typical approaches (i.e. the baseline with no term disambiguation) and the STTD method. This experiment was done using Knime, python and Jupyter, i.e. all except the classification and part of the feature engineering for LLDA and FastText was done using Knime due to parallel processing (i.e. processing PB-STTD), unavailability of some packages in Knime (e.g. LLDA and FastText) and Knime is computationally expensive when using large data set (e.g hate speech). Moreover, the same validation procedure in Chapter 4 was applied in this section.

Each of the three data sets were pre-processed using the same techniques in Chapter 3

and 4 i.e. removal of irrelevant features (e.g. hyperlink texts), text normalization (e.g. case conversion), and tagging; and likewise the data manipulation was carried out as in Chapter 4 to transform the data sets into a binary-class distribution. The same transformation as in Chapter 4 was applied for DS1 to transform it into a binary-class form, whereas DS2 is already in this format, with *misogyny* as the target class and *not misogynous* as the other class. However, DS3, which consists of three classes: *hate speech*, *offensive but not hate speech* and *neither offensive nor hate speech*, was manipulated to form a binary-class, i.e. *hate speech* as the target class, and the remaining two formed the other class. We also calculated the class imbalance probability (CIP) of the target and other class. The distribution of the data sets with the CIP measure of each class is presented in Table 5.3.

Table 5.3: Data sets description

Data set	Description	Instances (I)			CIP	
		Target (I_T)	Other (I_O)	Total (I)	Target (CIP_T)	Other (CIP_O)
DS1	Suicidal ideation	159	905	1064	0.15	0.85
DS2	Misogyny	2245	2755	5000	0.45	0.55
DS3	Hate speech	1430	23353	24783	0.06	0.94

Algorithm 2 (from Chapter 4) was applied to the data sets resulting from the STTD and PB-STTD approaches (this is done to compare PB-STTD with STTD). The feature engineering phase involved employing a combination of techniques on the original data set (no term disambiguation method applied), data set resulting from the application of STTD (post-STTD) and data set resulting from the application of PB-STTD (post-PB-STTD). Table 5.4 presents the term count resulting from this procedure which shows that PB-STTD increases the number of terms in the T set compared with STTD, which was the aim of the method. Due to the partitioning process, however, PB-STTD leads to an increase in $B(T, O)$ as well, which may have a detrimental effect on classification and a decrease in the number of terms in the O set. We investigate this in Section 5.3.1.

Table 5.4: Term count for each data set before (original) and after (post) applying the term disambiguation methods

Data set	Set	Original			Post-STTD			Post-PB-STTD		
		T	$B(T, O)$	O	T	$B(T, O)$	O	T	$B(T, O)$	O
DS1	Set size	105	311	2339	140	76	2539	247	644	1864
	I	2755			2755			2755		
DS2	Set size	1416	2021	1884	1635	1513	2173	2230	1439	1652
	I	5321			5321			5321		
DS3	Set size	343	2136	9243	453	336	10933	1323	3467	6932
	I	11722			11722			11722		

The text in the original data sets and the data sets post-STTD and post-PB-STTD were transformed using bag-of-words and word embedding (i.e. Doc2Vec and FastText), a feature selection method (i.e. Chi-square), and a feature extraction method (i.e. LLDA). Considering that STTD improved the detection of the target class with and without the feature selection and extraction methods, we exclude all the feature selection and extraction methods for this validation except for Chi-square which had the most significant improvement and employed the supervised version of LDA, LLDA.

The typical bag-of-words representation and two word embedding representations were used, i.e. Doc2Vec (same as Chapter 4) and FastText. FastText is a more recent word embedding representation, in which, unlike Doc2Vec, sub-word information is taken into account. The FastText package (Joulin et al. 2016) was used for both text representation and classification; consequently, this representation was not used in combination with other classifiers. For Chi-square, the maximum number of keywords were extracted, and all terms with a Chi-square value of 0 were removed. Although the LDA results (in Chapter 4) showed improvements in the classification performance in general, and for the target class in particular, we investigate Labelled Latent Dirichlet Allocation (LLDA), a supervised topic modelling technique derived from LDA, which as a supervised method could improve the results even further. Unlike LDA, which is unsupervised, LLDA generates the topics

using the label that corresponds to the document i.e. it groups the words based on pre-defined labels. We used the version of LLDA implemented by Shuyo⁵ based on work in (Ramage et al. 2009) where the number of topics is automatically assigned based on the number of labels of the data set.

For the training and evaluation phase, four classifiers were used for classification: DT, GB (using DT), NB and SVM. We excluded two classifiers from the validation of STTD in chapter 4, i.e. *k*NN due to its poor performance which on the other hand was significantly improved when STTD was applied, and RF which we replace with a similar DT-based ensemble classifier, GB which despite being outperformed by RF in a related study (Sawhney et al. 2018b) for the detection of suicidal ideation, has achieved good result in the same study (outperforming LSTM) as well as for the detection of hate speech (e.g. Badjatiya et al. 2017). All experiments were conducted using 10-fold cross-validation; the evaluation is similarly reported using Precision (P), Recall (R) and F-measure (F).

5.3.1 Results and Discussion

The results are displayed in Table 5.5 for the baseline (i.e. when no term disambiguation is used), Table 5.6 for STTD and Table 5.7 for PB-STTD. When comparing the results of STTD with the baseline for the target class, STTD outperforms the baseline in 83% of cases i.e. 40 of 48 cases where the 48 cases are the combination of 3 data sets, 4 text representations and 4 classifiers. When using FastText (see Table 5.11), STTD outperforms the baseline for all 3 data sets for the overall and in 69% of cases for the target class. This is in line with the experimental results in Chapter 4 showing that STTD improves performance for the target class in most cases and overall. However, three disparities were observed with SVM when trained with Doc2Vec, and NB and SVM when trained with Chi-square.

In particular, Chi-square did not detect the target class with STTD using NB and SVM which was not the case in Chapter 4; and the reverse in the case of Doc2Vec. These vari-

⁵<https://github.com/shuyo/iir/tree/master/lda/>

Table 5.5: Baseline Results

		DT			GB			NB			SVM		
Bag-of-words		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	0.64	0.50	0.56	0.68	0.46	0.55	0.53	0.75	0.62	0.17	1.00	0.29
	Other	0.92	0.95	0.93	0.91	0.96	0.94	0.95	0.89	0.92	1.00	0.19	0.31
	Overall	0.75			0.75			0.77			0.30		
DS2	Target	0.69	0.68	0.68	0.74	0.57	0.65	0.48	0.77	0.59	0.78	0.21	0.33
	Other	0.74	0.75	0.74	0.70	0.84	0.76	0.62	0.32	0.42	0.59	0.95	0.73
	Overall	0.71			0.71			0.51			0.53		
DS3	Target	0.32	0.28	0.30	0.34	0.15	0.20	0.07	0.51	0.12	0.48	0.10	0.17
	Other	0.96	0.96	0.96	0.95	0.98	0.97	0.95	0.57	0.71	0.95	0.99	0.97
	Overall	0.63			0.59			0.41			0.57		
Chi-square		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	0.50	0.70	0.58	0.57	0.80	0.67	0.38	0.30	0.33	0.50	0.40	0.44
	Other	0.98	0.95	0.96	0.98	0.95	0.97	0.95	0.96	0.95	0.95	0.97	0.96
	Overall	0.77			0.82			0.64			0.70		
DS2	Target	0.68	0.66	0.67	0.74	0.61	0.67	0.48	0.79	0.60	0.77	0.30	0.43
	Other	0.72	0.74	0.73	0.71	0.82	0.76	0.61	0.28	0.39	0.61	0.93	0.73
	Overall	0.70			0.72			0.49			0.58		
DS3	Target	0.32	0.21	0.25	0.32	0.12	0.18	0.06	0.32	0.10	0.33	0.01	0.02
	Other	0.95	0.97	0.96	0.95	0.98	0.97	0.94	0.70	0.81	0.94	1.00	0.97
	Overall	0.61			0.57			0.45			0.49		
Doc2Vec		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	0.27	0.32	0.30	0.55	0.21	0.31	0.20	0.71	0.32	0.25	0.89	0.39
	Other	0.88	0.86	0.87	0.88	0.97	0.92	0.92	0.53	0.67	0.97	0.55	0.70
	Overall	0.58			0.59			0.49			0.55		
DS2	Target	0.44	0.43	0.44	0.47	0.38	0.42	0.52	0.48	0.50	0.61	0.31	0.41
	Other	0.54	0.55	0.55	0.56	0.64	0.60	0.60	0.64	0.62	0.60	0.84	0.70
	Overall	0.49			0.51			0.56			0.55		
DS3	Target	0.09	0.13	0.10	0.16	0.06	0.08	0.27	0.09	0.14	0.43	0.14	0.21
	Other	0.94	0.92	0.93	0.94	0.98	0.96	0.95	0.98	0.97	0.95	0.99	0.97
	Overall	0.52			0.52			0.55			0.59		
LLDA		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	0.73	0.10	0.17	0.73	0.10	0.17	0.19	0.11	0.14	0.22	0.30	0.26
	Other	0.91	1.00	0.95	0.91	1.00	0.95	0.90	0.95	0.93	0.92	0.88	0.90
	Overall	0.56			0.56			0.53			0.58		
DS2	Target	0.58	0.23	0.33	0.58	0.23	0.33	0.47	0.20	0.28	0.44	0.07	0.12
	Other	0.56	0.86	0.68	0.56	0.86	0.68	0.54	0.80	0.64	0.53	0.93	0.68
	Overall	0.50			0.50			0.46			0.40		
DS3	Target	0.45	0.01	0.02	0.45	0.01	0.02	0.00	0.00	0.00	0.07	0.13	0.09
	Other	0.94	1.00	0.97	0.94	1.00	0.97	0.94	1.00	0.97	0.95	0.90	0.92
	Overall	0.49			0.49			0.49			0.51		

Table 5.6: STTD Results

		DT			GB			NB			SVM		
Bag-of-words		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	0.96	0.96	0.96	1.00	0.77	0.87	1.00	0.92	0.96	0.17	1.00	0.29
	Other	0.99	0.99	0.99	0.97	1.00	0.98	0.99	1.00	0.99	1.00	0.23	0.37
	Overall	0.98			0.93			0.98			0.33		
DS2	Target	0.73	0.68	0.71	0.90	0.61	0.73	0.65	0.90	0.75	0.86	0.26	0.40
	Other	0.75	0.80	0.77	0.75	0.94	0.83	0.88	0.60	0.71	0.61	0.97	0.75
	Overall	0.74			0.78			0.73			0.57		
DS3	Target	0.79	0.98	0.87	0.64	0.71	0.67	0.97	0.82	0.89	0.33	1.00	0.50
	Other	1.00	0.99	0.99	0.99	0.98	0.98	0.99	1.00	1.00	1.00	0.91	0.95
	Overall	0.93			0.83			0.94			0.72		
Chi-square		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	1.00	0.50	0.67	1.00	0.50	0.67	0.00	0.00	0.00	0.00	0.00	0.00
	Other	0.99	1.00	1.00	0.99	1.00	1.00	0.98	1.00	0.99	0.98	1.00	0.99
	Overall	0.83			0.83			0.50			0.50		
DS2	Target	0.74	0.75	0.74	0.88	0.61	0.72	0.68	0.86	0.76	0.88	0.32	0.47
	Other	0.79	0.78	0.78	0.74	0.93	0.82	0.85	0.66	0.74	0.63	0.96	0.76
	Overall	0.76			0.77			0.75			0.61		
DS3	Target	0.91	0.76	0.83	0.94	0.72	0.82	0.15	0.85	0.25	0.97	0.47	0.63
	Other	0.99	1.00	0.99	0.98	1.00	0.99	0.99	0.69	0.81	0.97	1.00	0.98
	Overall	0.91			0.90			0.53			0.81		
Doc2Vec		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	0.47	0.54	0.50	0.86	0.69	0.77	0.48	0.92	0.63	0.35	0.96	0.52
	Other	0.93	0.90	0.91	0.95	0.98	0.97	0.99	0.84	0.91	0.99	0.72	0.84
	Overall	0.71			0.87			0.77			0.68		
DS2	Target	0.47	0.50	0.48	0.57	0.47	0.51	0.49	0.44	0.46	0.66	0.27	0.39
	Other	0.57	0.54	0.55	0.62	0.71	0.66	0.57	0.62	0.60	0.60	0.88	0.71
	Overall	0.52			0.59			0.53			0.55		
DS3	Target	0.48	0.57	0.52	0.76	0.72	0.74	0.44	0.96	0.60	0.23	0.99	0.37
	Other	0.98	0.97	0.98	0.99	0.99	0.99	1.00	0.94	0.97	1.00	0.84	0.91
	Overall	0.75			0.86			0.79			0.64		
LLDA		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	0.70	0.64	0.67	0.70	0.64	0.67	0.69	0.29	0.41	0.51	0.37	0.43
	Other	0.98	0.98	0.98	0.98	0.98	0.98	0.96	0.99	0.98	0.97	0.98	0.97
	Overall	0.82			0.82			0.69			0.70		
DS2	Target	0.61	0.30	0.41	0.62	0.30	0.41	1.00	0.03	0.05	0.60	0.09	0.15
	Other	0.58	0.83	0.68	0.58	0.84	0.69	0.54	1.00	0.70	0.55	0.95	0.69
	Overall	0.54			0.54			0.38			0.42		
DS3	Target	1.00	0.03	0.07	0.45	0.59	0.51	0.02	0.98	0.04	0.01	1.00	0.03
	Other	0.99	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.80	1.00	0.53	0.69
	Overall	0.53			0.75			0.42			0.36		

Table 5.7: PB-STTD Results

		DT			GB			NB			SVM		
Bag-of-words		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	0.96	0.79	0.86	1.00	0.93	0.96	1.00	0.96	0.90	1.00	0.71	0.83
	Other	0.96	0.99	0.98	0.99	1.00	0.99	0.82	1.00	0.98	0.95	1.00	0.98
	Overall	0.92			0.98			0.94			0.90		
DS2	Target	0.85	0.77	0.81	0.99	0.73	0.84	0.97	0.84	0.90	1.00	0.18	0.31
	Other	0.83	0.89	0.86	0.82	0.99	0.90	0.88	0.98	0.93	0.60	1.00	0.75
	Overall	0.83			0.87			0.92			0.53		
DS3	Target	0.89	0.83	0.86	0.94	0.72	0.82	0.15	0.91	0.26	0.97	0.47	0.63
	Other	0.99	0.99	0.99	0.98	1.00	0.99	0.99	0.69	0.81	0.97	1.00	0.98
	Overall	0.93			0.90			0.54			0.81		
Chi-square		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.50
	Other	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.98
	Overall	1.00			1.00			1.00			0.74		
DS2	Target	0.95	0.82	0.88	1.00	0.78	0.88	0.97	0.92	0.94	1.00	0.22	0.35
	Other	0.86	0.97	0.91	0.84	1.00	0.91	0.94	0.97	0.95	0.60	1.00	0.75
	Overall	0.89			0.90			0.95			0.55		
DS3	Target	0.96	0.79	0.87	0.96	0.75	0.84	0.25	0.88	0.38	1.00	0.15	0.25
	Other	0.99	1.00	0.99	0.98	1.00	0.99	0.99	0.82	0.90	0.95	1.00	0.97
	Overall	0.93			0.92			0.64			0.61		
Doc2Vec		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	0.47	0.50	0.48	0.94	0.61	0.74	0.32	0.82	0.46	0.36	0.96	0.52
	Other	0.91	0.90	0.91	0.94	0.99	0.96	0.96	0.70	0.81	0.99	0.71	0.83
	Overall	0.70			0.85			0.63			0.68		
DS2	Target	0.49	0.51	0.50	0.68	0.57	0.62	0.58	0.48	0.53	0.81	0.46	0.59
	Other	0.58	0.56	0.57	0.69	0.78	0.73	0.63	0.71	0.67	0.67	0.91	0.78
	Overall	0.54			0.68			0.60			0.68		
DS3	Target	0.10	0.17	0.13	0.33	0.11	0.17	0.08	0.58	0.15	0.67	0.31	0.42
	Other	0.95	0.91	0.93	0.95	0.99	0.97	0.96	0.61	0.74	0.96	0.99	0.97
	Overall	0.53			0.57			0.44			0.70		
LLDA		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	0.99	0.53	0.69	0.99	0.53	0.69	0.28	0.18	0.22	0.38	0.50	0.43
	Other	0.95	1.00	0.97	0.95	1.00	0.97	0.91	0.95	0.93	0.94	0.91	0.92
	Overall	0.83			0.83			0.57			0.68		
DS2	Target	0.67	0.35	0.46	0.67	0.36	0.47	0.50	0.64	0.56	0.49	0.81	0.61
	Other	0.59	0.84	0.69	0.59	0.84	0.69	0.56	0.42	0.48	0.56	0.22	0.32
	Overall	0.58			0.58			0.52			0.46		
DS3	Target	0.89	0.13	0.23	0.93	0.13	0.22	0.00	0.00	0.00	0.22	0.09	0.13
	Other	0.95	1.00	0.97	0.95	1.00	0.97	0.94	1.00	0.97	0.94	0.98	0.96
	Overall	0.60			0.60			0.48			0.54		

Table 5.8: FastText Results

		Baseline			STTD			PB-STTD		
FastText		P	R	F	P	R	F	P	R	F
DS1	Target	0.74	0.58	0.65	0.64	0.83	0.72	0.65	0.82	0.73
	Other	0.93	0.97	0.95	0.97	0.93	0.95	0.97	0.95	0.95
	Overall			0.65			0.84			0.84
DS2	Target	0.60	0.81	0.69	0.65	0.74	0.69	0.64	0.74	0.69
	Other	0.78	0.55	0.65	0.76	0.67	0.71	0.75	0.66	0.70
	Overall			0.67			0.70			0.69
DS3	Target	0.44	0.37	0.40	0.40	0.53	0.46	0.42	0.52	0.46
	Other	0.96	0.97	0.97	0.98	0.96	0.97	0.97	0.95	0.96
	Overall			0.68			0.71			0.71

Table 5.9: Comparison of STTD and PB-STTD methods based on the difference in F-measure where ‘-’ implies higher F-measure for STTD and ‘+’ implies higher F-measure for PB-STTD

	DS1				DS2				DS3			
Target Class	DT	GB	NB	SVM	DT	GB	NB	SVM	DT	GB	NB	SVM
Bag-of-words	-0.10	+0.09	-0.06	+0.54	+0.10	+0.11	+0.15	-0.09	-0.01	+0.14	-0.62	+0.13
Chi-square	+0.33	+0.33	+1.00	+0.50	+0.14	+0.16	+0.19	-0.11	+0.04	+0.02	+0.14	-0.38
Doc2Vec	-0.02	-0.03	-0.18	+0.01	+0.02	+0.11	+0.07	+0.20	-0.40	-0.57	-0.46	+0.05
LLDA	+0.03	+0.03	0.19	0.00	+0.06	+0.06	+0.51	+0.45	+0.16	-0.28	-0.04	+0.10
Overall	DT	GB	NB	SVM	DT	GB	NB	SVM	DT	GB	NB	SVM
Bag-of-words	+0.06	+0.05	-0.03	+0.57	-0.09	+0.09	+0.18	-0.05	-0.01	+0.08	-0.40	+0.08
Chi-square	+0.17	+0.17	+0.50	+0.24	+0.13	+0.13	+0.20	-0.06	+0.02	+0.01	+0.11	-0.19
Doc2Vec	-0.01	-0.01	-0.14	0.00	+0.02	+0.09	+0.07	+0.13	-0.22	-0.30	-0.34	+0.06
LLDA	+0.01	+0.01	-0.12	-0.02	+0.03	+0.04	+0.14	+0.04	+0.07	-0.15	+0.06	+0.19

ations could suggest the use of different platforms (Knime in Chapter 4 and Jupyter using python in this chapter) for the classification might have had an influence on the classification performance.

When comparing the results of PB-STTD with the baseline, PB-STTD outperforms the baseline in 94% of cases for the target class. In the case of FastText, PB-STTD gave higher results than the baseline in all cases (i.e. the 3 data sets) for the overall, and in 67% of cases for the target class. Overall, PB-STTD improves on the baseline in more cases than STTD, indicating the partition-based method’s added benefit. In the following, the target classes for STTD and PB-STTD are compared in detail with the differences displayed in Figure 5.2a.

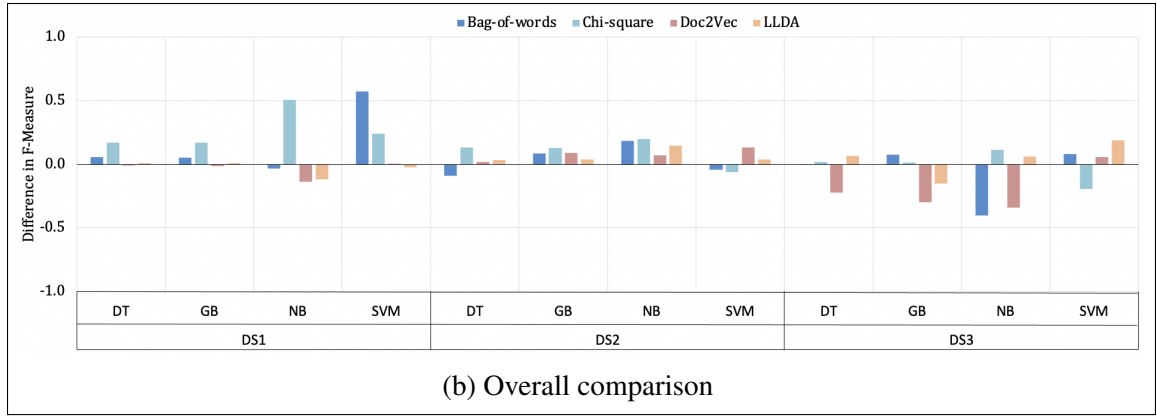
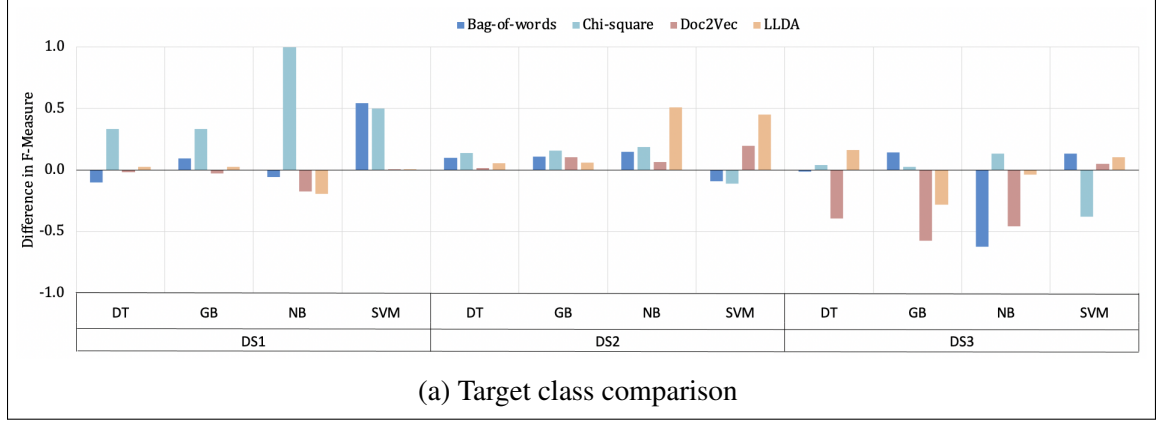


Figure 5.2: Comparison of STTD and PB-STTD based on the difference in F-measure

PB-STTD outperformed STTD in 63% of cases for the target class. When looking at the different text representations, for bag-of-words, in 58% of cases (i.e. 7 of 12 where the 12 cases are the combinations of three data sets and four classifiers) PB-STTD outperforms STTD for the target class, and in 33% of cases, STTD outperforms PB-STTD. For Chi-square, PB-STTD outperforms STTD in 83% of cases for the target class; for Doc2Vec, for the target class in 50% of cases; while for LLDA, PB-STTD outperforms STTD in 67% of cases. These results indicate that, in many cases, PB-STTD has an adverse effect on performance when Doc2Vec is used; however, the results of PB-STTD are still higher than the baseline when Doc2Vec is used for all cases, for both the overall and the target class. The decrease when using PB-STTD and Doc2Vec is more pronounced for DS1 and DS3, which have a higher class imbalance than DS2. There was a minimal difference between

STTD and PB-STTD when using FastText, thus, indicating that the word embedding used by FastText seems to be less influenced by the class imbalance in DS3 than the word embedding used by Doc2Vec. In fact, the syntax of the data set (labelled, short and informal) could have favoured FastText due to the ability of FastText to (1) utilize the class information of the data set to learn more discriminative embeddings and (2) using surrounding characters to learn the meaning of a word.

When looking at the different classifiers, PB-STTD outperforms STTD for the target class in more cases for GB (75% of cases), DT (67% of cases) and SVM (67% of cases) when compared with NB (50% of cases). It is not surprising that NB is the worst performing classifier (when counting the number of cases), although there is much variation in the data, with the classifier having substantial increases in some cases and substantial decreases in others. To further investigate the variation in the data, the results are analysed per data set.

For DS1, PB-STTD outperforms STTD in 56% of cases for both the overall and the target class i.e. 9 of 16 cases; where the 16 cases combine four text representations and four classifiers. For the target class, the average increase is 29%, and the average decrease is 9%; the most significant improvement is obtained with NB when using bag-of-words (100%). This is unexpected and might be worth further investigation as (1) NB has not detected the target class in the baseline but perfectly detected it with PB-STTD, and (2) NB has been the worst performing classifier in this research. Additionally, SVM classifier had the second highest increase (54% when using bag-of-words and 50% when using Chi-square) while the highest decline is obtained when using the NB classifier (18% with Doc2Vec and 19% with LLDA). By the count of cases when PB-STTD outperforms STTD, the best results are obtained when using the Chi-square representation and the worst results when using the Doc2Vec representation; by the count of cases and average values, SVM is the best classifier, and NB is the worst. When using FastText, for the overall, both PB-STTD and STTD had an equal performance; for the target class PB-STTD outperforms STTD by a

minimal margin, i.e. 1%.

For DS2, when looking at the target class, PB-STTD outperforms STTD in 88% of cases; with an average increase of 16% and an average decrease of 10%. The most significant improvement is obtained for LLDA (51% with NB and 45% with SVM), and the highest decline is for SVM (11% with Chi-square and 9% with bag-of-words). By the count of cases when PB-STTD outperforms STTD, the best results are obtained when using the LLDA and Doc2Vec representations; similarly, by the count of cases, DT, GB and NB are the best classifiers and SVM is the worst. With FastText, STTD marginally outperforms PB-STTD by 1% for the overall F-measure but had an equal performance for the target class F-measure.

For DS3, PB-STTD outperforms STTD for the target class, PB-STTD performs better than STTD in 50% of cases, with an average increase of 10% and an average decrease of 34%; the highest increase in performance is obtained with DT and LLDA (16%), followed by GB and bag-of-words (15%); NB obtains the highest decrease in performance with bag-of-words (62%) and GB with Doc2Vec (57%). When PB-STTD outperforms STTD, the best results (by count of case) are obtained when using Chi-square and the worst (results) when using Doc2Vec; similarly, by the count of cases, SVM is the best classifier and NB is the worst. With FastText, both PB-STTD and STTD perform equally for the overall and the target class.

When looking at all the data sets, we notice the following: (a) the average improvement is higher for the target class than overall on all data sets; (b) the average increase is higher than the average decrease for DS1 and DS2, while the opposite is true for DS3. Overall, the results indicate that PB-STTD shows promise, we were surprised to see that on the largest data set (DS3), where we expected an enormous benefit, the improvement on the target class was only in 50% of cases and, in the cases where a decrease was noticed, this decrease was relatively high. Two factors are playing a role in this situation, i.e. the size of the $B(T, O)$ set (which is considerably higher with PB-STTD for DS3) and the class imbalance (which

is highest for DS3). The results on all data sets are inversely proportional to the size of the $B(T, O)$ set (i.e. the smaller the set, the better the results) and directly proportional to the ratio between the target and the other class (i.e. the bigger the ratio, the better the results), i.e. the best results of PB-STTD are on DS2 (which has the smallest $B(T, O)$ size and the highest class balance), followed by DS1, and the worst results are on DS3.

5.3.1.1 Real world context

In the context of detecting unhealthy behaviours (target class) from social media text (i.e. DS1, DS2 and DS3), PB-STTD has improved the detection of suicidal ideation (DS1), misogyny (DS2) and hate speech (DS3) in 94% of cases when compared to the baseline. However, when compared to STTD, there is improved detection of suicidal ideation in 56% of cases (9 of 16 cases) with an increase of up to 100% in 1 case, between 36-70% in 2 cases and less than 35% in 6 cases. For misogyny, there is an improved detection in 88% of cases (14 of 16 cases) with an increase of up to 51%. For hate speech, there is an improved detection in 50% of cases (8 of 16 cases) with an increase of up to 16%. These observations indicate the persistent influence of class imbalance on real world data, hence we investigate the impact of methods for addressing class imbalance in the next section.

5.4 Evaluation of PB-STTD in dealing with class imbalance

The SMOTE technique is employed to conduct experiments to evaluate the impact of handling class imbalance using an over-sampling technique compared to using PB-STTD. Therefore, for this experiment, the SMOTE algorithm was employed using the same short text classification process used for the baseline from the validation on the three data sets, i.e. without employing the term disambiguation methods. This includes the text preprocessing, data manipulation (i.e. target and other class), feature engineering (i.e. Bag-of-words, Chi-square, Doc2Vec, LLDA and FastText), classification (DT, GB, NB and SVM) and

evaluation (i.e. 10-fold cross-validation).

5.4.1 Results and Discussion

The results achieved using SMOTE are presented in Table 5.10 and 5.11 which showed there was an 80% improvement from the baseline (in Table 5.5) for the Target class (i.e. 41 of 51 cases where the cases are a combination of three data sets, four machine classifiers and four methods, as well as three data sets for FastText) and 70% for the overall. Interestingly, SMOTE had the most impact on the Doc2Vec representation with 100% improvement for both the target class and overall, and 95% (target class) for LLDA where the 5% with no improvement is with SVM trained with DS2. This improvement could suggest that SMOTE has more impact when feature extraction or word embedding techniques are employed.

DS1 and DS3 have a highly skewed distribution; therefore, as expected SMOTE had more impact on them. That is, on DS3 by 88% and 70% improvement for the target class and overall, respectively; followed by DS1 with 82% for the target class and approximately 76% for overall; and DS2 with 70% for both the target class and overall. This suggests that SMOTE is more effective with highly skewed large data sets which could be due to more instances in the minority class to generate synthetic samples. On the other hand, SMOTE might generate instances not representative of the class in large data sets with extremely skewed class distribution i.e. extremely small instances of the minority class (Padurariu and Breaban 2019).

Table 5.10: SMOTE Results

		DT			GB			NB			SVM		
Bag-of-words		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	0.52	0.74	0.61	0.65	0.74	0.69	0.57	0.77	0.66	0.19	1.00	0.32
	Other	0.94	0.86	0.90	0.94	0.92	0.93	0.95	0.88	0.91	1.00	0.09	0.17
	<i>Overall</i>	0.75			0.81			0.79			0.24		
DS2	Target	0.63	0.62	0.63	0.78	0.61	0.69	0.46	0.77	0.58	0.85	0.27	0.41
	Other	0.69	0.70	0.70	0.73	0.86	0.79	0.58	0.27	0.37	0.62	0.96	0.75
	<i>Overall</i>	0.66			0.74			0.47			0.58		
DS3	Target	0.34	0.31	0.33	0.27	0.10	0.15	0.07	0.55	0.13	0.57	0.14	0.23
	Other	0.96	0.96	0.96	0.95	0.98	0.96	0.95	0.55	0.70	0.95	0.99	0.97
	<i>Overall</i>	0.64			0.56			0.41			0.60		
Chi-square		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	0.63	0.50	0.56	0.63	0.50	0.56	0.75	0.30	0.43	1.00	0.20	0.33
	Other	0.96	0.98	0.97	0.96	0.98	0.97	0.95	0.99	0.97	0.94	1.00	0.97
	<i>Overall</i>	0.76			0.76			0.70			0.65		
DS2	Target	0.70	0.69	0.69	0.76	0.62	0.69	0.48	0.72	0.57	0.86	0.34	0.49
	Other	0.74	0.75	0.74	0.72	0.84	0.78	0.58	0.32	0.42	0.63	0.95	0.76
	<i>Overall</i>	0.72			0.73			0.49			0.62		
DS3	Target	0.33	0.24	0.28	0.45	0.18	0.26	0.05	0.29	0.09	0.50	0.02	0.04
	Other	0.95	0.97	0.96	0.95	0.99	0.97	0.94	0.67	0.78	0.94	1.00	0.97
	<i>Overall</i>	0.62			0.61			0.44			0.50		
Doc2Vec		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	0.93	1.00	0.96	0.99	1.00	1.00	0.70	0.50	0.58	0.99	0.86	0.92
	Other	1.00	0.92	0.96	1.00	0.99	1.00	0.60	0.78	0.68	0.88	0.99	0.93
	<i>Overall</i>	0.96			1.00			0.63			0.93		
DS2	Target	0.63	0.68	0.66	0.66	0.67	0.67	0.60	0.57	0.58	0.85	0.44	0.58
	Other	0.65	0.60	0.63	0.66	0.66	0.66	0.59	0.61	0.60	0.62	0.92	0.74
	<i>Overall</i>	0.64			0.66			0.59			0.66		
DS3	Target	0.97	1.00	0.99	1.00	1.00	1.00	0.92	0.91	0.91	1.00	0.99	0.99
	Other	1.00	0.97	0.99	1.00	1.00	1.00	0.91	0.92	0.91	0.99	1.00	0.99
	<i>Overall</i>	0.99			1.00			0.91			0.99		
LLDA		P	R	F	P	R	F	P	R	F	P	R	F
DS1	Target	0.70	0.76	0.73	0.70	0.76	0.73	0.75	0.24	0.37	0.69	0.33	0.45
	Other	0.83	0.78	0.80	0.83	0.78	0.80	0.65	0.94	0.77	0.66	0.90	0.76
	<i>Overall</i>	0.77			0.77			0.57			0.61		
DS2	Target	0.55	0.65	0.60	0.55	0.65	0.60	0.53	0.39	0.45	0.51	0.07	0.12
	Other	0.54	0.44	0.49	0.54	0.44	0.49	0.50	0.64	0.56	0.49	0.93	0.64
	<i>Overall</i>	0.54			0.54			0.50			0.38		
DS3	Target	0.59	0.51	0.55	0.58	0.52	0.55	0.53	0.14	0.22	0.57	0.12	0.20
	Other	0.58	0.65	0.61	0.58	0.64	0.61	0.52	0.88	0.65	0.52	0.91	0.66
	<i>Overall</i>	0.58			0.58			0.43			0.43		

When comparing the results obtained by SMOTE with the two term disambiguation methods, it has been observed that STTD outperformed SMOTE in the classification performance of the target class in 45% of cases and 59% for the overall. There were also 2% cases where the performance was the same (i.e. STTD and SMOTE) for the overall. On the other hand, PB-STTD which focused on minimizing the impact of class imbalance has outperformed SMOTE in 53% of cases for the target class and 75% for the overall with another 4% where the performance was equal for the overall. This indicates that PB-STTD impacted the target class more than SMOTE, however partitioning the data sets has also given an advantage to the majority class thereby boosting the overall performance.

The two term representations, Bag-of-words and Doc2Vec, has led to different performances with the term disambiguation methods and SMOTE. Bag-of-words led to a higher performance with both STTD and PB-STTD than Doc2Vec whereas SMOTE had the reverse. For STTD, Bag-of-words led to a better performance in 83% of cases for the target class, and 92% of cases for the overall, and Doc2Vec led to a higher performance for the target class and overall in only 17% and 8% of cases, respectively. Similarly, for PB-STTD, Bag-of-words led to a better performance in 92% of cases for both the target class and overall. In contrast, Doc2Vec led to a higher performance for the target class in 8% of cases and 25% of cases for the overall. Chi-square led to a better performance without SMOTE, i.e. for STTD in 75% of cases and PB-STTD in 92% of cases for both the target class and overall. When using LLDA, STTD outperformed SMOTE in 17% and 58% of cases for the target class and overall, respectively; while interestingly, PB-STTD outperformed SMOTE in 17% and 92% of cases for the target class and overall, respectively. This could suggest that handling class imbalance during the term disambiguation procedure influences the relevance of features in the majority class during feature extraction (i.e. LLDA). In the case of FastText, both STTD and PB-STTD outperformed SMOTE in 33% of cases for the target class and 67% of cases for the overall.

Analyzing the results from the data perspective, there is a correlation between the cases

Table 5.11: SMOTE FastText Results

	DS1			DS2			DS3		
	P	R	F	P	R	F	P	R	F
Target	0.96	0.65	0.77	0.86	0.21	0.34	0.95	0.60	0.73
Other	0.73	0.97	0.83	0.55	0.97	0.70	0.71	0.97	0.82
<i>Overall</i>	0.80			0.52			0.78		

where STTD outperformed SMOTE with the size of the data set which is surprising as we were expecting a correlation with the class imbalance instead. For DS1, STTD outperformed SMOTE in 41% and 70% of cases for the target class and overall, respectively; DS2 in 47% of cases for both the target class and overall; and DS3 in 47% and 53% for the target class and overall, respectively. As for the machine classifiers, NB had the best performance for the target class (by count of cases) with the term disambiguation methods i.e. 58% for both methods while SVM had the worst (i.e 25% for STTD and 50% for PB-STTD); however, for the overall GB had the best performance for the target class (75% for both methods), although DT and NB had the same performance for PB-STTD. Likewise, SVM had the worst performance for the overall.

The results validate the improvement in the detection of target classes when the proposed term disambiguation methods are used. In particular, the findings of the results imply the proposed methods are more effective (in the case of handling class imbalance) than SMOTE with text representation based on bag-of-words or feature selection methods, while SMOTE is more effective when employing word embedding or feature extraction techniques. In order words, the findings suggest that the proposed term disambiguate methods are most effective with high-dimensional data and SMOTE with low-dimensional data.

5.5 Chapter Conclusion

In this chapter, we proposed a partition-based method for disambiguating features, PB-STTD, to further improve the detection of the target class by addressing the findings from Chapter 4 which suggests a possible correlation between ambiguity and class imbalance

where minimizing ambiguity mitigates the influence of class imbalance. Therefore, the method aimed to address the unfair advantage given to the other class in STTD by partitioning the data into n partitions in which $n - 1$ partitions would have the size of double the number of instances of the target class (i.e. each partition contained the target class instances and the same number of the other class instances) and one partition would have the target class instances and the remainder of the other class instances. To validate the method, experiments were conducted with three data sets to detect suicidal ideation, misogyny and hate speech. Four machine classifiers, three text representation, one feature selection and one feature extraction methods were used.

The results showed an improvement over STTD in 63% of cases for the target class F-measure. Moreover, the average increase is higher for the target class than the overall performance. Likewise, PB-STTD had more impact on data sets that are small but highly skewed and data sets that are large but mildly skewed, while it had the least impact on large and highly skewed data sets. Also, to evaluate PB-STTD in dealing with class imbalance, the SMOTE method was used for comparison in handling class imbalance. The result indicates that PB-STTD handles class imbalance better than SMOTE in 53% of cases for the target class and 75% cases for the overall, despite not applying any sampling technique post-term disambiguation.

The limitations of employing PB-STTD are: (1) the class imbalance will have more influence when a balanced class distribution is employed for disambiguation using PB-STTD. Thereby, suggesting that disambiguating partitions independently and merging them despite addressing their limitation (i.e. the same terms may appear in several partitions as belonging to more than one class and duplicate terms appearance) on a balanced data set could have a detrimental effect on the classification performance due to resulted increase in ambiguity (increase in $B(T, O)$ set); (2) it suggests that an increase in the target class terms (i.e. T set) is not discriminative enough to enhance the detection of the target class in short text classification, if there is an increase in common terms (i.e. $B(T, O)$ set) and

decrease in the other class terms (i.e. O set). On the other hand, these confirm the findings from Chapter 4, suggesting a correlation between ambiguity and class imbalance. In other words, reducing ambiguity reduces the influence of class imbalance, thereby improving the detection of the target class in a binary class problem.

Chapter 6

Conclusion and Future Work

In this thesis, the literature related to short text classification for the detection of unhealthy social media behaviours from Twitter data was reviewed. The literature revealed the challenges in this problem domain, including the lack of general definition of hate speech and the nature of short text (i.e. noisy, high dimensional, short, informal, sparse, imbalanced and ambiguous), to name a few. Also, we found that the classification performance depends on various factors, including the choice and combination of methods used. The literature showed the relevant methods and techniques employed for the automatic detection of such behaviours from Twitter, including traditional machine learning and deep learning approaches. The most popular methods employed are based on frequency (Term Frequency - Inverse Document Frequency) and n-grams. The most employed machine classifiers are NB, LR, SVM and DT.

Related studies in the literature highlighted the impact of text ambiguity on the classification performance when distinguishing unhealthy social media behaviours, in particular, suicidal ideation, misogyny and hate speech, from other discourse that may discuss such behaviours without displaying that behaviour. The findings in the literature highlight knowledge-based and statistical-based approaches as two potential solutions for resolving ambiguity. In addition, the literature showed that research dealing with text ambiguity in the automatic detection of unhealthy social media behaviours is limited with only a few studies focused on tackling this challenge, with most of the works employing computa-

tional linguistic approaches such as part-of-speech tagging and word sense disambiguation to address ambiguity in Twitter data with fewer focused on machine learning approaches such as fuzzy systems or statistical-based methods.

In addition, we investigated the performance of popular machine classifiers and ensemble learning, identified in the literature, on short text classification of social media text. In particular, we proposed an approach that accommodates ensemble learning to investigate their performance in distinguishing between target and non-target classes, in the context of suicidal ideation from Twitter for binary and multi-class classification problems. From this investigation, we found that the target class is the least impacted by ambiguity and class imbalance when it is not the minority class compared to the neutral (flippant) class. The results also indicated that ambiguity has less impact in binary-class problems with mildly skewed class distribution and by unigrams. In contrast, the target class is better detected using a combination of unigrams, bigrams and trigrams. In addition, ensemble methods specifically random forest and heterogenous ensemble based on average voting do not significantly improve the detection of the target class.

Following the literature and empirical investigation findings, we proposed two methods for the disambiguation of features in a binary class problem for short text from social media, namely Short Text Term Disambiguation (STTD) and Partition Based - Short Text Term Disambiguation (PB-STTD). For STTD, the method aims to improve the detection of the target class in short text from Twitter by minimising common or ambiguous terms. The proposed method utilized both machine learning and statistical-based approaches, including N-gram and Term Frequency (TF) to disambiguate terms in a binary-class labelled data set. We validated the method on a problem of suicidal ideation using eight machine learning algorithms including two text representation, four feature selection and two feature extraction methods; and five machine classifiers including DT, k NN, NB, RF and SVM.

We found that the proposed method led to an increase in the target (minority) class and the performance overall in 93% of cases where the increase occurred with and without

employing state-of-the-art text representation like Doc2Vec, feature selection or feature extraction methods. In a few cases, the findings indicated a significant boost in the detection of the target class when these methods were employed with an increase in performance of up to 84%. The advantages of STTD include its ability to be used with diverse methods including traditional and state-of-the-art methods for text representation, feature selection and feature extraction. Likewise, STTD is language independent, hence might be applied for multi-lingual or non-English languages.

However, the main advantage of STTD is its ability to improve the detection of target classes in a highly skewed data where the target class is the minority class, thereby minimising the impact of class imbalance on the target (minority) class without explicitly addressing class imbalance. This implied a possible correlation between ambiguity and class imbalance where minimizing ambiguity directly reduces the bias of classifiers towards the majority class, hence suggesting disambiguation can be considered a factor for mitigating the impact of class imbalance in this problem domain.

For PB-STTD, an extension of STTD, it was proposed to further improve the detection of the target class by explicitly minimizing the impact of class imbalance in a data set. This is done by partitioning the data set into multiple partitions to get a balanced distribution of the target and other class (in a binary class problem). Partitioning the data set addresses the class imbalance that favours the majority (non-target or other) class and improves the processing speed due to parallel processing. The disambiguation to minimise the ambiguous (common) terms is carried out on each partition. The output of the partitions are merged.

The method (PB-STTD) was validated on three twitter data sets, namely suicidal ideation, misogyny and hate speech. This was done using three text representation methods, one feature selection method, one feature extraction method and four machine classifiers. The results showed that PB-STTD further improved the detection of the target class in more cases (63%) than STTD. In addition, we employed the SMOTE technique to conduct experiments to evaluate the impact of handling class imbalance using an over-sampling technique com-

pared to using PB-STTD.

The result suggests that SMOTE is more effective with large, highly skewed data sets which could be due to more instances in the minority class to generate synthetic samples. We also found that PB-STTD impacted the target class more than SMOTE in 53% of cases; however, partitioning the data sets also gave an advantage to the majority class thereby boosting the overall performance. In general, we found that the proposed term disambiguation methods are most effective with high-dimensional data and SMOTE with low-dimensional data. In addition, both proposed methods improved the detection of the target class. However, the advantage of PB-STTD is the added benefit of explicitly handling class imbalance during disambiguation, which further improved the detection of the target class. Likewise, its ability to process the method in parallel smaller sets improved the processing speed. It provided an opportunity to observe the results or re-run the process independently when required.

Accordingly, the research contributions are presented in Section 6.1. The limitations and some desirable future directions of the research are highlighted in Section 6.2.

6.1 Research Contributions

In this section, the main contributions of this research are highlighted as follows:

1. The first contribution is to identify the best machine learning algorithms for short text classification of unhealthy social media behaviours. This contribution is particular important since we proposed a short text classification approach that accommodates ensemble learning to investigate the performance of machine learning algorithms that are known to perform well with short text, in distinguishing between the target and non-target classes in the context of suicidal ideation from Twitter for binary and multi-class classification problems.
2. The second contribution of this research is the development of STTD (short text term

disambiguation), a term disambiguation method for short text which addressed two limitations of short text classification in detecting unhealthy social media behaviours in Twitter data. This is done by minimizing ambiguous terms to improve the detection of target classes in a binary class problem. This method has the ability to determine the class membership of ambiguous features from a labelled binary class data set using standard machine learning and statistical methods with minimal human intervention. The method was validated on three real world data containing unhealthy social media behaviours from Twitter. Results showed that this method improved the detection of target classes in 93% of cases with an increase in performance of up to 84%.

3. The third contribution of this research is the development of PB-STTD (partition based - short text term disambiguation) which is an extension of STTD to address the limitation of STTD i.e. the unfair advantage given to the other (majority) class by partitioning the data set to balance the class distribution. The advantage of this method is it allows for parallel processing which improves the processing speed due to smaller data sets and it minimizes the impact of class imbalance during the term disambiguation process without the need to employ a sampling technique during classification. This method was also validated on three real world datasets containing unhealthy social media behaviours from Twitter. The results showed a further improvement in the detection of target classes in more cases than STTD (i.e. 63%).
4. The fourth contribution is the experimentation with different text representation, feature selection and feature extraction methods. Given the uncertainty of the best methods for different problem domains regarding short text classification, experimenting with these different methods gave insight into their performance when dealing with unhealthy social media behaviours from Twitter including suicidal ideation, misogyny and hate speech. In particular, the findings suggest the proposed term disam-

biguation methods provide the freedom to use them in combination with other methods of text representation, feature selection and feature extraction, where predictive performance are boosted in cases where state-of-the-art methods were employed.

6.2 Limitations and Direction for Future Work

Research in short text classification of unhealthy social media behaviours is still in its infancy stage. Our research has shown the importance, impact and influence of term disambiguation on classification performance as ambiguity and class imbalance are part and parcel of social media data. Therefore, additional research can be done to improve on the current term disambiguation methods. In this section, some of the limitations of the research and identified future works are highlighted as follows:

1. **Context-based term disambiguation:** As highlighted in Chapter 2, semantic similarity is important but hard to achieve with short text due to the length of the text which lacks context and content, making it difficult to construct a feature space. Moreover, the context and semantic consideration of the term disambiguation methods are limited to three consecutive words; hence the proposed term disambiguation methods might not suit other problem domains. To overcome this limitation, an extension can focus on the context of the terms at sub word or character level (similar to FastText), thereby allowing for application in natural language processing.
2. **Automate methods for real-time classification:** One of the characteristics of short text from social media is that it is generated in real-time. The proposed term disambiguation methods work with offline data on multiple platforms (i.e. Knime and Jupyter) which showed disparity when validating the methods, to allow for real-world application and timely interventions there will be need to accommodate real-time classification by re-implementing a unified and robust process.
3. **Extend method to accommodate multi-class problems:** Current term disambigua-

tion methods are based on binary class problems and considering that other problem domains could require more than two classes for short text classification, extending the methods to accommodate not just multi-class problems but multi-class target classes might be worth exploring.

4. **Explore additional methods on large data sets:** The data set size used in the research is small, considering the problem domain. Although getting a labelled data set is difficult and time-consuming, social media data is large. Moreover, methods that are known to work well with large data sets could be explored to further enhance the predictive results. Hence, there is a need to use large data sets (such as DS3) to ensure the proposed term disambiguation methods are scalable which could result in more robust models being build and algorithms that are less employed with short text classification are explored, such as fuzzy-based methods and additional word embeddings and deep neural networks.
5. **Exploring target class-biased methods:** Ensemble methods, as established in Chapter 2, are versatile, can handle large data sets, and are generally known to yield good results. However, the ensemble methods investigated in this research did not perform well. Hence, further exploration of other ensemble methods to introduce bias towards the target class by combining classifiers based on their target class performance, changing the aggregation method for the final prediction, combining other classifiers or employing one-sided learning (e.g. one-class classifiers) might yield better results.
6. **Investigate domain-specific knowledge:** The feature extraction methods employed provided some domain-specific knowledge. However, investigating the ability of explicit domain-specific knowledge approaches in improving the detection of target classes by incorporating domain-related information, including the sentence structure might be useful.

References

- Abboute, A., Boudjeriou, Y., Entringer, G., Azé, J., Bringay, S., & Poncelet, P. Mining twitter for suicide prevention. In: International conference on applications of natural language to data bases/information systems. Springer. 2014, 250–253.
- Agrawal, S., & Awekar, A. Deep learning for detecting cyberbullying across multiple social media platforms. In: European conference on information retrieval. Springer. 2018, 141–153.
- Aladağ, A. E., Muderrisoglu, S., Akbas, N. B., Zahmacioglu, O., & Bingol, H. O. (2018). Detecting suicidal ideation on forums: Proof-of-concept study. *Journal of medical Internet research*, 20(6), e215.
- Alkiviadou, N. (2019). Hate speech on social media networks: Towards a regulatory framework? *Information & Communications Technology Law*, 28(1), 19–35.
- Allahyari, M., Pouriyeh, S., Assefi, M., Safaei, S., Trippe, E. D., Gutierrez, J. B., & Kochut, K. (2017). A brief survey of text mining: Classification, clustering and extraction techniques. *Proceedings of KDD Bigdas*, Halifax, Canada, August 2017, 13.
- Alsmadi, I., & Gan, K. H. (2019). Review of short-text classification. *International Journal of Web Information Systems*.
- Alsmadi, I., & Hoon, G. K. (2019). Term weighting scheme for short-text classification: Twitter corpuses. *Neural Computing and Applications*, 31(8), 3819–3831.
- Badjatiya, P., Gupta, S., Gupta, M., & Varma, V. Deep learning for hate speech detection in tweets. In: *Proceedings of the 26th international conference on world wide web companion*. 2017, 759–760.
- Balakrishnan, V., Khan, S., & Arabnia, H. R. (2020). Improving cyberbullying detection using twitter users' psychological features and machine learning. *Computers & Security*, 90, 101710.
- Baldwin, T., Cook, P., Lui, M., MacKinlay, A., & Wang, L. How noisy social media text, how diffrent social media sources? In: *Proceedings of the sixth international joint conference on natural language processing*. 2013, 356–364.
- Banerjee, V., Telavane, J., Gaikwad, P., & Vartak, P. Detection of cyberbullying using deep neural network. In: *2019 5th international conference on advanced computing & communication systems (icacacs)*. IEEE. 2019, 604–607.
- Bao, Y., Quan, C., Wang, L., & Ren, F. The role of pre-processing in twitter sentiment analysis. In: *International conference on intelligent computing*. Springer. 2014, 615–624.

- Barbosa, L., & Feng, J. Robust sentiment detection on twitter from biased and noisy data. In: Proceedings of the 23rd international conference on computational linguistics: Posters. 2010, 36–44.
- Bashar, M. A., Nayak, R., Suzor, N., & Weir, B. Misogynistic tweet detection: Modelling cnn with small datasets. In: Australasian conference on data mining. Springer. 2018, 3–16.
- Basile, V., Bosco, C., Fersini, E., Debor, N., Patti, V., Pardo, F. M. R., Rosso, P., Sanguinetti, M. et al. Semeval-2019 task 5: Multilingual detection of hate speech against immigrants and women in twitter. In: 13th international workshop on semantic evaluation. Association for Computational Linguistics. 2019, 54–63.
- Batrinca, B., & Treleaven, P. C. (2015). Social media analytics: A survey of techniques, tools and platforms. *Ai & Society*, 30(1), 89–116.
- Bellinger, C., Sharma, S., & Japkowicz, N. One-class versus binary classification: Which and when? In: 2012 11th international conference on machine learning and applications. 2. IEEE. 2012, 102–106.
- Blei, D. M., Ng, A. Y., & Jordan, M. I. (2003). Latent dirichlet allocation. *Journal of machine Learning research*, 3(Jan), 993–1022.
- Bojanowski, P., Grave, E., Joulin, A., & Mikolov, T. (2017). Enriching word vectors with subword information. *Transactions of the Association for Computational Linguistics*, 5, 135–146.
- Breiman, L. (1996). Bagging predictors. *Machine learning*, 24(2), 123–140.
- Breiman, L. (2001). Random forests. *Machine learning*, 45(1), 5–32.
- Burnap, P., Colombo, G., Amery, R., Hodorog, A., & Scourfield, J. (2017). Multi-class machine classification of suicide-related communication on twitter. *Online social networks and media*, 2, 32–44.
- Burnap, P., Colombo, W., & Scourfield, J. Machine classification and analysis of suicide-related communication on twitter. In: Proceedings of the 26th acm conference on hypertext & social media. ACM. 2015, 75–84.
- Burnap, P., & Williams, M. L. (2015). Cyber hate speech on twitter: An application of machine classification and statistical modeling for policy and decision making. *Policy & Internet*, 7(2), 223–242.
- Canós, J. S. Misogyny identification through svm at ibereval 2018. In: Ibereval@ sepln. 2018, 229–233.
- Catal, C., & Nangir, M. (2017). A sentiment classification model based on multiple classifiers. *Applied Soft Computing Journal*, 50, 135–141.
- Cavazos-Rehg, P. A., Krauss, M. J., Sowles, S., Connolly, S., Rosas, C., Bharadwaj, M., & Bierut, L. J. (2016). A content analysis of depression-related tweets. *Computers in Human Behavior*, 54, 351–357.
- Chandrashekar, G., & Sahin, F. (2014). A survey on feature selection methods. *Computers & Electrical Engineering*, 40(1), 16–28.
- Chawla, N. V., Bowyer, K. W., Hall, L. O., & Kegelmeyer, W. P. (2002). Smote: Synthetic minority over-sampling technique. *Journal of artificial intelligence research*, 16, 321–357.

- Chen, J., Hu, Y., Liu, J., Xiao, Y., & Jiang, H. Deep short text classification with knowledge powered attention. In: Proceedings of the aaai conference on artificial intelligence. 33. 2019, 6252–6259.
- Chen, J., Huang, H., Tian, S., & Qu, Y. (2009). Feature selection for text classification with naïve bayes. *Expert Systems with Applications*, 36(3), 5432–5435.
- Chen, J., Yan, S., & Wong, K.-C. (2018). Verbal aggression detection on twitter comments: Convolutional neural network for short-text sentiment analysis. *Neural Computing and Applications*, 1–10.
- Chen, K., Zhang, Z., Long, J., & Zhang, H. (2016a). Turning from tf-idf to tf-igm for term weighting in text classification. *Expert Systems with Applications*, 66, 245–260.
- Chen, Q., Yao, L., & Yang, J. Short text classification based on lda topic model. In: 2016 international conference on audio, language and image processing (icalip). IEEE. 2016, 749–753.
- Cheng, Q., Kwok, C. L., Zhu, T., Guan, L., & Yip, P. S. (2015). Suicide communication on social media and its psychological mechanisms: An examination of chinese microblog users. *International Journal of Environmental Research and Public Health*, 12(9), 11506–11527.
- Clement, J. (2020). Most used social media 2020. <https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/>
- Colombo, G. B., Burnap, P., Hodorog, A., & Scourfield, J. (2016). Analysing the connectivity and communication of suicidal users on twitter. *Computer Communications*, 73, 291–300.
- Community standards. https://en-gb.facebook.com/communitystandards/hate_speech
- Coppersmith, G., Leary, R., Crutchley, P., & Fine, A. (2018). Natural language processing of social media as screening for suicide risk. *Biomedical informatics insights*, 10, 1–F11.
- Cortes, C., & Vapnik, V. (1995). Support-vector networks. *Machine learning*, 20(3), 273–297.
- Cunningham, S. J., Littin, J., & Witten, I. H. (1997). Applications of machine learning in information retrieval.
- Davidson, T., Warmesley, D., Macy, M., & Weber, I. Automated hate speech detection and the problem of offensive language. In: Proceedings of the international aaai conference on web and social media. 11. (1). 2017.
- Delgado, R., Wing, A. K., & Stefancic, J. Words that wound: A tort action for racial insults, epithets, and name-calling. In: *Law unbound!* Routledge, 2015, pp. 223–228.
- Deng, X., Li, Y., Weng, J., & Zhang, J. (2019). Feature selection for text classification: A review. *Multimedia Tools and Applications*, 78(3), 3797–3816.
- Duggan, M., & Brenner, J. (2013). The demographics of social media users - 2012. <http://www.pewinternet.org/2013/02/14/the-demographics-of-social-media-users-2012/>
- Elouali, A., Elberrichi, Z., & Elouali, N. (2020). Hate speech detection on multilingual twitter using convolutional neural networks. *Revue d'Intelligence Artificielle*, 34(1), 81–88.

- Faguo, Z., Fan, Z., Bingru, Y., & Xingang, Y. Research on short text classification algorithm based on statistics and rules. In: 2010 third international symposium on electronic commerce and security. IEEE. 2010, 3–7.
- Fersini, E., Nozza, D., & Rosso, P. (2020). Ami@ evalita2020: Automatic misogyny identification. Proceedings of the 7th evaluation campaign of Natural Language Processing and Speech tools for Italian (EVALITA 2020), Online. CEUR. org.
- Fersini, E., Rosso, P., & Anzovino, M. Overview of the task on automatic misogyny identification at ibereval 2018. In: Ibereval@ sepln. 2018, 214–228.
- Fodeh, S., Li, T., Menczynski, K., Burgette, T., Harris, A., Ilita, G., Rao, S., Gemmell, J., & Raicu, D. Using machine learning algorithms to detect suicide risk factors on twitter. In: 2019 international conference on data mining workshops (icdmw). IEEE. 2019, 941–948.
- Fodor, I. K. (2002). A survey of dimension reduction techniques (tech. rep.). Lawrence Livermore National Lab., CA (US).
- Frenda, S., Bilal, G. et al. Exploration of misogyny in spanish and english tweets. In: Third workshop on evaluation of human language technologies for iberian languages (ibereval 2018). 2150. 2018, 260–267.
- Gabrilovich, E., & Markovitch, S. Text categorization with many redundant features: Using aggressive feature selection to make svms competitive with c4. 5. In: Proceedings of the twenty-first international conference on machine learning. 2004, 41.
- Galar, M., Fernandez, A., Barrenechea, E., Bustince, H., & Herrera, F. (2011). A review on ensembles for the class imbalance problem: Bagging-, boosting-, and hybrid-based approaches. IEEE Transactions on Systems, Man, and Cybernetics, Part C (Applications and Reviews), 42(4), 463–484.
- Galar, M., Fernández, A., Barrenechea, E., & Herrera, F. (2013). Eusboost: Enhancing ensembles for highly imbalanced data-sets by evolutionary undersampling. Pattern recognition, 46(12), 3460–3471.
- Goldsmith, S. K., Pellmar, T. C., Kleinman, A. M., & Bunney, W. E. (2002). Reducing suicide: A national imperative. National Academies Press.
- Grave, E., Bojanowski, P., Gupta, P., Joulin, A., & Mikolov, T. (2018). Learning word vectors for 157 languages. arXiv preprint arXiv:1802.06893.
- Haddi, E., Liu, X., & Shi, Y. (2013). The role of text pre-processing in sentiment analysis. Procedia Computer Science, 17, 26–32.
- Hadiwinoto, C., Ng, H. T., & Gan, W. C. (2019). Improved word sense disambiguation using pre-trained contextualized word representations. arXiv preprint arXiv:1910.00194.
- Hewitt, S., Tiropanis, T., & Bokhove, C. The problem of identifying misogynist language on twitter (and other online social spaces). In: Proceedings of the 8th acm conference on web science. ACM. 2016, 333–335.
- Homan, C. M., Johar, R., Liu, T., Lytle, M., Silenzio, V., & Alm, C. O. (2014). Toward Macro-Insights for Suicide Prevention: Analyzing Fine-Grained Distress at Scale. Association for Computational Linguistics 2014, 107–117.
- Hotelling, H. (1933). Analysis of a complex of statistical variables into principal components. Journal of educational psychology, 24(6), 417.
- Huang, J., Fang, H., & Fan, X. (2010). Decision forest for classification of gene expression data. Computers in biology and medicine, 40(8), 698–704.

- Indurthi, V., Syed, B., Shrivastava, M., Chakravartula, N., Gupta, M., & Varma, V. Fermi at semeval-2019 task 5: Using sentence embeddings to identify hate speech against immigrants and women in twitter. In: Proceedings of the 13th international workshop on semantic evaluation. 2019, 70–74.
- Jane, E. A. (2016). Online misogyny and feminist digilantism. *Continuum*, 30(3), 284–297.
- Jashinsky, J., Burton, S. H., Hanson, C. L., West, J., Giraud-Carrier, C., Barnes, M. D., & Argyle, T. (2014). Tracking suicide risk factors through Twitter in the US. *Crisis*, 35(1), 51–59.
- Ji, S., Yu, C. P., Fung, S.-f., Pan, S., & Long, G. (2018). Supervised learning for suicidal ideation detection in online user content [Article ID 6157249]. *Complexity*, 2018.
- Jolliffe, I. T., & Cadima, J. (2016). Principal component analysis: A review and recent developments. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 374(2065), 20150202.
- Joulin, A., Grave, E., Bojanowski, P., & Mikolov, T. (2016). Bag of tricks for efficient text classification. *arXiv preprint arXiv:1607.01759*.
- Kadhim, A. I. (2019). Survey on supervised machine learning techniques for automatic text classification. *Artificial Intelligence Review*, 52(1), 273–292.
- Kamath, K. Y., & Caverlee, J. Expert-driven topical classification of short message streams. In: 2011 IEEE Third International Conference on Privacy, Security, Risk and Trust and 2011 IEEE Third International Conference on Social Computing. IEEE. 2011, 388–393.
- Khalid, S., Khalil, T., & Nasreen, S. A survey of feature selection and feature extraction techniques in machine learning. In: 2014 Science and Information Conference. IEEE. 2014, 372–378.
- Kiritchenko, S., Zhu, X., & Mohammad, S. M. (2014). Sentiment analysis of short informal texts. *Journal of Artificial Intelligence Research*, 50, 723–762.
- Kotsiantis, S. B., Zaharakis, I. D., & Pintelas, P. E. (2006). Machine learning: A review of classification and combining techniques. *Artificial Intelligence Review*, 26(3), 159–190.
- Krawczyk, B. (2016). Learning from imbalanced data: Open challenges and future directions. *Progress in Artificial Intelligence*, 5(4), 221–232.
- Ksieniewicz, P., & Woźniak, M. Dealing with the task of imbalanced, multidimensional data classification using ensembles of exposers. In: First international workshop on learning with imbalanced domains: Theory and applications. 2017, 164–175.
- Kumar, A., & Khorwal, R. Firefly algorithm for feature selection in sentiment analysis. In: Computational intelligence in data mining. Springer, 2017, pp. 693–703.
- Kumar, H. K., & Harish, B. Classification of short text using various preprocessing techniques: An empirical evaluation. In: Recent findings in intelligent computing techniques. Springer, 2018, pp. 19–30.
- Kumar, V., & Minz, S. (2014). Feature selection. *SmartCR*, 4(3), 211–229.
- Kumar, V., & Minz, S. (2016). Multi-view ensemble learning: An optimal feature set partitioning for high-dimensional data classification. *Knowledge and Information Systems*, 49(1), 1–59.

- Kutuzov, A., & Kuzmenko, E. (2019). To lemmatize or not to lemmatize: How word normalisation affects elmo performance in word sense disambiguation. arXiv preprint arXiv:1909.03135.
- Laboreiro, G., Sarmiento, L., Teixeira, J., & Oliveira, E. Tokenizing micro-blogging messages using a text classification approach. In: Proceedings of the fourth workshop on analytics for noisy unstructured text data. 2010, 81–88.
- Lai, S., Xu, L., Liu, K., & Zhao, J. Recurrent convolutional neural networks for text classification. In: Twenty-ninth aaai conference on artificial intelligence. 2015.
- Le, Q., & Mikolov, T. Distributed representations of sentences and documents. In: Proceedings of the 31st international conference on machine learning. 2014, 1188–1196.
- Li, H., Li, X., Caragea, D., & Caragea, C. (2018). Comparison of word embeddings and sentence encodings as generalized representations for crisis tweet classification tasks. Proceedings of ISCRAM Asia Pacific.
- Li, J., Cheng, K., Wang, S., Morstatter, F., Trevino, R. P., Tang, J., & Liu, H. (2017a). Feature selection: A data perspective. ACM Computing Surveys (CSUR), 50(6), 94.
- Li, Y., Li, T., & Liu, H. (2017b). Recent advances in feature selection and its applications. Knowledge and Information Systems, 53(3), 551–577.
- Lindfield, G., & Penny, J. (2017). Introduction to nature-inspired optimization. Academic Press.
- Lingiardi, V., Carone, N., Semeraro, G., Musto, C., D’Amico, M., & Brena, S. (2019). Mapping Twitter hate speech towards social and sexual minorities: A lexicon-based approach to semantic content analysis. Behaviour & Information Technology, 1–11.
- Liu, B., Li, X., Lee, W. S., & Yu, P. S. Text classification by labeling words. In: Aaai. 4. 2004, 425–430.
- Liu, H., Burnap, P., Alorainy, W., & Williams, M. L. (2019a). A fuzzy approach to text classification with two-stage training for ambiguous instances. IEEE Transactions on Computational Social Systems, 6(2), 227–240.
- Liu, H., Chiroma, F., & Cocea, M. Identification and classification of misogynous tweets using multi-classifier fusion. In: Ibereval@ sepln. 2018, 268–273.
- Liu, H., & Cocea, M. (2019). Granular computing-based approach of rule learning for binary classification. Granular Computing, 4(2), 275–283.
- Liu, H., Cocea, M., Mohasseb, A., & Bader, M. (2017). Transformation of discriminative single-task classification into generative multi-task classification in machine learning context. 9th International Conference on Advanced Computational Intelligence, ICACI 2017, 66–73.
- Liu, P., Li, W., & Zou, L. Nuli at semeval-2019 task 6: Transfer learning for offensive language detection using bidirectional transformers. In: Proceedings of the 13th international workshop on semantic evaluation. 2019, 87–91.
- Liu, S., Li, F., Li, F., Cheng, X., & Shen, H. Adaptive co-training svm for sentiment classification on tweets. In: Proceedings of the 22nd acm international conference on information & knowledge management. 2013, 2079–2088.
- Liu, Y., Loh, H. T., & Sun, A. (2009). Imbalanced text classification: A term weighting approach. Expert systems with Applications, 36(1), 690–701.

- López, V., Fernández, A., García, S., Palade, V., & Herrera, F. (2013). An insight into classification with imbalanced data: Empirical results and current trends on using data intrinsic characteristics. *Information Sciences*, 250, 113–141.
- Lopez-Castroman, J., Moulahi, B., Azé, J., Bringay, S., Deninotti, J., Guillaume, S., & Baca-Garcia, E. (2019). Mining social networks to improve suicide prevention: A scoping review. *Journal of neuroscience research*, 1–10.
- Marie-Sainte, S. L., & Alalyani, N. (2020). Firefly algorithm based feature selection for arabic text classification. *Journal of King Saud University-Computer and Information Sciences*, 32(3), 320–328.
- Maslova, N., & Potapov, V. Neural network doc2vec in automated sentiment analysis for short informal texts. In: *International conference on speech and computer*. Springer. 2017, 546–554.
- Maurya, H. C., Gupta, P., & Choudhary, N. (2015). Natural language ambiguity and its effect on machine learning. *International Journal Of Modern Engineering Research*, 5, 25–30.
- Maynard, D., Roberts, I., Greenwood, M. A., Rout, D., & Bontcheva, K. (2017). A framework for real-time semantic social media analysis. *Journal of Web Semantics*, 44, 75–88.
- McFedries, P. (2010). *Twitter tips, tricks, and tweets*. John Wiley & Sons.
- Meng, T., Jing, X., Yan, Z., & Pedrycz, W. (2020). A survey on machine learning for data fusion. *Information Fusion*, 57, 115–129.
- Mikolov, T., Chen, K., Corrado, G., & Dean, J. (2013). Efficient estimation of word representations in vector space. *arXiv preprint arXiv:1301.3781*.
- Miner, G., Elder IV, J., Fast, A., Hill, T., Nisbet, R., & Delen, D. (2012). *Practical text mining and statistical analysis for non-structured text data applications*. Academic Press.
- Mohammad, F. (2018). Is preprocessing of text really worth your time for online comment classification? *arXiv preprint arXiv:1806.02908*.
- Nguyen, H. T., Duong, P. H., & Cambria, E. (2019). Learning short-text semantic similarity with word embeddings and external knowledge sources. *Knowledge-Based Systems*, 182, 104842.
- Nigam, K., McCallum, A. K., Thrun, S., & Mitchell, T. (2000). Text Classification from Labeled and Unlabeled Documents using EM. *Machine Learning*, 39, 103–134.
- Nina-Alcocer, V. Ami at ibereval2018 automatic misogyny identification in spanish and english tweets. In: *Ibereal@ sepln*. 2018, 274–279.
- Nozza, D., Volpetti, C., & Fersini, E. Unintended bias in misogyny detection. In: *Ieee/wic/acm international conference on web intelligence*. 2019, 149–155.
- Oberstrass, A., Romberg, J., Stoll, A., & Conrad, S. Hhu at semeval-2019 task 6: Context does matter-tackling offensive language identification and categorization with elmo. In: *Proceedings of the 13th international workshop on semantic evaluation*. 2019, 628–634.
- O’dea, B., Larsen, M. E., Batterham, P. J., Calear, A. L., & Christensen, H. (2017). A linguistic analysis of suicide-related twitter posts. *Crisis: The Journal of Crisis Intervention and Suicide Prevention*, 38(5), 319.

- O'Dea, B., Wan, S., Batterham, P. J., Caele, A. L., Paris, C., & Christensen, H. (2015). Detecting suicidality on twitter. *Internet Interventions*, 2(2), 183–188.
- Oza, N. C., & Tumer, K. (2008). Classifier ensembles: Select real-world applications. In: *Information fusion*, 9(1), 4–20.
- Padurariu, C., & Breaban, M. E. (2019). Dealing with data imbalance in text classification. *Procedia Computer Science*, 159, 736–745.
- Pak, A., & Paroubek, P. Twitter as a corpus for sentiment analysis and opinion mining. In: *Lrec*. 10. (2010). 2010, 1320–1326.
- Pan, W., Zhong, E., & Yang, Q. Transfer learning for text mining. In: *Mining text data*. Springer, 2012, pp. 223–257.
- Parwez, M. A., Abulaish, M. et al. (2019). Multi-label classification of microblogging texts using convolution neural network. *IEEE Access*, 7, 68678–68691.
- Pearson, K. (1901). Liii. on lines and planes of closest fit to systems of points in space. *The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science*, 2(11), 559–572.
- Pennington, J., Socher, R., & Manning, C. D. Glove: Global vectors for word representation. In: *Proceedings of the 2014 conference on empirical methods in natural language processing (emnlp)*. 2014, 1532–1543.
- Phillips, L., Dowling, C., Shaffer, K., Hodas, N., & Volkova, S. (2017). Using social media to predict the future: A systematic literature review. *arXiv preprint arXiv:1706.06134*.
- Pitsilis, G. K., Ramampiaro, H., & Langseth, H. (2018). Effective hate-speech detection in Twitter data using recurrent neural networks. *Applied Intelligence*, 48(12), 4730–4742.
- Provost, F. Machine learning from imbalanced data sets 101. In: *Proceedings of the aaai'2000 workshop on imbalanced data sets*. 68. (2000). AAAI Press. 2000, 1–3.
- Purohit, H., Dong, G., Shalin, V., Thirunarayan, K., & Sheth, A. Intent classification of short-text on social media. In: *2015 IEEE international conference on smart city/socialcom/sustaincom (smartcity)*. IEEE. 2015, 222–228.
- Putri, T., Sriadhi, S., Sari, R., Rahmadani, R., & Hutahae, H. A comparison of classification algorithms for hate speech detection. In: *Iop conference series: Materials science and engineering*. 830. (3). IOP Publishing. 2020, 032006.
- Quinlan, J. R. (2014). *C4. 5: Programs for machine learning*. Elsevier.
- Quinlan, J. R. (1986). Induction of decision trees. *Machine learning*, 1(1), 81–106.
- Radovanović, M., & Ivanović, M. Document representations for classification of short webpage descriptions. In: *International conference on data warehousing and knowledge discovery*. Springer. 2006, 544–553.
- Rafeeqe, P., & Sendhilkumar, S. A survey on short text analysis in web. In: *2011 third international conference on advanced computing*. IEEE. 2011, 365–371.
- Ramachandran, A., Gadwe, A., Poddar, D., Satavalekar, S., & Sahu, S. Performance evaluation of different machine learning techniques using twitter data for identification of suicidal intent. In: *2020 international conference on electronics and sustainable communication systems (icesc)*. IEEE. 2020, 223–227.
- Ramage, D., Hall, D., Nallapati, R., & Manning, C. D. Labeled LDA: A supervised topic model for credit attribution in multi-labeled corpora. In: *Proceedings of the 2009*

- conference on empirical methods in natural language processing: Volume 1. Association for Computational Linguistics. 2009, 248–256.
- Rennie, J. D., Shih, L., Teevan, J., & Karger, D. R. Tackling the poor assumptions of naive bayes text classifiers. In: Proceedings of the 20th international conference on machine learning (icml-03). 2003, 616–623.
- Rezaeinia, S. M., Rahmani, R., Ghodsi, A., & Veisi, H. (2019). Sentiment analysis based on improved pre-trained word embeddings. *Expert Systems with Applications*, 117, 139–147.
- Rice, S., Robinson, J., Bendall, S., Hetrick, S., Cox, G., Bailey, E., Gleeson, J., & Alvarez-Jimenez, M. (2016). Online and social media suicide prevention interventions for young people: A Focus on implementation and moderation. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 25(2), 80–86.
- Robertson, S. (2004). Understanding inverse document frequency: On theoretical arguments for idf. *Journal of documentation*.
- Rodriguez, J. J., Kuncheva, L. I., & Alonso, C. J. (2006). Rotation forest: A new classifier ensemble method. *IEEE transactions on pattern analysis and machine intelligence*, 28(10), 1619–1630.
- Rodríguez-Sánchez, F., Carrillo-de Albornoz, J., & Plaza, L. (2020). Automatic classification of sexism in social networks: An empirical study on twitter data. *IEEE Access*, 8, 219563–219576.
- Rokach, L. (2010). Ensemble-based classifiers. *Artificial intelligence review*, 33(1-2), 1–39.
- Roth, D. Learning to resolve natural language ambiguities: A unified approach. In: *Aaai/iaai*. 1998, 806–813.
- Ruff, L., Vandermeulen, R., Goernitz, N., Deecke, L., Siddiqui, S. A., Binder, A., Müller, E., & Kloft, M. Deep one-class classification. In: *International conference on machine learning*. PMLR. 2018, 4393–4402.
- Ryu, S., Lee, H., Lee, D.-K., Kim, S.-W., & Kim, C.-E. (2019). Detection of suicide attempters among suicide ideators using machine learning. *Psychiatry investigation*, 16(8), 588.
- Sagi, O., & Rokach, L. (2018). Ensemble learning: A survey. *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, 8(4), e1249.
- Saif, H., He, Y., & Alani, H. Alleviating data sparsity for twitter sentiment analysis. In: *CEUR Workshop Proceedings (CEUR-WS. org)*. 2012.
- Samghabadi, N. S., Patwa, P., Srinivas, P., Mukherjee, P., Das, A., & Solorio, T. Aggression and misogyny detection using bert: A multi-task approach. In: *Proceedings of the second workshop on trolling, aggression and cyberbullying*. 2020, 126–131.
- Santos, I., Nedjah, N., & de Macedo Mourelle, L. Sentiment analysis using convolutional neural network with fasttext embeddings. In: *2017 IEEE Latin American conference on computational intelligence (la-cci)*. IEEE. 2017, 1–5.
- Sawhney, R., Manchanda, P., Mathur, P., Shah, R., & Singh, R. Exploring and learning suicidal ideation connotations on social media with deep learning. In: *Proceedings of the 9th workshop on computational approaches to subjectivity, sentiment and social media analysis*. 2018, 167–175.

- Sawhney, R., Manchanda, P., Singh, R., & Aggarwal, S. A computational approach to feature extraction for identification of suicidal ideation in tweets. In: Proceedings of acl 2018, student research workshop. 2018, 91–98.
- Sawhney, R., Shah, R. R., Bhatia, V., Lin, C.-T., Aggarwal, S., & Prasad, M. Exploring the impact of evolutionary computing based feature selection in suicidal ideation detection. In: 2019 IEEE International Conference on Fuzzy Systems (Fuzz-IEEE). IEEE. 2019, 1–6.
- Schapire, R. E., Freund, Y., Bartlett, P., Lee, W. S. et al. (1998). Boosting the margin: A new explanation for the effectiveness of voting methods. *The Annals of Statistics*, 26(5), 1651–1686.
- Schmidt, J., Marques, M. R., Botti, S., & Marques, M. A. (2019). Recent advances and applications of machine learning in solid-state materials science. *npj Computational Materials*, 5(1), 1–36.
- Sedgwick, R., Epstein, S., Dutta, R., & Ougrin, D. (2019). Social media, internet use and suicide attempts in adolescents. *Current Opinion in Psychiatry*, 32(6), 534.
- Shannon, C. E. (1948). A mathematical theory of communication. *The Bell System Technical Journal*, 27(3), 379–423.
- Shing, H.-C., Nair, S., Zirikly, A., Friedenberg, M., Daumé III, H., & Resnik, P. Expert, crowdsourced, and machine assessment of suicide risk via online postings. In: Proceedings of the fifth workshop on computational linguistics and clinical psychology: From keyboard to clinic. 2018, 25–36.
- Shushkevich, E., & Cardiff, J. Classifying misogynistic tweets using a blended model: The AMI shared task in IBERVAL 2018. In: IBERVAL@ SEPLN. 2018, 255–259.
- Sigurbjergsson, G. I., & Derczynski, L. Offensive language and hate speech detection for Danish. English. In: Proceedings of the 12th Language Resources and Evaluation Conference. Marseille, France: European Language Resources Association, 2020, May, 3498–3508. ISBN: 979-10-95546-34-4. <https://www.aclweb.org/anthology/2020.lrec-1.430>
- Sinyor, M., Williams, M., Zaheer, R., Loureiro, R., Pirkis, J., Heisel, M. J., Schaffer, A., Redelmeier, D. A., Cheung, A. H., & Niederkrotenthaler, T. (2020). The association between twitter content and suicide. *Australian & New Zealand Journal of Psychiatry*, 0004867420969805.
- Sloan, L., Morgan, J., Burnap, P., & Williams, M. (2015). Who tweets? deriving the demographic characteristics of age, occupation and social class from twitter user metadata. *PLoS ONE*, 10(3), 1–20.
- Song, F., Liu, S., & Yang, J. (2005). A comparative study on text representation schemes in text categorization. *Pattern Analysis and Applications*, 8(1-2), 199–209.
- Sriram, B., Fuhry, D., Demir, E., Ferhatosmanoglu, H., & Demirbas, M. Short text classification in twitter to improve information filtering. In: Proceedings of the 33rd International ACM SIGIR Conference on Research and Development in Information Retrieval. 2010, 841–842.
- Starkweather, J., & Moske, A. K. (2011). Multinomial logistic regression.
- Steele, S. M. (1970). Program evaluation-a broader definition. *Journal of Extension*, 8(2), 5–17.

- Sueki, H. (2015). The association of suicide-related Twitter use with suicidal behaviour: A cross-sectional study of young internet users in Japan. *Journal of Affective Disorders*, 170(September 2014), 155–160.
- Suicide. (2018). <http://www.who.int/mediacentre/factsheets/fs398/en/>
- Sumanth, C., & Inkpen, D. How much does word sense disambiguation help in sentiment analysis of micropost data? In: *Proceedings of the 6th workshop on computational approaches to subjectivity, sentiment and social media analysis*. 2015, 115–121.
- Sureka, A., & Agarwal, S. Learning to classify hate and extremism promoting tweets. In: *2014 IEEE Joint Intelligence and Security Informatics Conference*. IEEE. 2014, 320–320.
- Suto, J., Oniga, S., & Sitar, P. P. Comparison of wrapper and filter feature selection algorithms on human activity recognition. In: *Computers communications and control (icccc), 2016 6th international conference on*. IEEE. 2016, 124–129.
- Tadesse, M. M., Lin, H., Xu, B., & Yang, L. (2020). Detection of suicide ideation in social media forums using deep learning. *Algorithms*, 13(1), 7.
- Tang, D., Wei, F., Yang, N., Zhou, M., Liu, T., & Qin, B. Learning sentiment-specific word embedding for twitter sentiment classification. In: *Proceedings of the 52nd annual meeting of the association for computational linguistics (volume 1: Long papers)*. 2014, 1555–1565.
- Thelwall, M., Buckley, K., Paltoglou, G., Cai, D., & Kappas, A. (2010). Sentiment strength detection in short informal text. *Journal of the Association for Information Science and Technology*, 61(12), 2544–2558.
- Trappenberg, T. P., & Back, A. D. A classification scheme for applications with ambiguous data. In: *Proceedings of the IEEE-INNS-ENNS International Joint Conference on Neural Networks. IJCNN 2000. Neural Computing: New Challenges and Perspectives for the New Millennium*. 6. IEEE. 2000, 296–301.
- Uğuz, H. (2011). A two-stage feature selection method for text categorization by using information gain, principal component analysis and genetic algorithm. *Knowledge-Based Systems*, 24(7), 1024–1032.
- Uludasdemir, D., & Kucuk, S. (2019). Cyber bullying experiences of adolescents and parental awareness: Turkish example. *Journal of pediatric nursing*, 44, e84–e90.
- Uysal, A. K. (2016). An improved global feature selection scheme for text classification. *Expert Systems with Applications*, 43, 82–92.
- Uysal, A. K., & Gunal, S. (2014). The impact of preprocessing on text classification. *Information Processing & Management*, 50(1), 104–112.
- Vega, T. (2013). Facebook says it failed to bar posts with hate speech. <https://www.nytimes.com/2013/05/29/business/media/facebook-says-it-failed-to-stop-misogynous-pages.html>
- Wang, B.-k., Huang, Y.-f., Yang, W.-x., & Li, X. (2012). Short text classification based on strong feature thesaurus. *Journal of Zhejiang University SCIENCE C*, 13(9), 649–659.
- Wang, J., Wang, Z., Zhang, D., & Yan, J. Combining knowledge with deep convolutional neural networks for short text classification. In: *Ijcai*. 350. 2017.

- Wang, S. I., & Manning, C. D. Baselines and bigrams: Simple, good sentiment and topic classification. In: Proceedings of the 50th annual meeting of the association for computational linguistics (volume 2: Short papers). 2012, 90–94.
- Wang, Y., Zhou, Z., Jin, S., Liu, D., & Lu, M. Comparisons and selections of features and classifiers for short text classification. In: Iop conference series: Materials science and engineering. 261. (1). IOP Publishing. 2017, 012018.
- Wang, Y., Wan, S., & Paris, C. The role of features and context on suicide ideation detection. In: Proceedings of the australasian language technology association workshop 2016. 2016, 94–102.
- Warner, W., & Hirschberg, J. Detecting hate speech on the world wide web. In: Proceedings of the second workshop on language in social media. 2012, 19–26.
- Waseem, Z. Are you a racist or am i seeing things? annotator influence on hate speech detection on twitter. In: Proceedings of the first workshop on nlp and computational social science. 2016, 138–142.
- Waseem, Z., & Hovy, D. Hateful symbols or hateful people? Predictive features for hate speech detection on Twitter. In: Proceedings of the naacl student research workshop. 2016, 88–93.
- Watanabe, H., Bouazizi, M., & Ohtsuki, T. (2018). Hate speech on Twitter: A pragmatic approach to collect hateful and offensive expressions and perform hate speech detection. *IEEE Access*, 6, 13825–13835.
- Weissbock, J., Esmín, A. A., & Inkpen, D. Using external information for classifying tweets. In: 2013 brazilian conference on intelligent systems. IEEE. 2013, 1–5.
- Won, H. H., Myung, W., Song, G. Y., Lee, W. H., Kim, J. W., Carroll, B. J., & Kim, D. K. (2013). Predicting National Suicide Numbers with Social Media Data. *PLoS ONE*, 8(4).
- Woźniak, M., Graña, M., & Corchado, E. (2014). A survey of multiple classifier systems as hybrid systems. *Information Fusion*, 16, 3–17.
- Xiang, G., Fan, B., Wang, L., Hong, J., & Rose, C. Detecting offensive tweets via topical feature discovery over a large scale Twitter corpus. In: Proceedings of the 21st acm international conference on information and knowledge management. ACM. 2012, 1980–1984.
- Xu, J., & Cai, Y. Incorporating context-relevant knowledge into convolutional neural networks for short text classification. In: Proceedings of the aaai conference on artificial intelligence. 33. 2019, 10067–10068.
- Yang, X., Macdonald, C., & Ounis, I. (2018). Using word embeddings in twitter election classification. *Information Retrieval Journal*, 21(2-3), 183–207.
- Yang, X.-S. (2008). Firefly algorithm.
- Yang, X.-S., & He, X. (2013). Firefly algorithm: Recent advances and applications. *International Journal of Swarm Intelligence*, 1(1), 36–50.
- Yang, Y., & Pedersen, J. O. A comparative study on feature selection in text categorization. In: *Icml*. 97. (412-420). Nashville, TN, USA. 1997, 35.
- Yao, M., Chelms, C., Zois, D. et al. Cyberbullying ends here: Towards robust detection of cyberbullying in social media. In: The world wide web conference. ACM. 2019, 3427–3433.

- Zhang, L., Liu, L., Yang, X.-S., & Dai, Y. (2016). A novel hybrid firefly algorithm for global optimization. *PloS one*, 11(9), e0163230.
- Zhang, P., & He, Z. (2015). Using data-driven feature enrichment of text representation and ensemble technique for sentence-level polarity classification. *Journal of Information Science*, 41(4), 531–549.
- Zhang, Z., Robinson, D., & Tepper, J. Detecting hate speech on Twitter using a convolution-GRU based deep neural network. In: *European semantic web conference*. Springer. 2018, 745–760.
- Zhou, Z.-H. (2012). *Ensemble methods: Foundations and algorithms*. CRC press.
- Zimmerman, S., Kruschwitz, U., & Fox, C. Improving hate speech detection with deep learning ensembles. In: *Proceedings of the eleventh international conference on language resources and evaluation (lrec 2018)*. 2018.
- Zubiaga, A., Spina, D., Martínez, R., & Fresno, V. (2015). Real-time classification of twitter trends. *Journal of the Association for Information Science and Technology*, 66(3), 462–473.

Appendix A: Research Ethics Review

FORM UPR16

Research Ethics Review Checklist

Please include this completed form as an appendix to your thesis (see the Research Degrees Operational Handbook for more information)



Postgraduate Research Student (PGRS) Information		Student ID:	831180
PGRS Name:	Fatima Chiroma		
Department:	School of Computing	First Supervisor:	Ella Haig
Start Date: (or progression date for Prof Doc students)	October 2017		
Study Mode and Route:	Part-time <input type="checkbox"/> Full-time <input checked="" type="checkbox"/>	MPhil <input type="checkbox"/> PhD <input checked="" type="checkbox"/>	MD <input type="checkbox"/> Professional Doctorate <input type="checkbox"/>

Title of Thesis:	Minority Target Class Detection for Short Text Classification
Thesis Word Count: (excluding ancillary data)	36291

If you are unsure about any of the following, please contact the local representative on your Faculty Ethics Committee for advice. Please note that it is your responsibility to follow the University's Ethics Policy and any relevant University, academic or professional guidelines in the conduct of your study

Although the Ethics Committee may have given your study a favourable opinion, the final responsibility for the ethical conduct of this work lies with the researcher(s).

UKRIO Finished Research Checklist:

(If you would like to know more about the checklist, please see your Faculty or Departmental Ethics Committee rep or see the online version of the full checklist at: <http://www.ukrio.org/what-we-do/code-of-practice-for-research/>)

a) Have all of your research and findings been reported accurately, honestly and within a reasonable time frame?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
b) Have all contributions to knowledge been acknowledged?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
c) Have you complied with all agreements relating to intellectual property, publication and authorship?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
d) Has your research data been retained in a secure and accessible form and will it remain so for the required duration?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
e) Does your research comply with all legal, ethical, and contractual requirements?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>

Candidate Statement:

I have considered the ethical dimensions of the above named research project, and have successfully obtained the necessary ethical approval(s)

Ethical review number(s) from Faculty Ethics Committee (or from NRES/SCREC):	9652-BA80-9410-FDF0-70DB-FC25-4378-A145
---	---

If you have *not* submitted your work for ethical review, and/or you have answered 'No' to one or more of questions a) to e), please explain below why this is so:

Signed (PGRS):		Date: 31/01/2021
-----------------------	--	-------------------------

Appendix B: Data Description

Table B.1: DS1 (suicidal ideation data set) attributes

	Features	Description	Values (range)	Type
1	_trusted_judgments	Total number of annotators that labelled the tweet	0 – 4	Integer
2	class_assigned	The class that best captures the suicide related communication of the tweet	0 – 6 (0 inclusive)	Integer
3	date	Tweet collection date	01/02/14 – 01/02/15	Date
4	tweet	Text of the tweet captured	2,000	String
5	put_the_following_- tweet_into_one_or_- more_of_those_cate- gories:confidence	Tweet class annotator agreement	0.0 – 1.0	Real

Table B.2: Labelled suicidal ideation (DS1) data set class description and weight (adapted from Burnap et al. 2015)

Class	Name	Description	% of data set
0	Suicide	Evidence of possible suicidal intent	13
1	Campaign	Campaigning (such as petitions)	5
2	Flippant	Flippant reference to suicide	30
3	Support	Information or support	6
4	Memorial	Memorial or condolence	5
5	Reports	Reporting of suicide (not bombing)	15
6	None	None of the above	26

Appendix C: Baseline Result for Binary-class (Suicide and Non-suicide) without the Flippant Class

Table C.1: Baseline results without the flippant class

	Class	DT			NB			RF			SVM			Ensemble	
		P	R	F	P	R	F	P	R	F	P	R	F	Ternary	Binary
Set1	Suicide	0.68	0.72	0.70	0.88	0.51	0.65	0.69	0.74	0.71	0.60	0.86	0.71		
	Non-suicide	0.94	0.93	0.94	0.91	0.99	0.95	0.95	0.93	0.94	0.97	0.88	0.92		
	<i>Overall</i>			0.82			0.80			0.83			0.81		
Set2	Suicide	0.62	0.70	0.65	0.84	0.51	0.64	0.61	0.66	0.63	0.71	0.67	0.69	0.55	0.53
	Non-suicide	0.94	0.91	0.92	0.91	0.98	0.94	0.93	0.91	0.92	0.93	0.94	0.94		
	<i>Overall</i>			0.79			0.79			0.78			0.82		
Set3	Suicide	0.59	0.67	0.63	0.90	0.48	0.62	0.62	0.47	0.54	0.74	0.68	0.71	0.54	0.53
	Non-suicide	0.94	0.92	0.93	0.92	0.99	0.95	0.91	0.95	0.93	0.94	0.96	0.95		
	<i>Overall</i>			0.78			0.79			0.73			0.83		

Appendix D: Full List of Sets' Terms

D.1 No Disambiguation

D.1.1 DS1: Suicidal Ideation

1. *T* set:

fuke, shipper, choos, lmao, drone, clearli, blue, avid, nearli, bro, saintsfc, probe, thnx, tonsil, argh, neglect, epidem, straighten, ooh, luv, ballin, playin, calv, yhink, expkod, ky, confus, methodologi, kaci, synonym, tbh, temp, unbench, easi, 3yrs, procrastin, wrap, duvet, burrito, measur, faux, met, intestin, kev, josh, daniel, laura, dom, jayani, fleur, leann, tbfh, li, easier, numb, stupidest, puddl, ovehink, stair, horror, par, cacahu, te, crumb, fuckidna, yoloa, vote5sos, infam, hungarian, revamp, grow, michael, jackson, beyond, belief, urghhhh, mi, mam, eveh, 30mins, cloud, paus, calm, happier, stronger, leo, charli, bam4xmas, bing, solut, sooooooth, pardew, button, cross, lit, feed, updat, depriv, fed, wrist, itch, sir, scream, quickli, aargh

2. $B(T, O)$ set:

i, hate, myself, for, that, im, tire, and, want, to, die, wa, think, about, kill, don, t, you, mind, my, life, just, sleep, never, wake, up, someon, so, low, like, most, larri, already, be, dead, leav, u, alon, hour, break, then, back, suicid, revis, s, option, if, a, of, suffer, probabl, instead, much, an, student, commit, over, poor, exam, result, kid, have, fun, not, listen, hi, eat, him, man, hair, violet, or, dark, nan, ha, ye, m, fan, fuck, total, re, gon, na, get, peopl, all, give, ff, cut, but, it, the, onli, wai, stop, pain, go, drive, me, anymor, end, now, real, here, lol, can, pleas, right, group, child, alleg, in, leg, no, won, bitch, again, noth, p, earli, night, noooo, feel, ill, even, arm, rememb, ve, seen, on, photo, too, with, side, am, rn, befor, do, suppos, gui, make, pl, write, spend, monei, thi, tonight, doesn, els, album, ar, black, anyon, sad, hu, stupid, were, rate, sorri, suppo, claim, would, caus, despair, talk, death, y, how, possibli, down, know, what, shitti, empti, wont, keep, aliv, sometim, should, actual, id, zayn, hot, omg, video, safe, sai, readi, fuckin, everyth, had, internet, past, few, dai, forc, face, world, take, word, cant, shit, shop, centr, physic, drink, than, emot, could, fall, asleep, d, still, surviv, seem, dog, super, scare, see, less, second, memori, selfharm, movi, better, drown, appar, love, deep, also, made, popular, song, badli, need, food, oh, god, wish, thei, month, itself, when, there, out, fail, watch, liter, depress, thought, last, averag, put, barrier, disrupt, kinda, felt, from, cry, press, plai, squad, far, bed, after, v, will, someth, snapchat, wasn, absolut, person, taken, pill, other, both, suck, dont, definit, why, bit, funni, isn, tho, perhap, retweet, self, harm, post, affect, note, idk, burn, sta, best, thing, inspir, toward, complain, breath, done, goodby, couldn, mock, busi, honestli, try, straight, massiv, anxieti, atm

3. *O* set:

joshiesanud, step, nna, her, equival, who, complet, selfish, ain, help, nobodi, charg, he, problem, left, behind, cope, answer, she, said, phrase, your, ask, fm, which, omfg,

ars, pigeon, flew, into, offic, window, fallen, fire, escap, receipt, bore, deliv, lectur,
 killmenow, mentalhealthawar, messag, our, websit, young, bulli, mentalhealth, doe,
 ian, team, 2counter, attack, upgrad, intelligen, bang, experienc, mental, health, issu,
 at, higher, risk, timetotalk, campaign, social, network, identifi, prevent, constantli,
 torn, between, everyon, around, father, type, close, spite, parent, must, proud, launch,
 improv, dream, wear, floweri, 14th, jerseyshor, jersei, attemp, off, ninth, floor, high,
 rise, structur, happi, dramat, awai, min, film, resili, storytel, perform, dw, mum,
 threw, stereo, bc, season, loud, everdai, dure, year, okai, such, bullshit, gai, becaus,
 psycholog, unstabl, feud, fact, colleg, today, till, new, web, resourc, live, more, sur-
 pris, some, tell, yesterdai, cool, 10th, lead, blog, we, hope, reduc, rel, found, tripl,
 murder, author, spent, two, got, chanc, old, lock, herself, car, ll, muffin, tee, bril-
 liant, swoop, assist, nine, boi, comit, sicken, fresh, hospit, minut, somebodi, attempt,
 speak, freak, did, question, ever, contempl, emotion, heal, recoveri, tweet, babe, rare,
 anyth, posit, shoot, idiot, b, devotedtothedemonsinsid, sh, advic, follow, similiar, x,
 ripe, ag, hahaha, eah, bomb, driven, by, al, prison, 30pm, http, polit, worker, via,
 joke, disord, struggl, bomber, name, learn, largest, pilot, airlin, crash, plane, reveng,
 mood, swing, frequent, spoke, vultur, wait, starv, later, haven, accomplish, yet, long,
 term, unemploi, avail, come, romantic, cara, tipo, eu, ou, o, lbum, bmth, uma, veze,
 por, dia, ahauhauhaua, show, been, onlin, appear, r, notic, societi, care, histori, htt,
 member, star, rainbow, knew, sister, rap, skin, job, dislik, stigma, sound, headlin,
 grabber, big, didn, despit, recess, fig, through, nose, nhschangedai, pledg, mentalil,
 save, famili, friend, mourn, view, mate, looooooooool, sinc, miss, wrong, hatebeing-
 soppi, associ, w, increas, review, children, bye, nerd, h, women, masculin, ideal,
 expect, male, nate, tragedi, account, cultur, lone, co, founder, bui, hotlin, bring,
 coffe, call, moshingx, l0st, insecur3, angel, home, own, chip, figur, annual, road,
 wonder, alloc, address, depressionhu, mani, product, sixth, form, remain, under, rais,
 awar, saveyoungl, yea, pack, blow, fckn, brain, share, hea, obsess, band, sheep, jump,
 cliff, first, dy, 4th, grade, unbrow, pic, stitch, well, confid, lowest, silver, crisi, re-
 spons, statist, suiciden, dress, weird, n, ladi, pull, test, alcohol, aicl, power, petit,
 site, against, spread, line, galatasari, sure, couldnt, brand, chav, loooool, gear, train,
 sourc, insid, alwai, within, 5sos, lazi, smoke, cigarett, slept, geographi, drop, lose,
 crayon, fell, shower, thumb, vind, een, van, leuk, declin, reason, col, without, babi,
 copi, tape, work, tri, singl, tomorrow, move, music, feat, lost, factor, soldier, linger,
 effect, rape, shade, lighter, everi, countri, loan, differ, degre, pai, cassandra, local,
 intern, level, law, dump, common, wha, sens, anorexia, longest, shot, himself, head,
 bullet, cure, becom, profession, pa, includ, genuin, broke, tail, bone, mid, interview,
 bodi, unknown, legit, wan, dear, repo, whole, them, paicularli, temperament, sus-
 cept, killer, incas, worri, game, time, tradit, cyberbulli, hashtag, clinic, bereav, either,
 headbang, onc, silenc, whoo, masarap, gawin, kapag, pinagsabai, ang, aral, trabaho,
 superwoman, fatigu, final, street, free, download, compil, 1st, link, victim, cyber,
 west, technologi, pair, beat, agent, assault, three, surrend, femal, immigr, lucki, se-
 riou, cunt, twitter, tumblr, mockeri, pretend, jeffyaldden, tttt, teensuicid, topic, girl,
 chat, bruh, aint, ur, digniti, stripp, whose, son, daughter, fouh, bad, l, design, wren,
 find, paner, 13yrs, front, page, these, paper, injur, treat, polic, classi, told, lover, warn,
 11s, hei, x989, x848, fifa, st, grand, enjoi, schizophrenia, slightli, concern, refer, pic-
 tur, suspect, team999, run, pun, stori, loss, 1pm, debt, talkhealth, join, shoe, count,
 urself, stai, uni, mondai, nd, wednesdai, sui, among, teen, main, woke, next, order,
 cherish, moment, etern, unconfid, esteem, insecur, quiet, ugly, littl, rat, hotel, rela-
 tionship, breakdown, bless, thousand, good, luck, ignor, fear, aviat, engin, aboard,
 until, upon, exhaust, coupl, di, pact, prayforheidi, overdos, role, model, teenag, skip,
 load, protein, workout, volcano, gone, earlier, studi, primari, wk, junk, quick, sugar,
 energi, kamikaz, mission, human, um, fly, invulner, whistleblow, expos, ht, loui,
 trinit, win, offici, postnat, send, meet, wenger, finish, search, investig, crush, meant,
 boyfriend, believ, ki, whyi, cutteerr, weekend, yorktown, lakeland, heroin, westch-

est, safeti, commun, newyork, saw, air, max, assess, led, woman, watchdog, benefit, amaz, rescu, reject, sick, unchalleng, yr, spo, hat, draft, drug, walk, rout, survei, teach, prof, patient, directli, relat, number, chang, treatment, tricyclic, acut, toxic, smai, patientsaftei, cricket, zombi, roach, parasit, tale, xxxantastic3, obv, pathet, weak, abl, hold, dine, tabl, kalori, plate, emegerd, sweettooth, sugarcrush, least, qualifi, masseus, quit, master, massag, gym, stub, toe, nail, simpl, sniper, six, fighter, set, vest, poison, jumaat, ni, balik, perak, lari, pecut, kelil, rumah, sebab, eksit, threat, shouldn, lightli, upset, possibl, brussel, sprout, app, seek, indigenousealth, chariti, stomach, bloodi, captur, caught, background, wouldn, matern, develop, mmia, migraine, bard, memoir, seiz, grief, credit, creepi, iron, quaalud, extinct, propos, state, approv, afraid, rebuild, insult, fat, assumpt, pretti, though, notyo, letter, took, might, hous, unless, milkid, weep, joint, chin, wors, due, distress, underli, same, forev, hit, ic, youth, point, horribl, replai, lesson, read, float, sea, 5s, vine, pillow, circumst, non, outcom, terribl, episod, evid, where, donat, fund, bipolar, week, slow, olofofounit, school, earlywhat, anywher, westcoast, ov, eatingdisord, taboo, onl, mother, broken, sttech, grossli, offens, comment, piss, checklist, speakout, attract, adolesc, third, crisiscontrol, librari, book, librarian, cours, sirfeel, wristband, park, morn, rumour, grind, project, physician, consid, fli, mhsm, hungri, forgot, indirect, wallet, teacher, afterlif, illogicalbrilli, terrifi, beauti, rapper, remov, peni, statu, tokyo, ago, xfile, equal, horrend, swell, mom, screen, wide, variou, factori, oper, condit, sign, anti, hard, lot, date, nl, minist, straig, extrem, impact, significantli, etc, ya, push, edg, full, inhal, subwai, sub, door, us, illeg, punish, cyberstalk, cat, thru, trauma, asmsg, downward, spiral, rifl, row, inde, numer, dementia, injuri, intens, harder, cold, experi, blame, allow, spectacular, ad, sudoku, seppuku, hannah, bond, easili, rather, admit, didnt, spot, schedul, rude, 10pm, tour, soul, scum, sympathi, ok, bunch, their, somon, imperson, wow, capit, emploi, fisher, hire, drag, att, great, endit, piec, roadkil, fox, driver, chill, ma, 7up, ghana, highest, worst, om, dose, place, secur, exist, kick, reasonsforliv, pupil, scene, repoer, taliban, justifi, inc, mosqu, deni, misspel, cutest, wifi, thank, sat, crawl, hole, erad, incr, research, onset, nicer, aist, audienc, ca, describ, white, supremacist, youi, someonewhen, haywardsheath, fix, plank, hazwalk, mile, counti, uk, consol, 1in, pple, attend, 5yrs, mine, card, dm, open, let, somewher, practic, steal, favorit, colour, weather, wife, twilight, netflix, rl, ball, sma, stand, togeth, f, boat, warship, esco, ongo, recent, fb, satisfactori, tyrone, fiz, maria, storylin, corri, breakfast, 11am, dinner, 9pm, profil, behaviour, biggest, men, perfect, wo, guard, matter, complic, avonrock, blakes7, bigger, tit, trailer, 29th, sociologi, lie, inpati, vote, text, savethemal, ugh, transgend, encourag, alo, reaction, shame, poem, elect, broadcast, ani, hau5, mai, fam, goe, newsfe, phone, radio, global, releas, 2day, aw, ripheath, 5sosfam, wrote, 2x2, math, ex, fight, e, each, per, occur, bastard, superbul, yolo, everydai, nervou, laughter, burst, laugh, lack, holidai, player, braveri, sit, hitler, disgust, penalti, infidel, interest, public, understand, commerci, intent, violenc, war, while, diarrhea, wellb, semest, flat, pennsalt, regard, carri, media, coverag, 15yr, involv, explain, yearbook, harri, openli, suddenli, attent, veteran, sought, unsuccessfulli, glass, 9th, quot, sexual, conflict, 4rm, rock, hasn, deal, stress, yall, publish, top, build, yourself, forward, whatev, soon, leap, hurdl, land, sho, notim, hug, fashion, survivor, pregnant, choic, pick, promis, hear, map, illumin, gun, homicid, cost, billion, povei, known, contact, those, cal, almost, champ, leagu, aswel, volunt, center, veri, suici, check, daili, fake, touch, typ, waist, hip, hoorai, print, apologi, unfollow, closer, usa, fender, guitar, ticket, reloc, premis, discuss, abstain, ep, throne, contin, wale, militari, singer, cell, hangi, strongest, polici, suggest, imho, ppl, respect, standardis, anchor, industri, dii, un, 3rd, confer, kind, block, chose, jihadist, recruit, celebr, gossip, kudunew, ing, commut, aid, stayal, multi, appli, nurs, virgin, hand, judgment, compat, accept, ideat, syndrome, trusti, action, wed, delai, late, chief, psychiatric, friendli, disclosur, hang, squeez, ass, neck, ashame, awk, trial, athlet, cou, traumat, psychologist, visit, after-

ward, mainstori, ahaha, nah, mass, record, instanc, turn, abus, decid, scale, crack, condemn, repeal, adult, disappear, scari, recur, favourit, bandmat, tada, sensit, subject, bein, gener, serious, idea, fairli, eastern, isra, ship, island, aboion, present, demand, crime, rail, renationalis, elector, jealous, evolv, voic, blacktwitt, spiritu, petti, bandwagon, blew, cousin, near, market, provinc, pty, prove, barrel, small, venu, produc, lifetim, succeed, worldwid, accord, assisteddi, patronis, approach, pedantri, individu, untiltheend, purg, pregnanc, blogger, blogboost, brigad, israel, tank, booklet, provid, guidanc, shark, dad, tomorrowspaperstodai, disrespect, latest, troop, 11th, hospi, inner, calf, exact, gave, bih, cramp, muscl, whate, enough, prompt, sleeeeep, bitterli, crazi, situat, vulner, 4suic, sing, gunna, stretch, bout, remind, journalist, method, repoingsuicid, alaska, servic, prior, wall, protect, youcannotbereplac, em, karo, gi, vehic, blood, predict, chemic, alter, g, drunk, mo, matti, heali, look, determin, jail, intercept, en, bee, 20am, secret, ginger, rich, ridicul, sanction, scientist, sadder, explicitli, graphic, fulli, repair, pitchmark, desper, arson, shift, stem, guzzl, boot, mini, ski, sneaki, creat, surpass, cancer, diseas, earphon, sunb, woh, annoi, con, lib, price, brb, destroi, patsi, gran, repli, summer, middl, pougues, comedian, repoodli, icon, reso, legend, shake, len, themsel, celeb, mayv, hero, actor, impoant, judgem, scariest, klaxon, embarrass, platform, spotlight, psychoanalyst, fill, airway, clue, comfo, longer, grip, brink, hell, reevalu, geniu, robinwillam, true, robinwilliam, locat, comedi, reach, tragic, anybodi, usual, shaken, ckv, compass, neither, sadli, fav, espec, compel, saddest, yeah, outlet, ignoredadvic, gr, opinion, debat, coron, receiv, tribut, shown, announc, museum, journo, guid, asphyxia, heed, incredibli, legendari, twist, recommend, contagion, devast, apologis, et, avoid, excess, detail, guidelin, tabloid, faith, compani, net, grant, stock, reckless, displai, larg, inform, couesi, espec, c, tait, histor, du, curiou, fame, connect, urg, confirm, aha, realtalk, la, yanno, qual, coward, onto, duti, responsibli, reader, hidden, financi, struggle2get, system, liber, ideologi, safer, 3hr, programm, therapi, direct, flight, accom, plz, hopefulli, honor, exp, mention, bbcaq, experien, schiz, wtf, bookruin, killin, trait, greater, potenti, miracl, haunt, complex, recognis, ol, fals, dichotom, edit, caesarean, section, moi, aussi, je, excus, vou, ai, pardon, mutil, j, fai, de, tent, nightmar, helplin, gethelp, passpo, tourist, opt, obin, ash, scatter, size, mean, conform, warp, 8pm, 3pm, pressur, newspap, column, peacock, lilahi, rajioon, compar, prob, ride, prepar, ramp, anoth, chant, ifiwaswhit, violent, pro, shoddi, accid, proce, provis, continu, discharg, express, tryna, happen, seri, savet, process, neighbor, ta, ayi, benno, hoopspleasedo, pass, ti, elder, peupl, demandera, compt, pour, chaqu, ch, meur, sesp, pouss, au, grab, granola, bar, myth, behavior, shock, heard, stat, fr, lap, intervent, older, suicidium, caeder, oneself, act, intention, outspoken, advoc, joanriv, pre, ven, tune, judiciari, hors, lawyer, maial, wit, intimid, rage, anger, mone, detent, rang, bell, rule, five, previou, suicideprevent, globalmentalhealth, 10am, 5pm, sa, refus, comicnew, disclaim, lad, mode, discrimin, regardless, sex, race, wealth, everybodybusi, worldsuicidepreventionandai, activ, wspd, connected, sweden, suicidepr, awesom, taux, est, foi, plu, lev, chez, le, jeun, journeemondial, endors, initi, ouch, inspector, million, across, globe, balconi, dollar, cocain, brought, fightstigma, mentalh, sheet, guilti, speed, inconvenienc, themselv, ashton, verdict, flee, argu, prosecut, bail, timelin, helpfu, footbal, gambl, addict, drove, hihc, imper, lyric, list, 1000s, whilst, doctor, tempt, fade, swear, captain, overcom, battl, rattl, forefront, socia, checkpoint, blast, target, smh, came, haram, zone, dropout, juri, repeat, taught, cri, email, realis, acquaint, threaten, bet, emascul, ego, civil, servant, shutup, milkshak, ruim, q, agora, mina, faz, rabisco, corpo, ja, se, acha, fia, com, ess, poe, vai, dar, trabalhar, chile, cuz, committin, slowli, mufukka, tough, squirrel, ledg, nohshield, catch, evil, pedo, comet, deathsent, promot, econom, fuher, blight, countrysid, wildlif, govt, env, preach, xx, friendship, nice, burger, webinar, collabor, explos, outsid, conc, hall, consist, doorstep, becam, ironi, appt, credibl, activist, terror, ub, dozen, itsgoodtotalk, homophob, justic, over10000, eng, shire, 18th, pound, fil, corp, enlac, ont,

tattoo, analysi, requir, internfil, hound, autist, former, th, nash, fergi, attitud, de-meanour, moodi, cover, needfriend, dyinginsid, heaach, nohop, capita, wax, harass, uniqu, tip, overpass, ft, toll, town, pra, plead, howev, shun, surg, yknow, miseri, charact, patch, tombston, therapist, kei, case, control, porn, proof, overse, cringiest, vile, ei, imag, emphas, classic, ward, percent, difficult, economi, marginalis, interf, corps, aim, user, glorifi, psychopath, poll, wipeout, untaint, progress, core, return, longgrass, childlin, danisnotonfir, crude, tool, flag, tast, armour, arrest, sell, weapon, crimin, ahead, lfc, eventu, endur, clich, lin4, climb, border, dare, manipul, responsibil, shem, k, grate, cheer, hahah, toi, fab, xxxx, grim, insight, abit, youngster, playlist, erect, nunchuk, written, askbbfc, paradox, incap, detect, begin, trace, lool, smell, basic, peasant, bag, bucket, twat, futur, cast, mix, correct, disguis, uniform, silen, kobani, barfin, nestl, iguala, villain, golddust, singersongwrit, sent, socialmedia, marri, owner, loos, event, upcom, homeless, stopthehu, lil, disabl, titl, prick, uncontrol, poorli, iv, gotten, biggiesmal, devastat, bu, 6ft, sun, abov, melt, 21st, session, staff, shout, huh, weasel, stolen, stick, counsel, dunno, tbf, bleak, influenc, slip, interven, wash, hr, shini, turnout, skynew, blind, widow, incapac, donor, nab, lynch, kanawa, ptx, livedexp, stuff, sever, difficulti, bridg, appeal, doit, fair, objet, suivi, dan, strat, gie, national, sant, unhappi, thrash, metal, add, misinform, areuther, depressionquot, warmth, soft, challeng, xma, tree, light, cop, poltw, optic, emhlabeni, kanti, kwenzakalani, decis, 56m, attitudin, anorex, contribut, neo, cheerlead, op, af, psych, sack, tottenham, bowl, cream, undercook, frozen, pizza, monstros, host, four, sglovexxx, function, ly, stare, ceil, livestream, any1, stage, cobaincas, justice4ku, tend, heel, invent, enter, crock, pot, spici, sausag, queso, prayer, innoc, guess, mas-sacr, scarier, heav, frustrat, roof, aftr, felin, fecal, glad, went, breakup, sextoion, unfinish, bio, vet, achiev, brag, plot, 43am, notjustcrim, christma, studentparamed, abt, gcse, loooooooooooooooooool, 10k, weet, cam, pree, linguini, bcoz, hunger, reveal, tran, fighti, tear, heabreak, heighten, advocaci, pmdd, hormon, mimic, symptom, neg, feminin, extent, exception, gunnu, ab, unwanted, panicattack, chelseapo, profeminist, sto, constant, pbuh, ant, terrorist, insan, profit, slaughter, beach, firearm, access, treasure, railwai, 35s, regim, starvat, royal, embrac, whether, citi, txt, pat, commissair, loyal, knock, ey, mouth, bollock, int, 10yr, shi, mail, cobain, deceas, fee, macaroon, firstworldproboz, critic, bungl, becca, replac, intellectu, properli, insta, highlight, career, argum, hover, doesnt, pissi, husband, stab, qui, overhaul, tackl, brother, sweet, ink, unemploy, writer, controversi, camp, tomhardi, wage, legitim, gender, psychiatrist, scandal, presid, prosecutor, doubt, accus, pow, cbb, 2b, prioriti, howardleagu, folk, defend, 4prevention, frenzi, ptsd, backlog, wen, gona, wasnt, ova, talkin, bbc, smash, fa, cup, itv, workshop, suicideawar, univers, stigmat, modern, poetic, peotic, quiero, una, relacion, seria, dominik, room, pero, acuerdo, que, personaj, pasa, im-poanc, tailor, combat, class, pool, popul, inmat, empathi, award, novelist, skinni, 2much, pig

D.1.2 DS2: Misogyny

1. *T* set:

pierc, licens, ic, talent, ejecul, dm, ss, imma, aight, dope, sterolin, olli, equailti, charli, wjahjaaj, darl, lick, moe, steak, rice, corn, cuf, shook, twerk, barricad, sweati, mo, shi, sparkl, bootyhol, baekyeol, coldest, chloe, mediocr, coverup, loyal, jenni, lucki, envi, unblend, shadow, unlin, lip, foundat, powder, weinstein, walletdrain, paypig, moma, teas, cher, kayleigh, corbett, yah, resid, halavyaahhh, altogeth, indirect, gif, belong, frat, malici, flop, ariana, squaw, blackfac, appl, amber, pedo, motherfuckin, mothbal, seungkwan, visual, fuk, backseat, letter, antichrist, warlock, oil, paicip, 21st, drag, major, snoer, quaer, fucktard, groupi, boob, upsid, citi, mario, smd, cell, moview, drill, stiff, descend, shoi, fuckkk, explan, yea, driver, ral, invent, yeast,

loop, lazi, flexin, champagn, rm, airpo, string, attach, sayin, tracker, postin, bath,
 droppin, smurf, sloppi, bib, flight, slippin, peiod, womenareevil, evilwomen, mer-
 maid, stink, womencantmakeburrito, sheforgottheguacamol, badburri, chemo, glove,
 smaer, womenaredumb, constituion, shutthellupwomen, subwai, ihatefemal, ilove-
 food, homecookedm, rode, cott, flopper, jug, suppos, fucki, haloween, karen, deter-
 min, odin, perman, imprint, fist, plate, cookout, saint, rider, polio, instanc, minseok,
 bididi, keyshia, ka, gucci, shoulda, gotti, eah, blah, rania, deactiv, brainless, em-
 pow, scienc, mathemat, engin, medicin, jihaad, hijab, blond, babymomma, meetoo,
 underhand, dyke, nvm, omega, okada, slutbag, rubbign, tori, pest, lower, snake, ver-
 min, marr, somlalia, twinkl, findom, jayceejuic, granni, fame, masochist, frost, limo,
 carpet, housewif, bringin, concubin, capac, embed, jizz, packag, strateg, bloodi,
 semen, tackl, lb, stain, capabl, slutti, sharia, tie, hitam, bogu, field, hockei, didy-
 ouknow, larger, suffrag, temporarili, inact, lightbulb, machin, pencil, translat, mini,
 ski, alik, flat, permiss, viewer, unabl, jk, menstruafact, weiner, behav, cooki, presenc,
 sweatin, snotti, throat, sunglass, ador, rib, height, weight, zone, salti, prei, brunett,
 ginger, immor, slam, finna, panni, becuz, orgi, pari, glitter, cyberbulli, freeli, mmm,
 request, ahshshsj, recycl, rerock, window, hug, lmaoo, stretch, curiou, wank, en-
 ter, groan, aloud, crude, donthecon, ada, rubber, donni, happili, cracker, downgrad,
 googli, prolli, nun, drove, naw, spite, funer, hypothet, cuddl, thottiessssss, mnet, un-
 derag, stched, theyll, stepson, flavor, dildo, stalk, dump, wassup, wing, nohwest,
 cuckold, episod, waaai, profession, iv, seth, chuckl, rack, h20, neighbour, gum,
 okeyo, laptop, bonu, moon, rough, handjob, matriarchi, boner, dressin, percentag,
 passiv, betwn, ravag, begin, desk, sendin, sundress, water, eyebrow, fallin, regard-
 less, wasteheime2016, fetal, syndrome, umm, doggi, vers, tat, fighter, saga, hmp,
 fanboi, fianc, nurs, assist, dumber, eatin, raw, niec, conceiv, gahdam, jobless, jon-
 gin, sehun, forehead, tipto, wack, rebound, jesd, elimin, iron, clad, bop, wna, model,
 bottl, sheet, nippl, weedthought, armsesh420, betta, stilllllll, loner, eyein, knowl-
 edg, nak, melalak, sorang, kelli, anytim, gear, liar, cross, fwu, buis, plu, cu, violet,
 momma, nauseou, symmetra, turret, getalif, stopspreadingli, twitch, stoop, wombl,
 alud, reciev, peep, congrat, yare, despis, havin, niqqa, buh, hav, goin, trap, showin,
 transgend, rawin, burnin, chicago, preserv, uhh, sweedish, explicitli, flex, bob, over-
 watch, english, assign, subtleti, conniv, soa, reign, ungrat, inde, agta, nicki, pussc,
 pamper, abandon, amateur, wealth, criteria, goofi, hmmm, wylin, fricken, bitchin,
 wana, fvcking, proper, spazz, narcolept, trai, shuttl, barbz, butch, geek, frontal,
 stylist, scam, scrap, sunt, ting, vacuou, greedy, standoffish, confer, workin, homi,
 rl, ku, pageant, ogl, mexican, hoein, lmaaaaaoooo, britch, woop, length, mixtap,
 knuckl, sixth, bummi, filthhyi, stepmom, blown, hopefulli, nxt, thismorn, hahaha-
 hahahaha, sexiest, twatch, classi, domthi, ref, lymph, node, swollen, spreadshit, fren,
 sour, fling, waffl, slipperi, slow, fashion, sucker, tampon, strive, ambit, snowmen,
 snowwomen, hollow, sexworkersagainstfemin, laxi, matriarch, western, fuckfemin,
 beggin, testicl, retail, button, grandfath, squi, puttin, coconut, vag, blockin, curv, trip,
 hip, prime, devil, choker, electr, toothbrush, swim, blatantli, putrid, tramp, stamp,
 twenti, refrain, steadi, bleed, willingli, initi, chalo, koi, bhaw, rahi, pyramid, scheme,
 fuckk, nearli, liner, cherri, picker, woke, surreal, rear, cautionari, womankind, net-
 work, conspiraci, fi, wae, mong, sh, tangl, reinforc, apologist, commerci, myth, un,
 chuckwooleri, weaselli, mon, frenzi, corollari, claw, torso, dramat, cringemuch, pan-
 ick, cl, wacko, poth, bundl, cradl, thelastpost, workout, behaviour, bouje, grandpa,
 requir, boundari, subservi, hire, hatesmen, micki, fuckyou, milleni, laundri, laun-
 dryqueen, ilovemymom, fuckwom, settin, fuckbitch, bitchesstink, waist, nag, mi-
 nuscul, unbalanc, schizo, unattend, waiv, pom, untal, guitar, chord, gamerg, cosbi,
 duhh, spandex, lucr, gig, gynocentr, dampen, tbf, konsisten, sloot, lovin, indecis,
 gasolin, impoanc, beeffi, dike, retweetthison, offspr, imag, wiener, tug, overli, vagin,
 clock, friendship, ethanol, kidnei, menstruat, subtweet, upset, snow, shovel, turmoil,
 shark, becuas, lawn, broadcast, homecom, flower, trampstamp, bikini, seabiscuit,

144

gela, hideou, thrill, wireless, headphon, dishwash, cheatin, credibl, ugliest, fatter, 5x, backpack, wth, hubbi, musti, surgeri, slope, arbitrari, backb, uniform, nearest, perimet, 380k, republican, samantha, wou, wood, incompet, void, stack, deck, civil, bribe, monopol, conspirat, brainwash, decept, cretin, stem, blowback, greed, rent, scank, hystericalnow, mustard, sand, cowardic, coyot, niggaz, yal, abo, symptom, stupud, meltdown, bcse, trendi, ton, mami, elit, clair, groundbreak, materi, gravel, pine, needl, unconsci, oracl, greec, mediev, freakout, plane, crypt, esm, supervisor, brief, helpless, exhaust, neglect, piti, taxi, ard, backand, stiletto, omggggg, beeeennn, foreveerrrrr, sitcom, sissi, toasterno, poll, melt, handmaid, ca, conquer, lookinthemir-
ror, soooooo, fucktwaddl, embarrass, icebox, occas, evolv, doit, pornstair, bouta, yt, else2, real3, cunt4, boii, batshit, household, island, grift, administr, imprison, os-
teopath, prescrib, chamber, maid, avali, 1900s, skil, nohwestern, tweat, fohright, answ, humili, bbcbreakfast, remot, strut, 50s, redefin, basi

2. $B(T, O)$ **set:**

tell, me, why, the, bitch, next, to, in, line, i, so, judgment, about, everyon, she, fuck, see, shut, up, cunt, pleas, when, u, gon, na, get, your, ok, babi, ll, go, sleep, ar, a, ugli, you, just, re, best, friend, dad, and, come, suck, my, dick, ha, more, hi, sperm, than, do, ur, whole, bodi, idubbz, if, said, leav, block, first, m, kick, ass, ye, littl, slag, act, like, victim, all, these, year, damn, hungri, eat, im, try, too, skinni, hu, don, t, ride, thi, be, got, he, not, wa, send, edit, but, can, cry, speak, bye, will, take, life, awai, turn, around, women, want, thei, should, draft, into, war, how, that, feel, omg, am, extra, better, on, box, show, cock, much, her, hoe, yo, fish, booti, no, fuckin, call, it, hot, been, kno, pussi, smell, real, bad, becaus, cook, n, everydai, love, those, situat, boi, girl, heard, pull, by, s, stuf, with, np, know, alwai, right, an, attent, whore, for, feminist, also, tri, from, hard, pants, down, push, against, door, let, deep, wet, puss, kill, issu, dont, what, threw, saw, old, wear, same, where, d, rememb, cheat, seen, woman, juggl, big, rape, stick, finger, did, vote, had, dream, kiss, front, of, face, veri, charm, thing, until, some, psycho, sta, scream, left, earli, morn, holler, bout, hair, done, ain, dumb, faggot, were, laugh, at, other, liber, sorri, even, main, side, near, nigga, joke, think, share, or, cool, probabl, us, already, befor, took, stupid, slut, daddi, him, still, brought, beat, everi, weekend, home, kid, repo, murder, chil-
dren, expect, religion, peac, count, human, ya, have, such, manner, wow, tweet, good, hea, make, look, wasn, involv, everybodi, ho, drop, smoke, out, shit, hate, oh, god, okai, x, pretti, video, h, dragon, sign, keep, mind, there, chanc, k, non, set, w, dai, y, onli, respect, energi, never, work, law, again, annoi, fun, wallet, watch, stroke, amp, thank, abus, quick, claim, black, sister, rare, mad, yesterdai, ask, manag, store, now, ah, fake, son, gangster, twitter, game, virgin, hypocrit, bash, who, screw, wai, top, beauti, project, fight, pregnant, hit, anyon, caus, run, mouth, l, btw, lmaooooo, need, head, someth, af, wake, wtf, sit, miss, read, power, over, men, ultim, weak, after, which, trynna, coward, back, find, well, sai, didn, crush, sinc, forev, give, pig, wan, remov, doesn, class, knew, would, close, compar, punch, bui, new, book, pai, racist, demi, fat, queen, plai, rid, attack, time, notic, lyric, bio, crazi, tf, ignor, mani, destroi, protect, predat, husband, nice, mean, knock, dare, child, sick, twist, ma, bite, lil, last, night, white, person, isn, al, yr, car, we, sing, gai, cute, strong, footbal, team, hop, off, somethin, loud, boo, hole, aint, da, cop, decid, reason, smh, demon, evil, ly, monei, appreci, opinion, though, bc, rude, girlfriend, woh, bro, gave, number, ran-
dom, went, bathroom, middl, without, put, spent, peopl, studi, sky, hous, save, die, smelli, man, rot, goal, lol, chop, disgust, bore, ow, everyth, mine, hairi, moan, perfect, blue, upon, ridicul, lmao, mother, talk, utter, shite, pure, hear, dure, sex, fire, then, hope, teeth, fall, tho, whenev, cut, commun, o, cuz, period, deserv, them, park, space, sandwich, infect, live, irrit, found, deal, femal, lax, both, aren, march, street, demand, answer, summer, confus, their, vagina, tryin, favorit, end, bar, stori, daughter, wife, peni, common, decen, treat, bdai, corner, drink, lemonad, insid, won, tast, yourself,

bet, either, waitress, sir, yeah, lunch, bank, account, problem, toi, app, avoid, sweet, sexi, worri, angl, anymor, here, swap, tryna, trick, pic, bomb, lookin, less, gui, comment, check, post, buffoon, believ, each, catch, dude, privat, profil, filter, uncl, could, wrong, social, media, emoji, nan, cancer, guess, throw, everywher, unleash, cave, almost, noth, silent, ruin, hand, touch, total, valu, retard, sure, onc, shame, twice, longer, ve, met, small, brain, problemat, freak, trigger, idiot, hell, remind, societi, bunch, todai, strip, club, workplac, retweet, whose, full, except, fact, spo, complain, abl, fair, equal, shave, leg, anyth, piec, glad, entir, famili, stand, fucker, someone, belt, cum, 3rd, world, kunt, wit, trash, father, surpris, wait, definit, sound, haha, stop, accept, filthi, bottom, beta, afraid, incred, anoth, base, sole, shoe, bill, broke, swear, traitor, most, despic, ever, walk, understood, togeth, manipul, word, perpetu, race, wouldn, histor, pathet, depend, liter, name, dii, alon, win, unfollow, made, prison, bird, awhil, anywai, our, lost, doe, listen, pl, nobodi, c, differ, between, ol, crack, addict, caught, ani, actual, sacr, wive, els, degener, muslim, must, phone, obvious, pick, q, via, wohless, bastard, type, juici, drive, whilst, curs, blame, tree, selfish, scare, famou, slap, truli, belli, unlik, lot, neck, bum, promot, amaz, thirsti, bullshit, tv, sent, jail, harass, unfoun, happi, shotgun, wed, skank, might, hat, hysteric, trend, red, toxic, actin, past, matter, came, thought, place, condom, punish, butt, beater, ins, consent, sexual, tight, dress, grandma, marri, church, week, develop, moral, gener, magic, low, excel, enteain, cover, while, forget, event, accus, under, dig, stone, death, dumbass, forward, assault, understand, stair, job, singl, gold, asshole, agenda, sweeti, lesbian, born, control, suppo, boss, agre, male, maledomin, food, survivor, kitchen, clean, due, irrat, lack, judgem, shock, chang, question, wash, follow, load, argu, point, creat, couldn, breed, intellig, symbol, sometim, ta, state, obviou, parodi, goe, advic, whine, rock, skip, second, air, hour, yesallmen, join, relationship, pa, doesnt, sma, told, compani, bih, free, few, valid, argum, femin, restaur, tabl, piss, access, return, privileg, respons, deni, ball, gender, great, bj, public, mom, celebr, spank, brat, loos, pineapple, bust, bring, hide, vacat, em, date, open, allow, appropri, tinder, favor, add, tongu, ring, engag, pictur, built, upcom, meet, stai, balanc, roster, sexism, suffer, explain, outta, help, thru, custom, gym, spend, hospit, lose, hei, pass, nude, tit, tip, dog, ground, band, two, grow, harder, wave, headass, through, unless, suckin, stfu, wish, half, jump, limit, choke, pin, strike, round, futur, train, horni, far, huh, immedi, multipl, complim, spot, minut, attract, sock, suddenli, becom, nasti, care, breath, shot, dry, break, own, nut, ey, yet, seriou, bare, local, whoever, enjoi, switch, kind, mai, encourag, hormon, yall, promis, b, exist, fr, nerv, drunk, blow, concentr, awar, wat, tellin, ppl, ear, learn, mistak, gone, distract, month, insan, anal, scene, fav, lie, exit, happen, drug, sodom, loon, trade, self, athlet, lane, rub, three, rob, oomf, dead, lawyer, easili, ago, spread, fulli, thick, shitti, servic, prefer, tour, offens, serv, chew, move, grab, presid, simpli, youtub, statem, rip, grown, beg, hasn, wors, player, rebel, establish, trashy, rich, ladi, emot, princess, suit, chick, enough, wise, seat, final, exactli, handl, aggress, tonight, chill, dark, root, safe, wrap, whisper, stank, finish, sadli, charg, least, honest, masturb, posit, worst, v, diet, mutha, fucka, clit, smile, rule, board, mention, therapist, fli, repeat, true, figur, seem, bigger, properli, alcohol, pant, excus, bibl, thinkin, r, sever, gag, reflex, hold, struggl, wast, stronger, welcom, attitud, lover, special, bed, polit, later, fam, clearli, shoot, innoc, convers, consensu, cent, somebodi, unblock, thot, meanwhil, bulli, deadass, none, role, karma, known, proof, hurri, cousin, rather, nose, long, idk, tire, older, plan, sad, fine, sneak, diss, rais, log, kept, interest, advantag, pink, paper, anon, clout, jr, step, guilti, standard, practic, complet, forgiv, choos, beef, option, earn, weird, vomit, snap, bruh, naked, rest, tag, bother, boyfriend, assur, absolut, whatev, whom, shameless, rat, straight, smash, se, photo, forgot, univers, educ, aswel, honestli, plot, secretli, alright, vile, ram, till, dat, petti, loss, theater, tbh, acc, instead, relev, drunken, cold, bought, lone, trust, propos, gf, room, illeg, violent, experi, prove, wen, sum, ship, ju, arrog, douch, lit, suggest, condescend, si, paid, drown, solid, talkin, mf, vapid, didnt, quot, jealous,

shawti, fit, narr, serial, rapist, beast, trump, teen, counter, respond, dem, fur, coat, withhold, pleasur, childish, email, ima, season, school, sens, bean, reso, countri, pimp, surviv, style, cherish, tranni, jerk, suppoer, stress, co, outsid, yell, neighborhood, bag, li, kidnap, xx, coke, racism, giant, mess, offend, quickli, catfish, feed, scum, stuck, hilari, gross, gain, degre, invit, blog, natur, popular, imposs, domin, loser, psychotic, snapchat, sext, doctor, abov, doin, soul, coz, wonder, fuckboi, twat, slept, accur, goddamn, huge, savag, humor, coupl, easi, experienc, disrespect, garbag, ag, tattoo, younger, draw, imagin, bless, inspir, meme, nah, picki, threesom, makeup, aist, liar, basic, sin, produc, fuher, career, messag, de, sell, color, funni, fool, fa, rage, bu, lame, ugh, boot, camp, express, itself, recent, tale, myself, quit, damag, fear, perform, theori, vibrat, guid, ay, trope, alleg, witch, hunt, insult, snowflak, weren, defend, inter, sensit, disagre, deliveri, focu, confirm, forc, gun, ad, desper, leagu, honk, amount, grope, planet, aka, stood, teach, lesson, inferior, feminazi, effo, patriarchi, mayb, normal, radic, refus, submit, urg, terribl, skill, blogger, appoint, text, havent, sacrific, thier, shouldn, fix, equat, herself, card, critic, fill, sack, write, bit, cultur, sake, scumbag, sun, regard, fals, plenti, evid, correctli, singular, olympic, monster, sidewai, colleg, immatur, matur, ditch, cake, deliv, awesom, danc, excit, admit, nail, pound, intern, offer, yourself, object, relax, 4th, given, perfectli, stove, super, desir, bf, kinda, usual, fault, bitter, surpris, ex, viciou, hurrican, reach, across, meat, moment, hang, consid, size, case, wipe, soon, nor, ankl, urself, cours, booger, groceri, split, sho, fugli, bull, truth, fraction, glass, previou, crawl, song, creatur, page, sweat, along, homo, movi, cancel, cant, intent, signific, often, mood, price, ga, outfit, instagram, origin, vocabulari, sink, dumpster, shove, wine, boat, faster, bihdai, militari, smear, disgrac, concern, flip, cri, languag, 6th, poor, carri, pop, di, fellow, within, mirror, vid, pro, blunt, wild, west, theme, cat, domest, fag, boutta, roast, member, relat, term, mate, statu, mansplain, prob, defens, miser, th, shake, level, inbox, prostitut, angel, delet, pile, chelsea, suspend, honei, gang, po, label, 1st, potu, beyond, late, payment, irrelev, aw, porn, anti, ars, sa, pocket, wherev, road, cost, warn, sewage, spew, candi, f, wolf, sight, feminismiscanc, notallmen, potenti, assum, systemic, pr, motherfuck, foot, readi, convinc, screen, burn, squeez, smack, dummi, elect, refer, bug, arm, dammit, town, benefit, ky, seek, behind, leader, soldier, highli, doubt, lolol, swallow, cup, neg, bitc, rn, idgaf, ill, ahead, wi, eras, promin, lineup, hatr, describ, sat, copi, settl, treatment, insecur, economi, metoo, toward, armi, bang, nigger, appli, catcal, brutal, degrad, luv, lifetim, ctfu, snitch, shower, young, bark, clear, five, mi, embarrass, promiscu, themself, feet, homeless, toe, mama, appal, terrorist, aliv, lynch, neonazi, order, homophob, success, sudden, asham, democrat, wanker, puta, clueless, sold, dear, medic, conserv, actress, music, capit, typic, redneck, inbr, vulner, abt, high, anybodi, investig, harrass, shout, spin, threaten, maker, lock, dub, lemm, rap, commit, decad, exampl, herp, mum, incit, angri, protest, misogyni, cloth, advanc, unwant, apa, e, otherwis, permit, target, hardli, affair, whistl, weasel, isnt, pal, slither, convo, bent, silenc, advoc, award, automat, idea, file, polic, wore, america, prevent, identifi, difficult, slave, doll, creepi, hahaha, regular, grade, health, legal, blind, buddi, repli, folk, cuff, chat, brother, proud, continu, million, record, bff, doubl, phase, marriag, influenc, inner, responsibli, correct, parent, prais, dawg, clown, sue, buss, bullet, juic, busi, rabbit, pot, disappear, comin, poison, kei, judg, bedroom, wide, facial, fucken, pie, relentless, appear, worker, declin, aboion, gloriou, nd, river, sexist, misogynist, numer, approach, unbeliev, deeper, mistress, entitl, spit, monkei, jew, con, theyr, mommi, lust, applic, tax, tcot, maga, odd, stripper, immigr, seller, stereotyp, statist, serious, prosecut, pretend, stock, market, biggest, decent, everytim, physic, frankli, heat, wouldnt, site, ratio, g, p, youll, spirit, horrend, insensit, silli, corrupt, werent, treason, pain, choic, intellectu, although, mental, cheap, crave, pump, sampl, impoant, shine, til, battl, spoke, risk, drama, crisi, titti, laid, research, nap, calm, embrac, dinner, border, wall, legit, stole, internet, shouldnt, etc, becam, profit, mock, exagger, version, recogn, quiet, wont, pour, light, crap, saniti,

phrase, wasnt, asid, bone, competit, spoil, uneduc, anim, whack, list, camera, steal, match, releas, equival, gate, anywhere, arrest, whini, devour, mass, crib, east, orang, orgasm, candid, hatin, tran, blowjob, cocksuck, per, convict, land, resist, acknowl-
 edg, context, industri, deliber, collect, hundr, displai, ceainli, flame, dismiss, pack, wage, afford, rotten, instantli, extrem, nastiest, librari, enabl, dusti, speed, tough, safeti, speech, greater, broken, depress, repres, solut, preach, asylum, scari, flap, violat, crimin, cult, titl, himself, lowlif, impress, mostli, sugar, dodg, pole, slip, slide, pregnanc, lead, separ, grasp, irl, airplan, povei, dodger, brilliant, thread, reaction, tall, flag, content, charact, weirdo, ancient, obsess, sheep, moron, politician, hobbi, garden, fan, troll, bot, king, opposit, effect, nuur, meant, group, infant, justic, haven, test, beetch, bald, tomorrow, bold, elitist, grandmoth, econom, wealthi, aunt, present, reveal, felt, decis, interrupt, exp, thang, barefoot, daili, costum, harri

3. *O* set:

religi, gin, insight, uncov, applaud, threat, inn, ap, bh, cricket, contin, socialist, emul, worship, meal, glamouris, twit, dy, oppress, stun, disembodi, raven, m8, serioi, gotchu, legitim, goodby, podcast, actor, prosecutor, 11yr, cigaret, suke, fetu, rant, youngest, taken, charat, condon, slightest, heav, huf, puf, dismantl, sympathi, student, renov, gasp, hack, pillag, massiv, current, cupboard, seri, outlier, shield, powerhous, rate, star, abysmal, testifi, rightnow, curbsarenomyfriend, skale, gutter, accident, monologu, nahh, myasu, mislead, coerc, barber, serrat, knife, raevin, namjoon, predict, jinx, mobo, default, highest, frequen, ban, stung, unwil, violenc, antarctica, woodi, uk, trailer, bama, pix, novel, miaow, mysogenist, pizza, histori, heritag, rapper, allin, impeach, obstruct, jack, hentai, breakfast, yummi, sauc, beanbag, panel, rubiu, versu, righteou, boycott, roach, flowi, shop, owner, direct, dosent, mulla, nate, acct, womentakeovewitt, arnt, asset, build, prop, mod, 16gb, lamer, whoop, hee, merienda, siopao, elyu, gya, kya, strang, fanc, jurgonaut, inform, perceiv, impercept, cringei, fwhim, nowher, superb, esp, divorc, enrag, booth, cou, grand, skrew, rise, backward, fast, print, eventprof, businessman, donat, lac, muslin, dou, hemlock, fly, expel, graduat, humbl, gaya, milega, primari, highlight, smut, thankfulli, minor, lmfao, fasho, alredai, thu, stuff, tow, sourc, fck, bubbl, union, shape, bunker, alfa, floor, chopper, nightmar, privaci, pressuris, stream, lesigh, chip, 6h, furio, caution, possibl, organis, ensur, belief, prior, maasai, wako, aid, lavish, lifestyl, bedbug, captiv, condemn, relaxther, humbleclearli, infidel, openli, nelli, weapon, mix, gaw, 16k, upgrad, revers, 1k, execut, yer, ranger, maw, hahahaha, canin, canal, puppi, inse, seemingli, harmless, websit, credit, chicken, hawk, offici, swamp, plz, j, undermin, apologis, pre, empt, note, memori, shini, ipad, justifi, heabreak, repai, betray, acca, id, passion, hall, combin, priest, sexualabus, manufactur, traumat, taught, alter, milkei, seed, saibaba, lord, krishna, suicid, comatos, assail, hypnotiz, synthesiz, luxurycar, luxuri, supercar, integr, perpetr, ali, ticket, underneath, held, activist, exclusionari, van, chile, la, plant, jst, lyk, hog, quran, arw, islam, thow, lid, centr, breakingnew, tech, bitcoin, digit, paradis, donkei, 3am, outag, wax, mutil, third, pigeon, discredit, view, net, spice, knight, thestressninja, lifecoach, blackest, 10cm, pillow, lai, stomach, foul, calcul, eastward, ty, charizard, marshadow, pokei, duh, gc, yellow, everwher, remain, audac, thanet, reserv, admiss, rudig, bench, behead, wrath, utterli, insur, dom, form, press, slang, associ, area, forcefulli, broom, possibli, advent, calendar, throughout, offic, verg, resign, democraci, holi, peopel, needi, rahim, genuin, whatabout, ident, keynot, hater, anxieti, nibbl, gobbl, rome, poetic, prai, rmpire, impal, everybodyd, derbi, detail, dcfcfan, tgt, spill, slot, occupi, apologi, oooooohh, astound, voic, romanc, mere, inordin, system, fail, braver, assassin, autocorrect, patriot, lv, inappropri, behavior, possibl, trial, equivalen, lacross, accu, greatli, modestli, re-poedli, diff, generos, staff, underwai, campu, slaughter, goat, renam, upmanship, belittl, belat, condol, brand, ambassador, jai, hill, tha, fook, delici, espec, crore, fifth, tape, constantli, billion, yogi, captur, ycot, pjnet, silo, tunnel, structur, stephapprov,

earlier, templ, dess, peel, banana, graphicdesign, thirst, blew, tower, resear, dyson, steep, 13yr, amidst, employ, arent, flea, tastebud, yoi, div, wankstain, cabin, indoor, unawar, wink, process, replac, graphic, crowbar, snivel, sore, faith, wayyyyyi, headmast, verdict, lala, prettiest, starv, empath, chant, bulk, cpu, ssd, contact, design, brew, frustrat, bagel, tasti, bound, dialogu, unplug, minimum, devic, isol, shahjahan, mandir, render, hotel, golf, analysi, historian, coalit, paner, freakin, visit, receiv, pupil, jame, brush, shoulder, deficien, healthcar, crook, heappen, radio, alot, era, almighti, construct, amend, constitut, tina, grim, achiev, illus, fantast, anyl, pussyishi, brim, fishi, simpl, reject, prego, hahahahaha, narcissist, satisfi, comedi, whorehous, qualifi, path, six, pram, traffic, endear, bromanc, keyboard, crime, tide, featur, info, verifi, brochur, ongo, amen, equalright, ham, chees, rye, obj, meninist, inch, impact, aicl, jackandjackdoingitright, previous, repair, driven, movem, stat, monthli, action, padr, menrdec, shrewcultur, bb16, jobsrepo, mensright, misandryisr, misandri, tlot, bigot, berat, activ, masculin, fascism, altern, nazi, fascist, backup, philosoph, comrad, enemi, resolut, squad, digest, breakup, transit, paycheck, snack, moo, clue, repostapp, mumbl, android, chillin, cramp, weekdai, rag, butter, selfi, turkei, bacon, vicari, bae, fallen, hint, carb, ten, missionari, pair, psychopath, shithead, upstairs, flush, toilet, ing, announc, pride, claimin, holla, textp, onlin, blackout, quietli, thrive, awkward, holder, brag, cowork, stranger, joint, crew, whether, egg, weed, whitest, soap, livin, edg, govern, appar, fuckeri, pe, funnyshit, coffe, jean, liver, cuffin, repossess, cure, includ, wifi, baender, verbal, cruelty, expans, habit, grammar, gettin, hungov, stolen, watermark, stingrai, blatant, comfoabl, liabl, inabl, interview, loooooooooooooool, sweethea, lemon, sub, mustach, greet, stalkin, fella, goodgirlwithbadthought, grai, haiiiiiiii, bachelorett, staer, recollect, highwai, 5am, liquor, toughest, gangbang, horribli, wingman, bun, fend, confid, panda, stalker, plain, ab, romancein2016, pool, breez, subtl, eaten, drier, dese, huntermour, twiddl, satisfact, hump, buri, cremat, comprehend, slick, apolog, carefre, unprotect, spelt, cardio, appeal, adveis, organ, protein, dumbfuck, flatter, daydream, xp, hangov, photoshop, taco, toast, checkin, strung, copyright, cupcak, legend, squier, platform, sc, mysteri, silver, cuss, rotat, revolv, clingi, touchi, feeli, warm, awak, bruise, sorrrrrri, infuri, soulmat, nonetheless, innuendo, repeatedli, accid, viva, extens, unicorn, waiter, signatur, mask, cough, headlin, ceain, tune, tap, gut, contour, crash, psychic, surgeon, saveri, chair, flew, drivin, briefli, crackhead, purg, materialist, leisur, thrown, updat, templat, 5th, hoop, evolut, discuss, grid, refriger, fruit, veget, memo, rockin, pointless, center, chronolog, butterfly, gotten, ensu, babygirl, gift, wm, essai, sip, indec, exposur, magnific, emotion, guidelin, reactiv, shrimp, fleekin, slid, rival, stealin, reconfigur, allerg, latex, green, tea, healthi, fatten, fascin, handicap, necessari, stroll, sail, spell, outdo, specif, unfunni, casa, su, tent, impuls, spout, individu, purposefulli, indign, microwav, fragil, subv, grad, shoutout, wrote, dwarf, hnr, killer, aveng, fuss, denounc, porcupin, crab, grate, fuccin, brawl, promptli, conduct, walahi, mna, lsa, basm3ha, m3rfsh, wala, sudfa, loool, farmer, fckin, tp, ummm, incorpor, sabotag, ancestor, clarifi, misun, combo, gimm, bunt, dunt, eunt, funt, gunt, iunt, junt, lunt, munt, nunt, ou, ht, motherless, blast, ego, limmi, search, logic, wond, spastic, freshm, civili, curl, mhmmm, daytim, crowd, cishet, roulett, yoke, culpabl, docil, rea, ponder, creep, beca, derail, topic, badli, recognit, journalist, lik, vic, perv, yooh, unfair, slur, auspol, rold, immodestli, fau, adject, feminin, macho, brave, oppressor, neutral, constituen, mindset, stare, kenyan, vocifer, lightn, jim, hopper, selfless, sketchi, peer, trauma, behoov, narciss, uh, tone, harsh, disappoint, broad, daylight, sincer, debat, circl, jar, braggin, ofc, presum, premis, distinct, contradict, inquiri, homeboi, conflict, generalis, lee, everret, ev, crafti, variat, frog, som, caution, godless, heathen, underli, defam, ejemplo, curfew, danger, chaqu, chose, temp, fetch, clip, slangin, grabber, cha, pursu, gosh, grip, louis, horribl, roc, marco, hannah, montana, thinf, oppos, brei, regga, holiday, bestfriend, slimi, closet, phat, premium, jeremykyl, attir, mighti, warrior, cycle, grabag, shall, polici, idi, taqiyya, thin, underestim, revolut,

hing, satir, rantin, systemat, section, suspect, conf, innov, centuri, overreact, plagu,
 unfail, paranoid, rodeo, sooth, mountain, paint, shah, denial, stan, depo, signag, cron-
 greg, spinster, dismi, ci, petteist, becau, firm, connect, towa, abid, pill, beyon, ego-
 maniac, sudd, accent, grief, keeper, junior, gaslight, lib, knell, kingdom, delusion,
 capitul, perhap, mentor, peri, stigmat, conclus, widow, disregard, diagnost, tribut,
 laughter, dentist, taylor, vet, factori, crybabi, faint, girli, cocktail, senior, somehow,
 invad, pitcher, intention, bat, basebal, four, password, ti, haircut, regret, cougar, rang,
 miseri, pussiest, delight, dive, brunch, chub, drinkin, disguis, beefin, volum, 11am,
 lurk, demean, alr, hv, lure, film, reclaim, servo, crutch, johnfkelli, golden, callk, woe,
 eboni, midget, tini, unlov, moth, ejacul, bloke, jogger, grei, asher, dislik, greeneyjon,
 gape, slit, muff, gash, egirl, cumhold, tsunami, guarante, nicest, dean, anniversari,
 ea, mutt, demur, shrew, sultana, pickupafuss, refut, besid, stilllllll, yuo, tidi, absente,
 goddess, allll, mut, reciproc, cok, mall, unheard, assad, coin, idc, intens, meeeeeeee,
 cumbutt, gaymanfetish, nohoslut, elli, fandom, wail, attempt, repent, cork, paicular,
 chauvinist, weav, haras, prophet, shy, protector, irresist, embodi, cognit, disson, adul,
 wahhh, persu, anatom, bulki, fearless, geniu, written, wh, resembl, shitload, objec-
 tifi, creeper, 16th, gawd, fightin, yat, mcm, rly, tribe, instablock, learnt, alien, below,
 easier, stir, ohy, stanot, euro, schlong, abit, bass, hunter, headbutt, useless, fuckhead,
 meth, pen, tube, foil, morrissei, extern, iloveparanormalrom, lad, fiction, ch, lowest,
 handcuff, halloween, swing, twank, twink, lo, y7fdhch, inshallah, butthead, duduk,
 diam, richardspenceruf, usnavi, timemagazin, bieber, cpc, sandwichmak, applianc,
 notori, er, timelin, swat, reprehens, ind, compel, notallwomen, kennedi, grimi, sex-
 ualis, patienc, viue, corpor, began, cdg, egotist, monger, sooki, monki, react, tim,
 smeon, financ, yearss, thunder, punchlin, fo, scumpig, brainwa, 2grow, throb, knot,
 prude, sean, voicemail, pi, eomma, char, pee, rankl, implic, pale, flaw, secret, 2cthey,
 use2gain, bid, filth, sew, digniti, gntlement, eheh, psa, binari, frame, dichotomi, di-
 vid, patriarch, paradigm, paicularli, classic, skaterboi, len, chast, complex, pedal,
 honor, slate, injuri, contradictori, imo, anchovi, eater, tooth, hoodi, pizzag, owl, luck,
 fuckwit, coach, progress, goooooo, daft, concept, unfamiliar, foll, horsei, hors, re-
 spek, 8th, wannab, averag, bi, fuker, besti, streamer, bow, bred, ree, seper, collus,
 font, sec, hotdog, shrill, blam, encount, sentenc, gamut, eyerol, pornifi, fantasi, scan-
 dal, beach, warrant, nine, seeker, assault, technologi, cinema, bolt, mire, duck, cack,
 bafaf, wang, flout, hbox, dadd, peg, redund, prolaps, rhyme, trim, nigha, penetr, heel,
 some1, kindli, uplift, discours, versatil, kpop, horrifi, spa, sigh, beaten, bratti, 4rap-
 ing, 4showing, wom, disingenu, denigr, castig, sooner, abbrevi, engross, ena, x4,
 oreo, z2, runner, beco, grandstand, varieti, 2k19, tm, grave, scissor, bouncer, growth,
 propei, backlash, cori, foam, milag, pple, provo, development, disabl, baffl, purs,
 obli, atheist, arang, 30yo, wk, fantas, gorgeou, unapologet, fig, norm, assumpt, bak-
 eri, butcher, biologi, everrrr, perp, pinch, bridg, fold, donor, fever, iknowwhatkind-
 ofniggasaregonnafindthistweet, icecream, sexualharass, warp, fathom, meantim, so-
 ciet, predominantli, strongli, theyv, pentagon, griev, induc, author, alt, perjuri, 1950s,
 shown, modest, unattract, reduc, com, mysoginist, retir, tumor, libtard, cra, comic,
 refund, comicbook, tear, audienc, approv, reput, rapi, hve, bigx, recreat, infanticid,
 adjust, nomeansno, parcel, withdraw, factor, cage, cube, edawn, hyuna, sm, jyp, yg,
 lmaoooooooo, inuendo, homosexu, imaginari, magnitud, quiz, incessantli, knowin, ac-
 cordingli, mete, racial, popul, blood, mp, hasnt, comedian, mr, instil, russia, ma-
 ial, putang, ina, lentek, lang, naririnig, ko, dute, destruct, impo, launch, badass,
 rig, commonli, forbid, speci, friendli, modern, increas, emphat, enorm, nicer, jo,
 demonstr, drama, mamma, docum, avail, lectur, colleagu, plantat, molest, statu-
 tori, anyt, 2t2, dickkkkkkk, hr, goddammit, acid, funniest, blacklist, fungu, preclos,
 whatsoev, occur, campaign, clench, jaw, grind, pleasant, spidei, grill, stfukthxbai,
 sarcasm, 25th, oblig, slappin, greeneri, poppin, villag, corps, arrang, youv, reclus,
 noooo, gifset, pali, beastli, thought, solostan, perspect, womenvot, unmotiv, script,
 bud, goodli, moogli, kooki, cooker, corrien, injust, harras, recognis, emploi, jour-

nal, firstoftheyear, firstofmani, mickeyhaslowt, disqualifi, citizenship, chain, migrat, decor, swine, flu, bin, rapistsinuniform, anklet, passag, blurri, dox, thug, arena, kitten, rocki, typo, shoer, jojo, siwa, hick, ironi, renew, vow, waitin, nk, tirad, categor, comfo, nank, jap, odwyer, supposedli, wisdom, dysphoria, compat, harress, janitor, acquit, feebl, semant, straw, system2nd, troop, sacrific, yadayada, duti, douchebag, riverbank, jailhous, funn, residu, borrow, brigad, impun, prejudic, character, assult, 400k, nomine, transparen, hm, delusio, couldnt, yank, chancla, teammat, walker, raggi, playlist, analogi, cliqu, kai, impuni, background, divers, quota, juri, overcom, allegedli, embassi, scorn, hardest, 2gether, strict, remix, faher, megaphon, defec, suppress, intoler, distraught, pose, republ, dictatorship, censor, blank, falsiti, jesu, meaningless, mindless, drone, core, ordinari, sui, slob, addit, puffin, chaeyoung, absurd, kamela, growl, ohohohoh, couch, strap, shoota, righteous, sprai, petrol, neuter, hung, squ, lessoni, takin, colour, y0ur, fridg, magnet, sale, metal, motto, luuuuhh, gameag, platoon, depth, foreskin, ligma, chi, senseless, pelt, programm, proclaim, pinki, sumn, salad, conscienc, pogo, foh, plaintiv, wistfulli, hesit, heafelt, mark, sang, pointedli, asleep, cumslut, fuckm, naughti, cumtribut, jailbait, submiss, venu, theindign, govt, mob, conven, conferenc, incl, jok, adam, timid, peo, 2k, below, knetz, gn, harv, 250kdonation, foundation990, 450million, rose, uninform, poorli, motherhood, unequ, dickhol, ri, flow, chapter, insinu, chef, teenag, reatrd, rightw, russian, evad, complicit, greatest, whacko, corngat, raggedi, stinki, cmon, signal, supremacist, youporn, sdm, pickup, lindsei, mypickupgirl, upski, streetpickupstubb, brutalpickup, psycholog, leat, complaint, menopaus, hotflashtump, trail, toad, disast, relief, cked, flabbi, skinsuit, session, thx, affirm, misogynistsdrawlikeshit, deciev, fornic, adulteri, scammer, wah, 44m, porno, shift, roaster, truest, reward, regularli, leftist, winter, channel, tend, paicul, mustn, gimp, lem

D.1.3 DS3: Hate Speech

1. *T* set:

gaywad, alsarabsss, blacklist, glitter, lassen, youll, blondeproblem, evaaaa, shitmybosssai, smmfh, mongerl, ayo, azflood, clone, rome, sprinkler, naacp, indiviu, milesthompson, banner, agg, recruit, buku, warehous, gaywrit, breaking11, dammn, retweeett, 1000x, pharrel, bazinga, aaaaaaaaaand, hijack, presser, causung, mischief, properi, 2have, maria, hypebeast, knockdown, itwa, hesgai, faaaaggggottttt, shrek, goddam, 100x, butthol, placem, tang, enrag, bia, drream, soca, heyyyyyyyyyyi, vaca, gank, imo, niggerfood, niggerperson, h8, monki, coher, barnyard, ovenjew, encrust, niger, fairli, dan, blasphem, islamofascist, reto, idioci, whse, mgr, girlboi, spon, mouthi, nigeria, aklv, geta, shabbat, witcho, balless, swaagg, elem, tourer, whooooo, faze, fazeisgai, calld, usen, christian, picka, nanni, medal, railroad, constitu, jap, ofmin, infatu, okiecop, lolli, premium, stuckup, zak, fergusonriot, wad, wayan, foxx, threat2, apost, kufar, cld, islam, overrun, mongrel, perish, webb, fuggin, codeword, zionist, antisemit, reverend, minstrel, sewer, homewreck, usernam, tusk, beetl, banwagon, toois, retar, oppress, magazin, chromeasom, kindergarden, nebraska, gayer, niggress, inclin, isol, hamster, obes, cement, moham, spaz, amigo, ballsack, lego, goldbar, eric, holder, 5eva, weve, deed, wher, imperfect, standn, mideast, indentur, servant, hayse, yaselv, barg, skater, gazel, popey, gger, hairstyl, bulldoz, pundit, homophob, darl, lotto, radic, batshit, breeder, dumbi, yt, laughabl, schitt, buckciti, racismisaliveandwellbro, conduct, chainsaw, kai, thnk, wishy-washi, forsak, templ, arkansa, clearer, sonic, likea, anon, backped, trigonometr, libei, parenthet, explan, cultist, bisexu, oblig, tomyfacebro, oki, everycunt, thii, toosoon, crusad, hoomi, clout, manhood, defenc, sheboon, tradit, limelight, wacthh, nahhhhaahahaha, mauri, psychiatri, immor, gypsi, fuckri, hindi, moslem, ahhhhahahaha, peasant, unwash, roleplayinggam, absolv, suburb, crisco, idfk, baiter, trashiest,

perceiv, injustic, asphalt, chava, cob, tittyi, loooooool, phillip, oscar, beta, democr, 3yrs, restau, pigfuck, rambl, lust, bromanc, whomp, honour, furrybah, rancho, devianc, tragedi, pedestrian, snipe, immun, liesaboutvinsculli, condon, knowwww, kamikaz, whitepow, suspici, printer, chimpout, metlif, hd, bearfac, yusa, straggot, honcho, unselfish, stalkin, fuuck, dicklick, kenni, ble, tun, zipperhead, gettingr, whitest, knooooooooow, biden, plantat, nuur, anthoni, overbreed, swill, sexist, teabaggerswho, antic, fixitjesu, downsiz, nooooooooo, huff, humplayproblem, lucricu, dagger, cousintouch, clash, midwest, priesthood, histor, beverli, transmitt, 3mins, recept, sycksyllabl, stoopid, reconnaiss, gahdamn, peckin, axin, aslina, midlan, doughnut, wifebeat, fuckhead, carv, sista, heeeei, tutor, waahh, gezu, houston, nbomb, rando, inb4, boyyyyyyi, subordin, mariachi, hjhdydhlgjdftilh, crip, receptionist, kraut, towelhead, lmaooooooooooooo, rush

2. $B(T, O)$ set:

queer, he, a, beaner, smh, you, can, tell, mexican, re, fuck, gai, hoe, out, for, anywai, i, why, there, s, black, peopl, and, nigger, least, m, not, snake, coward, but, at, isn, t, crippl, like, your, hero, lmaoo, new, shoe, that, will, be, releas, by, on, the, dude, fag, wa, yesterdai, stupid, bore, suppos, to, cute, faggot, cc, coach, want, me, feel, it, get, more, my, nig, no, doubt, retard, make, grill, chees, won, baddest, bitch, worri, about, nigga, see, da, fuckin, yo, go, look, video, of, man, found, kidnap, girl, in, what, kill, cracker, babi, did, just, hear, grandma, us, call, porch, monkei, all, time, think, she, refer, broken, bottl, knife, thought, some1, photoshop, face, hate, yall, race, stand, up, sai, turn, world, into, ghetto, slum, sour, appl, bitter, wit, em, we, spic, kkk, ral, here, hut, our, butt, callin, jiggaboo, marriag, okai, beyond, don, futur, son, walk, down, street, hold, hand, an, ain, gunna, do, shit, spear, chucker, ol, trout, mouth, ass, even, handicap, scalp, real, close, ll, tripl, six, pussi, hater, suck, dick, die, quick, comment, d, good, friend, wai, name, poor, whitei, lot, rain, too, bad, wasn, enough, wash, awai, teabagg, racist, white, trash, state, teapai, full, who, move, from, becaus, non, ar, allow, live, farmer, outsid, gt, him, if, u, talkin, or, smash, homi, genet, engin, lab, natur, someth, wan, na, tweet, drink, pineappl, soda, dai, asian, drunk, how, plai, deez, n, dat, creepi, thug, job, thei, divers, toler, long, tcot, scientif, indic, celebr, uniqu, cancer, firefight, goauch, wetback, ca, month, honkei, watch, porn, amp, beat, off, text, show, hi, fucc, nicca, yu, pose, pullin, said, got, ta, chill, with, thi, pretti, challeng, foolish, y, 1st, goon, gon, around, burn, stadium, place, them, lbum, de, foto, project, student, highlight, awkward, wonder, awesom, tank, ask, everi, bi, agre, those, illeg, home, heaven, fo, color, bag, wut, need, shave, without, athlet, purpos, af, afraid, two, love, song, dope, done, last, final, walkin, campu, own, pothead, annoi, weed, pot, same, thing, hype, bread, loaf, chick, dyke, rapper, win, game, dure, regular, season, when, playoff, lol, kid, favorit, activ, their, pet, school, shut, work, anoth, ring, damn, wifei, back, share, shoi, phone, charg, backward, aint, special, niglet, ppl, take, pic, hatin, find, niggaz, let, weirdo, b, ima, famou, these, count, somethin, thank, reward, pal, graduat, fact, oomf, her, lt, manner, greet, insult, fleek, vocabulari, o, unfollow, so, dm, rude, cunt, lmao, affect, also, left, alon, issu, ok, cool, mean, wcw, sleep, ma, niggah, ugli, whatev, deserv, kick, newest, form, privileg, goe, oliv, garden, fridai, shop, gusta, typ, other, person, dumber, pretend, ankl, sock, gener, bro, begin, ever, aren, roll, ey, wohless, beer, old, ponk, outchea, have, talk, men, pick, truck, scream, nerv, mad, miss, free, throw, some, bet, pop, basic, background, music, disgust, should, dealt, year, ago, wouldn, problem, now, wait, munch, homo, fight, ur, choic, happen, wrong, alwai, among, total, correct, livin, round, dem, folk, bringin, hood, valu, gui, movem, minor, public, fed, jew, well, accord, internet, ap, broke, nice, answer, snapchat, butthu, liter, eat, asshol, actual, seem, littl, confus, teammat, hit, someon, late, yap, yell, def, room, send, where, belong, jack, line, coon, slai, piec, poop, pleas, lmfao, bed, pass, yea, made, greedy, loser, leav, till, 6pm, ride, never, follow, ignor, citizen, nasti, whore,

bullshit, wow, comin, rape, post, hipster, bright, keep, give, sand, ran, over, enteain,
 ultim, prove, were, piss, robe, ref, stop, true, bum, claim, hall, fame, legend, tx, wld,
 intvw, question, disrespect, hei, hous, uncl, tom, grand, rest, case, styl, outta, put,
 ink, self, stai, defend, fuckboi, boyfriend, while, accept, both, stfu, dumb, chase,
 gone, nigguh, speak, blond, hair, hypocrit, cuz, chink, then, themself, pathet, human,
 disgrac, know, brother, mikei, sta, fun, admit, ebola, boi, slut, jk, dog, befor, fish,
 suppo, lesbian, differ, better, rn, high, punk, tongu, alik, usual, head, bullet, interest,
 thru, scope, purpl, pink, protect, polic, instead, wu, clan, bean, lb, lethal, weapon,
 leg, hatr, ad, fuel, arsen, learn, mani, search, trend, topic, object, fan, movi, matter,
 sound, idea, word, spread, commi, sure, border, jumper, countri, redneck, attitud,
 fake, nw, becuz, bdai, screenshot, ju, hope, hurrican, sundai, ew, thirsti, fugli, omg,
 gtfo, ratchet, understand, life, right, spo, bra, bball, sho, wear, ye, twitter, lame, ne-
 gro, hahahaha, youza, wigger, am, surviv, silli, boo, attack, bunch, dii, prai, church,
 care, religi, band, onli, would, bui, album, crybabi, blk, dress, whine, haha, ight,
 calm, yoself, block, try, ha, clear, schedul, roid, rage, much, legit, tryna, meh, pre,
 still, noth, low, info, dumbass, vote, corpor, shill, idiot, believ, dummi, god, wat,
 prolli, seen, shaft, lizard, ya, slang, page, cant, offend, than, im, ship, shoot, her-
 self, sick, tan, happi, woke, sentenc, joke, snoop, acknowledg, fat, preciou, lookin,
 big, fix, grammar, blunt, spell, check, meant, liber, feminist, fatherless, wallet, carri,
 breh, filth, afford, date, randi, roast, hang, common, wast, r, read, bacon, middl,
 finger, twat, yourself, dictionari, cage, nothin, cousin, touch, wannab, listen, hick,
 alcohol, cock, profil, paial, describ, twist, funni, rememb, nephew, cry, quit, such,
 grow, pair, huh, madonna, yeah, gaga, bihdai, assum, hmm, guess, po, muzzi, sit,
 raghead, sweet, comeback, herb, dnt, soccer, id, wax, swallow, red, sox, took, nearli,
 respond, wuz, tho, hop, across, pitbul, evil, cow, tri, ag, typic, nahh, spook, dont,
 child, hire, di, week, pull, illiter, dispers, might, safe, idk, welfar, daddi, bend, offer,
 flatter, women, laff, set, apa, mix, terrorist, delusion, thousand, radar, mom, bastard,
 come, everyth, compani, troll, prepar, seriou, fuc, swear, todai, peac, woh, sorri,
 shoulda, bc, cold, wont, blowin, aunt, traitor, swept, clean, deal, episod, ball, kike,
 tit, cocksuck, rep, term, depo, savag, meet, dryer, york, mother, blew, base, worst,
 bruh, ly, inspect, chang, number, dollar, account, neck, fellow, children, gang, mem-
 ber, wors, dare, pecker, order, anim, fighter, soft, act, tough, sidelin, sack, juss, drug,
 dealer, arm, respons, youtub, channel, proud, famili, horribl, trailer, oh, woulda,
 coulda, bout, ban, wag, catch, phase, closet, box, brain, whoop, front, guarante, few,
 ve, been, anywher, rel, pig, slave, brainwash, unlik, devil, end, luv, convinc, liver,
 fly, garbag, scum, threaten, peni, extend, danger, g, chosen, hypocrisi, statem, tire,
 commun, biggest, friggin, anyth, bye, ugh, wish, gook, jerkin, hentai, due, fite, satan,
 tranni, less, bird, wedlock, rate, father, run, success, hug, gettin, busi, gun, doesn,
 respect, sperm, drop, stank, rescu, lick, skidmark, fucktard, filthi, crimin, caus, entir,
 pat, bandwagon, studi, drive, stick, jerk, store, diseas, side, fair, ill, insecur, wreck,
 corni, pai, told, onc, against, gtf, aw, drake, corner, rider, tast, pictur, justsayin, team,
 ani, convo, attent, hell, naw, serv, forgot, degener, thang, nope, stuck, help, escap, pit,
 morn, draft, delet, cloth, ei, jump, conserv, disabl, vet, luck, capit, f, welcom, nate,
 owner, pill, magic, j, hav, first, cut, w, sword, squeal, monei, ud, lolz, cub, hat, stalk,
 draw, forehead, resid, nah, e, park, queen, bear, rule, thumb, blame, had, whigger,
 anti, whilst, under, influenc, most, truth, outlook, mind, els, taco, el, everywher, half,
 mail, teach, jigaboo, aka, tbh, shitti, feather, fist, though, nevermind, cigarett, bundl,
 lil, hoodrat, sad, mai, compar, fashion, makeup, tip, car, accid, sassi, type, hillbilli,
 beauti, hard, breed, prob, repeat, myself, couldn, honki, sinc, equal, oppoun, past,
 boot, camp, daili, turd, mention, paicular, peckerwood, stereotyp, sister, root, overus,
 slow, hr, hip, lebron, quot, forget, nappi, marri, mostli, eachoth, clearli, wtf, dad, rais,
 didn, scari, grade, wise, simpl, spit, smack, heard, speech, shove, lifestyl, throat, par-
 ent, mcdonald, after, born, hustlin, reveng, actin, shi, flip, cash, sissi, hu, probabl, dei,
 plz, none, steal, 100k, togeth, witch, bossi, pimp, starvin, racial, weren, bike, save,

environ, expect, lover, trap, limp, knee, ashi, foot, blue, wheel, nippl, congratul, of-
 fici, ginger, gross, aid, infect, fucker, glad, hopefulli, next, smoke, sir, embarrass, tax,
 knob, gobbl, douchebag, wage, knew, bruise, bring, finna, pack, could, hook, plant,
 citi, surpris, slit, reg, tn, allah, punish, murder, hairi, prude, decent, star, club, emo,
 rich, best, obvious, rout, except, gave, american, blind, genuin, jimmi, thin, sayin,
 america, town, stab, sent, prison, peyton, crack, talmbout, tomorrow, lunch, fire, lit,
 email, slice, c, ballin, titl, kei, flaw, small, nuttin, askin, nobodi, noooo, bald, kevin,
 gate, yellow, combin, eh, definit, top, makin, anymor, weav, came, tomato, soup,
 soon, towel, prosper, vine, ugliest, kickin, durag, nd, cop, rapist, laugh, lock, leagu,
 everybodi, ho, mango, through, tru, jean, file, sexual, harass, co, worker, shook,
 atleast, secret, imagin, creat, feed, humbl, again, almost, water, stage, nowher, me-
 dia, becom, presid, panic, gotcha, trophi, chicken, hasn, yet, fry, wake, whole, hello,
 kitti, goodby, list, mental, caoon, charact, broad, tag, si, dome, thinkin, lose, crib,
 smfh, psychotic, noisi, slant, woman, loyal, wassup, exact, machin, inbr, extinct,
 scale, funki, duck, molest, pro, slaveri, either, publicli, bottom, melt, shot, veri, fit,
 doe, didnt, until, strike, redskin, exactli, dese, doin, weak, freak, mfka, wack, cheat,
 scienc, procreat, treat, fanc, sin, ahh, invit, receiv, shrug, muthafucka, caught, guard,
 push, michael, sidewai, armi, dini, transformthursdai, ladykimora, vegasqueen, veg-
 asshowgirl, sell, nut, tear, lightskin, ponytail, stubborn, cocain, moron, colleg, sum,
 design, frm, gtta, boss, death, threat, goat, horror, hide, behind, smile, finish, con-
 front, ridin, fenc, givin, hustl, emoji, haven, reason, already, tat, drinkin, everydai,
 blow, bubbl, whistl, wife, flow, subhuman, mo, den, shoulder, shape, eah, industri,
 build, infant, daughter, tattoo, mf, punch, righttt, loud, playin, buffet, ninja, niga,
 expir, shittin, goos, ofai, scare, recent, chu, chat, prefer, upset, dark, skin, sidekick,
 darki, snap, protest, rack, michigan, strategi, doubl, sight, apolog, anyon, truli, mr,
 decid, notion, um, shock, amaz, joi, champagn, arriv, weird, migrat, fuher, rd, meek,
 arrog, add, defens, aliv, foreign, pa, x, yer, continu, contrarian, trifi, swag, yolo,
 soooooo, fb, stud, moon, forc, mood, upon, declar, stink, must, test, level, honda,
 shadi, girlfriend, barbershop, mock, leftist, unbeliev, refus, appear, which, naaaaaa,
 nude, sooooo, smashin, bitchin, bar, somebodi, scene, zero, west, along, fine, spot,
 surgeri, wing, replac, warrior, light, necessari, night, justic, sandwich, fam, boutta,
 break, chain, latina, smell, motherfuckin, express, dish, nem, region, picki, open,
 jar, pickl, dime, soo, goin, dice, liar, dead, k, south, automat, toilet, mob, juri, gga,
 split, lid, toni, cu, pipe, shake, religion, sub, footbal, heterosexu, bot, advic, beiber,
 doctor, tonight, miser, nurs, manag, neighbor, ctfu, stori, jungl, bunni, p, cancel,
 sleepin, wig, field, pure, depam, nigglet, trust, pi, therapi, sympathiz, went, estab-
 lish, superior, frustrat, abl, offens, fave, via, cours, faith, basebal, goddamn, urself,
 dramat, teenag, paid, ti, intern, terror, offic, retweet, disappoint, stuff, class, profes-
 sor, minut, crush, site, sometim, enjoi, douch, veget, mosquito, soulless, gutter, guilt,
 felt, propei, alla, hot, ic, sauc, crazi, wild, wen, young, cat, ticket, perfect, exampl,
 wet, insta, badg, h, neighborhood, lane, gyro, infest, squad, jesu, ching, chong, up-
 per, ed, legal, tackl, corn, runnin, suckin, fri, purs, leak, ou, http, clip, holi, unless,
 yr, rock, rol, teabag, captain, carpet, reject, constantli, karma, longer, deem, polit,
 group, known, later, horrif, paint, warfar, pt, pant, nigha, often, trashy, tipsi, lawless,
 lmfaoo, gassin, whip, coffe, loos, muslim, govern, sicken, between, ant, galaxi, fox,
 trick, mayb, homeless, militari, whatsoev, slaughter, unarm, crowd, easili, commit,
 suicid, address, knock, door, hea, neg, ov, v, sharpi, honor, suppoer, albino, voic,
 rather, urban, area, imperson, ni, sign, connect, legitim, increas, eyebrow, mustach,
 freedom, paper, freshman, sniper, suffer, cover, fkn, cough, sneez, system, strong,
 pregnant, camel, jockei, power, suggest, each, mcm, notic, chose, michel, obama,
 doesnt, seek, azz, sucka, darkskin, stole, seat, bust, wide, hour, food, aight, ruin,
 deze, demon, thot, tha, ceil, cotton, picker, coo, naked, uhhh, judg, wo, bought, mine,
 sore, terribl, librari, asham, singl, stretch, mark, racism, alien, crime, write, letter,
 lmaoooo, saw, great, summer, consid, hesit, faggit, dike, ground, wedg, ht, fulli, sex,

mildli, injuri, inner, imaginari, yam, knowin, mess, messi, teacher, abus, posit, disciplin, scumbag, mugshot, sexi, cultur, teen, golf, jail, bloodi, bigger, coupl, spur, basketbal, bank, engag, flop, social, suspend, jalen, happili, divorc, fudg, driven, ideologi, forg, union, bankrupt, cater, parasit, angri, book, immatur, ladi, point, reptil, crow, butch, realest, rehab, heal, straight, chanc, bibl, shame, fallin, main, digit, camera, selfi, lamar, femal, three, four, press, confer, joe, tv, hitch, tick, hound, flinch, priceless, soldier, execut, watermelon, childish, sens, davi, tale, propaganda, sourc, excus, anchor, dam, elect, knowledg, walma, smokin, log, vision, bail, visit, couldv, ay, selfish, choke, mash, potato, tool, rant, airlin, mini, van, thinner, nativ, possibli, restaur, custom, relev, whitetrash, card, slutti, circul, shade, elit, hunt, arrow, homo-sexu, war, gear, infiltr, hill, mid, complain, monogam, anonym, bodi, obviou, jerri, spend, incom, segment, discuss, payin, lip, bigga, imposs, smaer, cooki, reserv, stabl, endur, unit, gorilla, nan, enemi, mommi, cutest, ivi, cross, august, danc, ing, mall, weather, bu, driver, taken, chariti, organ, solo, q, law, mudda, dozen, cha, alright, holler, road, counti, cuffin, er, l, ow, ion, pl, salti, flesh, crawl, bone, chocol, session, blown, spoil, plan, fail, blood, ah, opinion, involv, ahah, bathroom, rice, phrase, argum, vomit, rai, nose, sensit, harm, medic, himself, zoe, bf, grindr, onlin, hopper, unfunni, sue, match, goodnight, sale, fendi, clutch, gram, harri, style, tf, nip, pierc, poot, repli, wall, stinki, buddi, error, min, bill, prevent, omfg, wop, diabet, sugar

3. *O* set:

shouldn, tyga, dwn, faker, skinni, hobbi, includ, curv, everyon, convers, toe, hardwood, floor, met, trippi, txt, wetter, excit, wrap, app, mane, clown, momma, insid, doghous, naughti, yello, thick, brand, cuf, dodg, bound, cleaner, model, woof, scal, lad, kany, gf, sole, oreo, complet, eggplant, seh, shower, cuain, ahmesehwet, skateboard, wood, bathtim, soooo, sidewalk, mvp, funnnnnnn, cuteeee, worship, lost, buttcheek, ungrat, fr, homework, john, paul, riot, loot, attend, hella, tinder, brought, propl, depress, foh, lbvsbitch, cuzzo, second, amen, milei, emotion, damag, wayyyyi, idc, meow, 12th, ny, vixen, ent, threw, foothil, yoooooooouuuu, wheet, earli, owl, worm, heavi, fairi, creatur, careless, hahaha, kiss, khaki, colour, cargo, hair-cut, yup, lap, screamn, anybodi, jersei, lmmfao, lo, slap, ainna, edg, tooth, bandit, hack, duh, hacki, sma, relationship, spark, chav, sockfetish, keezi, oooooow, pornhub, stream, featur, iguess, theyll, molli, seed, peel, rewind, io, alu, record, pe, anywaaaaaai, tape, upcom, mixtap, flag, iffi, knight, dry, condom, burb, holograph, cum, easi, major, bae, twerk, cook, booti, sheesh, tune, updat, repo, 1b, program, cowboi, cri, potent, slept, frat, arch, depend, vagina, toto, santi, choos, vibe, tight, grim, grandkid, climat, gurl, track, taller, blurri, obsess, lowkei, quiet, homeboi, speed, stripper, dancer, ballet, comput, takin, slander, role, lime, tree, inna, hoe-saintloy, retweetin, lmaooo, romo, mav, cowgirl, catfish, slick, handl, scoot, tent, hungri, ionn, lead, 27th, intercept, senior, mansplain, impress, control, tuku, blah, cuh, suur, ita, magaluf, probli, thigh, supahot, fohead, forev, slush, med, workout, stoner, traphousseeee, stark, harbor, bitchi, promo, smuggler, explain, avi, expos, mewhi, boost, size, healthi, near, stalker, loco, marack, taught, sike, beef, 9th, advantag, everyjuan, stack, cinco, harder, niggaye, ewww, fresh, greatest, mild, deni, oooh, betta, meat, trainer, perv, demand, sophomor, soul, treasur, teeth, gold, shhhhhh, roller, lie, friendzon, tryin, score, endzon, land, gimp, tht, distanc, uh, millon, violet, window, sill, shy, kiki, angeliqu, sip, tea, gym, patron, al, arrest, airpo, bby, aboion, argu, tweeti, link, li, baldhead, tweakin, shmurda, 7th, sneakersex, sniff, trainersex, kinky, eaterrrrrrrr, 51st, screen, sumn, tryout, bowl, frfr, contact, blinder, rea, pe-riod, neva, hahahahahahah, hahahahah, broadcast, nbc, abc, cnn, etc, weirdosand, browni, kind, yah, mx, slope, mate, action, promis, local, ajumma, rank, sneak, shi-iii, yasss, bestfriend, raw, frenchscal, panti, burrito, potosino, powder, boil, fade, perpetu, fresher, rite, huggi, chavhot, newli, kno, ainn, accessori, dea, view, wee, ex, isnt, batter, nail, bando, hotter, realist, feelin, imperialist, duce, disagree, loyalest,

fall, meee, dragon, goku, flappi, node, tube, lucki, trinna, imma, gung, zone, hilari, thrill, billi, liquor, meeedd, tamar, chug, alot, shitallysai, jada, picket, latifah, niec, titi, halibut, bang, troubadour, individu, eatin, grin, dream, sold, older, matur, fool, cup, wolf, flock, dizzi, separ, overheard, younger, shout, download, robot, surround, dimpl, prayer, dip, cinnamon, dig, irrit, syndrome, wave, tie, basem, donkei, hahaha-hahahahahaha, 50centmovie, beforeiselfdestruct, anthem, direction, alleg, bedroom, naiv, husband, hunter, brick, mama, remot, penguin, ahoi, spank, pimpin, smackin, cake, rose, adida, lighter, doet, haar, net, ze, ongesteld, vragen, waar, je, denkt, ik, weer, uit, kirk, 5am, yoooo, motha, freeeeez, loss, meanwhile, boat, kendrick, gotten, dy, freestyl, timelin, belli, million, incred, quest, ingredi, materi, fast, remix, thee, wheat, wigga, du, rag, swamp, player, needl, aftereah, yuppi, plain, borderlin, chunki, wick, brown, restrict, pickin, petti, snuck, divis, motherfuck, recip, leftov, eaten, repres, noneee, diverg, tunheimr, 200k, empti, cab, latest, titti, phat, biologi, spam, chri, hahahahaha, shank, cevich, rough, ym, egyptian, inherit, ethiopian, yardi, horn, wohi, sublet, feet, puss, flower, collect, stormi, jake, toco, bell, miracl, swerv, scro, tard, imag, concuss, flat, ig, far, resili, drama, attribut, catchin, erri, judgem, jumbotron, majjinn, buu, settl, headbutt, raver, venn, diagram, larg, intersect, stockton, choppa, luke, fatherrr, wasnt, deck, tyson, combo, uppercut, keeper, rip, britnei, leviticu, studio, mufuckin, suit, boomin, disput, ilysm, weekend, fabul, naa, nae, ko, fuckgm, fridg, toilla, wth, moment, 1personidbitchslap, tl, spare, leavin, dairi, tribut, remain, caucu, dock, coverag, fruit, loop, baender, pain, sosa, bangbang, exist, sodomi, uphold, cou, detest, air, heavenli, valuabl, hungrier, diet, actor, uou, tuck, boob, easier, sacrif, crest, bride, yard, dangl, ting, pang, drum, swing, flick, alarm, bic, whiffi, involuntari, climatechang, lifelong, sunris, dawn, thebird, jerryre, flu, metaphor, polici, vital, host, tail, savior, futurist, dayum, ij, wontgetm, jig, trap-houseeeeeee, coloni, injun, callou, buffalo, sampl, cider, vegan, slider, shall, tread, given, unto, leader, champion, hoosiern, hoosier, honorari, cooler, prostitut, madam, 6th, nomg, sofunni, snoin, gov, troop, sever, defeat, chatter, rave, averag, cleanin, plate, remind, perplex, feat, radio, edit, hundr, meter, dash, niqqa, 10th, iubb, indiana, reflex, breast, tuh, solv, awaken, livid, focus, focu, whaddup, cloud, hog, wind-turbin, gasbag, granni, sweep, dispos, 4ever, hadn, exit, z, ai, viru, ling, bladder, stub, katrina, moan, stroke, dump, extrem, anoyin, violat, sovereignti, fantast, pitcher, outduel, seri, blackout, satellit, bullpen, game7, flex, earn, lower, strength, hitter, bounc, beaten, ez, mlb, corrupt, possibl, cattl, prod, badd, anywer, palm, boom, bsife, 40st, space, creamteam, cockbreath, jesuschrist, ahead, gaymarriag, pocket, foxnew, balanc, network, gouach, inktob, oldpaint, mt, tiki, wahin, surf, happysundai, honestyhour, honeybadg, codi, zeller, nomin, guido, shitbag, twentysix, snappi, pappi, 5x2, sabl, paintbrush, ncaa, hoosierdaddi, kloku, longhair, gayboyproblem, champ, metal, morningjo, righti, con, emot, decis, motto, commiss, waveslid, waterwalk, notkook, vinyl, jazz, loung, browngal, nationaldoughnutdai, nowplai, witcha, inda, ona, sofa, plastic, np, paus, cud, philhugh, nyi, android, iphon, ipad, xxx, gape, nylon, creampi, british, anal, pound, eboni, babe, rub, beach, preggi, swollen, amateur, milf, cumshot, closeup, cre, un, paki, texa, bbw, deep, ram, facial, dildo, rubber, hiddencam, hidden, submiss, outdoor, korean, pump, lingerie, mastu, german, stepdad, toi, homemad, polandia, putabirdonit, realtalk, tow, johndeer, reject-edpeanutsspeci, southcarolina, highschool, uninform, stateoftheunion, 15mins, clap, tbt, rap, likkl, mississippi, oppos, minimum, labor, scab, sweatshop, throwback, tik-iti, eventu, ashtrai, truefriendtuesdai, tweetlikelexi, ultimatepickuplin, direct, beautiful, vega, wallofthewasatch, wrongfilmquot, everytim, kitchen, refriger, xfactorau, sing, youaremoreattract, bid, dreami, bud, plu, trip, torch, drain, finess, fuckkkkk, ittt, killer, salad, passeng, dun, lotta, fck, grew, bokoo, condo, deaf, tche, thinkn, sh, congrats, housewif, marbl, thinccin, 3rd, needa, seminar, hooousee, simpli, peic, impoant, temporari, fa, quaer, lean, hittin, cooder, stomach, mufucka, maaaaannnn, rid, mike, cyru, worsum, foun, mistak, burnt, tu, puta, madr, rooki, relax, beam, hob-

bit, brittani, sellin, pork, chop, brisket, sizzlin, laid, puddi, cheap, tacki, southridg,
 explor, kinda, bucket, honestli, leash, funci, yep, donttrym, bitchmod, testm, roster,
 haahaa, everrrrrr, dinner, nap, event, shovel, bat, ak, roach, bouta, quench, unfaith,
 fountain, prettier, step, wht, bm, guidanc, til, sink, silenc, vodka, bent, strip, built,
 fiya, threesom, txtn, tlkn, speakin, geniu, se, llama, delgado, gino, csitali, east, st,
 2million, nugget, toss, curb, ear, breath, unk, broski, nug, fasho, lmfaooooo, coat,
 warm, skill, sat, attempt, mtlhockey, stone, madea, thong, fvckin, mud, shark, itsi,
 bitsi, teeni, weeni, pock, dot, bikini, shaquita, yee, bahaha, wym, technic, breakup,
 pine, tar, zebra, print, sheet, irrelev, foreal, boosi,thur, ili, cramp, aspir, yuhhhh, ab-
 solut, sausag, clit, eva, pussai, rainbow, lezzzbehonest, blasphemi, boneless, symp-
 tom, nervou, starv, banana, plug, hole, desper, overli, fill, 2for5, neither, flight, tweak,
 wealth, nb, wantin, crissi, shyt, bonei, nam, carburetor, foyer, chevi, c10, rebuilt, seri-
 ous, slide, male, cheerlead, avoid, 5k, grind, lmfaoooo, helloooo, avail, upload, ham,
 souvenir, swimm, wana, liq, waitin, return, slowli, bare, spent, childhood, webbi,
 trade, vdawg, omw, scratch, lai, normal, kobe, hidei, noyvou, dusti, asf, train, ex-
 tra, headach, linkiden, denna, skinedddd, wc, juic, suspect, privat, tekken, correctli,
 scrotum, entitl, huge, wahog, bite, denial, aux, cord, glori, lmfaooooooooo, mermaid,
 fishi, loosen, tangi, punni, shutcho, ass, lexi, lmfaooo, reduct, anotha, circl, cream,
 hottest, ego, freeway, hurri, ohhhhhh, yesss, readi, omgggg, fucka, hors, coolin, uhhe,
 photo, snip, manifesto, hoser, adopt, path, sockin, funniest, heat, null, han, sextap,
 chile, user, wulf, beani, zip, yesssirrrrr, unblock, dreamgirl, wooonnnnttt, gal, sweg,
 yess, honei, foreskin, circumcis, pillow, vermontproblem, alotta, excess, kush, el-
 bow, bosh, mcbob, elig, ulcer, nomo, backatown, onyur, essai, dawg, een, mi, figur,
 brah, cuddl,ahaha, dent, fax, googl, fold, autocorrect, foul, starburst, candi, wardrob,
 consist, guilti, protein, polo, sparkl, bling, evn, preach, photograph, believethat, in-
 spir, slim, waist, innoc, truuuuuu, tribe, agreem, fsu, ewwww, gospel, weaaaakkk,
 lmfaoooooooooooo, amanda, fizz, geddit, switch, roo, shaq, onna, blackgirl, jealousy,
 lamp, lighten, measur, fruitcak, bio, vehicl, trait, spongebob, pander, jizzbag, stolen,
 witchcraft, holla, brotha, swine, nile, administr, 4get, stapl, rello, poni, benefit, gap,
 bruhhh, hahahahahahahahahaah, botch, libdog, bark, grandpa, playground, panda,
 panera, nosei, shooter, slam, poppin, dilemma, bun, jam, unfoun, ashit, shawti, tex-
 tin, accident, pledg, xbox, coolest, asid, kaya, constant, fear, gero, destroi, gimm,
 award, handcuff, freaki, seatbelt, kept, beep, fckn, whini, classi, musti, subtweet,
 braid, gell, havin, sittin, couuuuuch, flame, king, trav, crash, practic, snow, bruhh,
 costum, skate, innat, backwood, woe, homer, monsta, gei, batch, relo, fell, comb,
 successfulli, origin, wrestl, weezi, vers, diamond, goofi, simp, degrad, shuuutt, iittt,
 headband, hoop, sexiest, turkei, soggi, regroup, boooti, weight, orangutan, actress,
 interview, scoreless, 2nd, reliev, 4th, ga, hint, mug, buttock, wodeh, content, dee,
 smokei, jealou, blank, thotti, giggl, stunt, purg, bayou, classic, drinker, 4got, trip-
 pin, clock, insensit, ayee, sphere, bitti, lingo, whoa, turnt, shawn, jugg, weakkk, vic,
 quicker, griiind, luuuuuuv, wishfulthink, nicer, ahhh, 2faces, bib, allstar, weeekend,
 mardi, gra, spici, boa, trippen, brave, diss, slip, reunion, yanno, sydney, fucn, alll,
 bless, atl, turnup, infront, sarcast, elf, brush, daaaaaaaam, trigger, tabl, sloppi, de-
 molish, whoever, fandomapologi, 5sos, hoppin, homecom, 17th, besid, kim, appreci,
 jawn, peen, idgaf, publix, stair, theo, headphon, seventh, brian, jigga, fav, plaq, hc,
 heabroken, inniz, uniform, epic, smooth, wiz, khalifa, cocki, shutupandplai, twit-
 pic, proven, fckd, truuu, deeper, dishin, flyest, stress, paner, lift, tempt, breakfast,
 doc, bit, harsh, strap, muhfucka, fukkin, wicha, squar, wind, noll, eagl, mcoi, wine,
 dine, 1d, diana, written, boyzzzzzz, bow, oleeee, price, smut, indirect, blast, subbin,
 celib, dislik, nicki, minaj, triff, tooo, comfoabl, gut, nooo, stefani, diari, optim, ie,
 glass, insan, grown, kardashian, puke, master, chan, luhv, tioo, sumo, wrestler, misfit,
 saddest, websit, password, hahahahahah, boon, nvm, milk, doeeeee, undercov, raid,
 bestadvic, scariest, feloni, popul, hung, receipt, bitchyest, byyyyyyrrrrrrrrrrrr, herd,
 associ, sno, bop, vote5sos, ananconda, dumpster, modern, farm, comeout, dasss,

worryin, meal, wealthi, handsom, tend, highest, anytim, netflix, chucki, sew, pizza, curvi, chuassup, badli, hahahah, ayyyyi, predict, troubl, honest, lemm, histori, crap, fraud, happend, coast, sweetest, shed, pussyreal, benz, edc, contempl, cig, lovei, nike, mic, bada, decaf, humor, traffic, understood, fucken, sprai, febreez, sag, bandz, rachet, scriptur, mee, moanin, nn, ecstasi, moaaaaanin, moovin, hoova, tweekin, playen, hitta, valet, lordddd, whipppppppen, drift, fliin, friendli, bracken, killa, meeeeee, bein, ina, cherri, witha, sooo, 4owe, foo, fw, proof, mouthpiec, lesson, cost, thinkkk, shee, maaaa, otheeeeeeeer, countin, finest, finalist, babbbbbbbbyyi, mission, loyalti, muhhfuckin, rat, proton, otp, struggl, instruct, fucccccckn, cuhz, chip, limit, inbox, nevvvvva, gangbang, controllin, cryin, stressin, allegedli, bitccccch, steadi, lovin, ayeee, itchin, gossip, attract, drippen, vanillaaaaa, killaaaa, digger, drip, checker, grab, emm, lmaoooooooooooo, hangin, 2k, holllll, thirst, owiee, wifi, dedic, gottttta, maddddd, maddddddd, messin, tall, touchdown, hostel, iii, eem, watchin, salut, moral, brace, yaself, drown, swam, 2ur, eloqu, messag, bilingu, provid, sticker, nametag, pronoun, pin, bitchmast, backflip, unrol, scroll, nearest, skip, retir, mw2, afterward, flap, karat, acceler, era, wrinkl, squak, defianc, lovingli, ribbon, chief, thatd, motel, gift, requir, soundcloud, tumblr, orang, flavor, bubblegum, tablet, baller, inde, ostrich, buck, deliv, wah, adult, effect, concept, inevit, impeach, bait, inform, grace, avatar, dampen, mushroom, fallout, stylish, market, faster, stock, unrequit, howev, revamp, bussi, lone, micdrop, semi, evolv, valid, salsa, mile, radiu, 100s, 50s, 20s, depot, pussyfootin, xxxma, santa, claw, oz, arizona, egg, sunni, scrap, murderin, noe, pollo, killin, 1x, tower, 7s, 1wayhustle, bloomington, btown, iu, skull, glock, funnygui, 20k, suppoiv, chillin, talent, 2fine4cheapwine, com, millionair, coldhea, neverlovingsomeoneagain, dontneedanyon, wid, meijer, caddilac, luxuri, virgin, heel, smellin, moke, snitch, facil, gummi, powerad, yuhhh, awak, bull, forese, hockei, crazycat, 5s, thnx, 5thharmony, heheheheh, relat, chilli, speci, percent, radiat, 3xx, profession, untal, sea, delici, baldli, gorgeou, signific, whiper, pitch, touchin, saggi, graham, cereal, peddl, heeb, stain, reflect, calam, cometh, beast, sky, democrat, mawbar, selv, belt, prais, sonsof, realnigg, qualitati, massah, tase, doll, somewher, emoticon, gran, showin, earlier, rhyme, gag, greasebal, ruthless, alphabet, amend, 14th, freed, loophol, squirrel, suav, fuzzzi, abound, sigh, scarf, grous, bug, tornado, mon, franklin, gunsens, blanket, crusty, 6am, sweat, clam, comedi, writer, untru, tad, illmissu, shiner, fro, blog, rube, cell, riversid, peter, 12pck, lool, niic, schinder, rob, green, ski, camouflag, pan, dimension, gore, overpow, incess, cooli, lyric, dismiss, poster, 30th, lam, prego, squin, smd, monopoli, swipe, credit, distant, perfectli, guitar, saidddd, despis, intellectu, highli, principl, elementari, pom, join, sammich, flameeee, note, forreal, dri, mutat, convolut, gene, currieri, thoe, omm, bord, fuckjng, mann, throb, incredibli, scout, prospect, ranger, bishhhhhh, waasup, sucker, toward, b4, grindin, cuzz, thou, mia, trilla, lha, elitist, yourselv, china, winner, rug, misogynist, pile, salon, chuck, fulla, 10x, acct, higher, jet, xma, iit, chow, mein, ala, profici, pointless, stat, memor, mick, folei, morph, super, playa, 10yrs, boyi, gladbagflow, conscienceless, victori, await, collegehoop, volcano, bomb, zealou, doj, stach, fawk, ginzo, nassau, copi, nowb, momz, loveit, paayyyi, eldorato, bowf, therfor, campaign, sexism, beg, servic, jfk, regret, determin, condescend, bandana, getup, steak, gravi, coal, crew, cd, bump, banger, fosho, il, brazil, tour, similar, 2accounts, statu, lololol, angela, pearl, awnser, duper, current, complem, acid, rooster, degre, couch, fault, wtfiswrongwithnebraska, perk, load, tap, ja, moest, plisi, niet, meteen, gaan, denken, willen, wel, meer, mensen, mij, veellen, moet, center, dubstep, 70s, quadraphon, stereo, bitchlol, nog, dollaz, version, haul, jab, logic, complimentari, cap, career, ballot, cheek, gop, substitut, terrifi, mfa, waddup, cooper, throwin, mouf, wussup, umm, crunk, colder, immigr, elissa, leprechaun, 5yr, warrant, rod, weeknd, idunno, muzik, volg, maar, zij, komt, vandaan, zal, preci, uitleggen, panni, talm, paccag, coincid, tame, cajuncharm, dancerproblem, fin, edgewat, allus, hotel, stanki, snack, fierc, saga, droppin, snd, vampir, slingin, skyrocket, fallen, sharpli, contrari, math,

askim5, pee, chest, kinfolk, btw, plaquemin, fwm, maa, sharkett, rii, sponsor, insomnia, midnight, nat, colei, whammm, swerve, sahara, ooo, moos, forcin, byeeeeee, whitetear, lessonofthedai, ador, thisti, ps4, wrote, golden, appar, heffa, fever, talker, cdfu, shown, tini, kitten, plot, huski, bitin, erhan, der, roadrunnin, hacker, shoplift, lake, held, leas, gill, tournam, kiddin, fishin, bulbasuar, la, poll, integr, slimi, pogu, merch, wam, concentr, yoke, toast, quirk, giant, phallic, necessarili, wobbl, wibbler, hahah, espec, papoos, plano, sensibl, statist, purp, knw, contain, chemic, azodicar-bonamid, yoga, mat, iron, trashcan, 5th, misread, evolutionari, depa, hunger, hyposhit, downstair, juggl, amcon, merri, awww, sellout, yassss, booner, machineri, nab, nor, legendari, pleasur, platform, languag, below, kindergaen, shid, hahahahaha, apologi, fee, gullibl, hallon, yasssss, welt, sesam, fuk, unknown, somewher, pug, paak, ning, locat, blaze, skype, dmt, chowder, aww, affair, op, greaser, sasquatch, wearin, armor, slayer, helm, droppi, overr, tomar, english, outstand, accur, gobbled, aoi, helli, khay, freakin, cheaper, vouch, crook, motif, zo, ieder, zijn, zaken, mag, noemen, wilt, ben, namelijk, erg, voor, vrijheid, meningsuit, khan, mutt, necessit, smaphon, toddler, lmsoooo, wolv, lox, mook, rook, progress, x2, nun, dolla, stood, penni, stall, wib, serio, wassuo, unexcept, clinger, gamer, itself, flood, newsfe, target, texan, finessin, prime, nigra, wipe, hyu, ffffffffuck, rebellion, sharkeisha, sneaki, nite, magnum, vitaligro, semen, 2x, nunchuck, stuf, crust, brooooo, grant, xavier, diff, thristi, dye, jai, bei, screw, kou, fend, manpow, bootleg, borrow, biiiiitch, iight, og, burg, standard, goh, heeft, pauz, steed, bij, hoofdstuk, haal, multipl, rare, beggin, microwav, catchup, prog, releg, reid, toaster, vraag, hij, lichter, kleur, beter, het, morel, kompa, werkt, kleurenblind, sal, lazi, geweest, vaak, ook, zegt, dit, nooit, veonen, dierngedrag, layov, whatta, hmu, kimlau, sq, wore, hilli, clue, peep, dada, beefin, crutch, headstand, canon, equival, mm, rocket, swore, wooden, dammit, reach, stripei, hormon, shelbi, circular, motion, ach, juici, eleph, coochi, hmmm, letz, vocal, emoto, trunk, niiiieeggga, ratchetest, yous, donno, demz, iz, gurll, squi, geyser, lemon, eyi, pushin, hah, inch, 1v1, although, conced, funnel, opul, refrain, cuntrag, expans, wed, lyin, rind, marmalad, saran, askkevin, incid, amount, marker, anyhow, dink, uknow, elimin, consent, denot, somewhat, collag, jewel, caier, anx-iou, clai, zimmerman, leezi, function, decad, redeem, core, wizard, mullet, hooker, aicl, goldig, uncircumcis, pressur, revel, energi, electrifi, sukka, maker, prick, yuhh, spy, twice, fume, jess, nigggaaa, context, lolol, jenni, perf, theorem, assumpt, dust, height, mummi, interject, rum, moldi, wobbli, raggedi, ins, persist, victim, yokel, wyo, freelikeabird, neo, zoom, maxi, dweeb, option, piker, gm, whet, thuggeri, awar, sob, bingo, dread, southern, mute, vile, spai, mace, exsposin, toein, bel, nowadai, flite, bainbridgian, likkadawgg, kass, butcher, cheer, girlllaaaa, click, skylar, mornin, brazilian, lik, meech, yuck, bigotri, witout, gramat, puctur, nit, twit, esp, paddi, 20th, conjug, venu, diamondback, snuggl, stupidest, brb, appli, thunder, vallei, bummi, floyd, pac, rotat, quiz, nigggaa, tien, cansada, patchouli, squat, distract, icu, osi, tangibl, fie, lea, lahi, toughen, 11th, ward, carn, asada, pinto, tajada, verd, queso, frito, milca, psh, hectic, hahahh, koiya, pinada, frost, transform, pole, electr, puppi, saian, volunt, guinea, oft, scrawni, prairi, saint, underwear, stomp, nada, disast, recoveri, condit, draggn, nutt, tgere, burger, waffl, fml, yute, brow, darg, jst, play, overpr, piti, benghazi, shell, bass, cape, travel, cyber, concern, psycho, acronym, harlem, fad, manga, longest, parker, aaryn, looser, tampon, crayon, blissfulli, thinker, chump, hostess, uk, lmaooooo, exot, secur, jetsgreen, pleasee, battl, code, scuf, frail, coconut, oil, grei, speckl, midsol, ici, fifa, matt, zombi, mojo, goth, critic, glove, ft, crystal, eeeeeeeee, guest, cure, biz, malzeno, funnier, mugg, dj, stranger, whith, cheesi, tegenwoordig, weet, vlee, eet, aap, per, p2, duuuuuuu, copacet, luckili, prioriti, thx, missingtheaussi, scorecard, merci, stoppag, grass, greener, septic, ayyi, facebook, wouldnt, condemn, yaaaa, toooo, meth, discrimin, spunk, walker, scarri, riff, mapl, doughnut, sec, swingin, championship, present, kingdom, lbe, screamin, mfn, rachel, snobbi, rach, snutti, sup, tiger, weaken, environment, regul, infinit, decim, spike,

regardless, sheez, iv, trae, poser, fug, ohhhhhh, spokesman, gbe, tink, lookatathe-
 hood, nightclub, crackhead, wacko, builder, samba, ck, geez, ohh, yaa, pinki, bake,
 yh, congreg, blockhead, freez, mhm, impact, deflect, circumst, notch, dex, growin,
 wishin, braisin, wire, pup, shhh, cutter, lyinest, district, yhe, stanc, smaest, patti,
 drippin, bobbi, gta, passion, sumthin, cookin, blackish, doublestandard, permiss,
 wayyyee, kindli, velvet, waiv, island, comparison, bicep, anydai, tellin, noodl, coun-
 tryass, supposedli, messier, unfriendli, spout, naah, smelli, craycrai, canyon, key-
 board, commando, overbit, intimid, republican, assbat, stockboi, pinoccio, shadow,
 realm, kik, pool, edict, govt, ordin, whose, aim, communion, charlott, mintu, cd-
 fuuuu, debat, weaker, smaller, sparki, spamblock, spew, pancak, veto, chr, favor,
 closest, stunk, goalkeep, visual, lesser, mtn, irish, lmoa, giraff, chomper, candyass,
 dj, wiki, regard, situp, jammi, purnt, yung, nakalagai, sa, ng, handout, lalagai, pad,
 shouldv, slo, litebrit, atheist, hollywood, honesti, ukulel, quickli, realis, quad, oath,
 lmore, curli, somehow, reviv, strawberri, shocak, spung, freshli, sssshhhhhh, hispan,
 scan, sushi, booni, laughin, sae, en, feeld, kawkin, nawl, dolo, biiiiiititch, niggggg,
 scoop, shrimp, midget, dwarf, x3, fought, infin, angel, lml, bargain, pirelli, whit,
 bowbow, wade, shine, lem, potenti, reek, havoc, societi, flute, spring, allerg, reac-
 tion, memo, tryanna, moma, tone, drag, recycl, bin, limewir, mediocr, basura, raider,
 chemistri, farquaad, byee, iverrishaa, jim, selena, horni, 2am, linkup, rawest, bam,
 robberi, soundtrack, server, litter, mohawk, scrub, royal, snotti, entranc, samuela,
 conc, nicest, rig, bumgarn, proofread, vacat, cdc, treatin, blogger, moxi, credenti,
 nonexist, headass, shift, sloppili, oakleaf, improv, timber, chair, skit, hive, lactos, in-
 toler, crisp, talkinfgalot, photshop, bespectacl, mourn, zeitgeist, bitchier, parri, clariti,
 dunc, wya, whatnot, standtal, halp, downfal, dne, abov, ish, sprout, cordon, dif, bur-
 row, chad, reed, neon, gauntlet, sentiment, damian, shiddd, reall, brazen, unabash,
 accustom, bih, latino, uncal, impost, idol, envious, simul, plagiarist, aist, situat, en-
 dear, mhmm, hangout, volleybal, hii, mover, propos, brilliant, savant, juvenil, un-
 qualifi, appeal, educ, groom, voter, thedumbestteabagg, stockmantheliar, ruler, ted,
 cruz, cheatin, scoundrel, bush, havent, meathead, mong, daylight, squinti, guidelin,
 shamu, seaword, twatchin, nie, temp, abouta, 30pm, goooood, savouri, agent, harvei,
 valverd, swagner, skinnier, transcend, grandstand, explod, parch, mickei, mous, up-
 grad, ceas, disturb, oversea, resist, unaccomplish, gladiola, rust, truuuu, pari, effo,
 label, werent, hawk, ricki, badass, kuzi, sociopath, humanitarian, cuntfac, poison,
 twin, nick, aahahah, meridian, omi, ado, fock, scoon, classroom, rebel, mattress,
 slipperi, economi, thinkingofy, diylov, sexxi, booooooooo, steeler, pulledpork, baby-
 jesu, lilsmokei, mywife, beard, herkfact, talkier, recognit, gabbi, uggo, memori, su-
 perbowl, fuss, rink, river, mono, payback, valentin, mobb, budden, popular, reconsid,
 almighti, poon, hashtag, moder, consider, vegetarian, muthafukin, react, vain, euro,
 goal, jello, pobo, bench, ned, ultra, zing, taylor, vegeta, announc, closer, soyvic,
 yai, pennant, dominion, checken, ging, heftig, wond, verwacht, beterschap, hoor,
 creanandcrimson, mil, revenu, clappmeat, toung, tule, marijauna, wannnnnaaa, trea-
 son, spectacl, displai, thuglif, cleat, gain, quavo, offset, solid, ayyyyyyeEEEE, mite,
 shootin, banter, pomegran, gonn, trynna, thu, loudmouth, dumbfuck, westsid, cj,
 spiller, ivori, usta, lien, chocolatei, yummi, puto, mutha, fuckah, founat, cont, pro-
 mot, film, incent, s3, 4g, audienc, squander, roof, heavyweight, nook, cranni, saniti,
 orig, godli, yaaaasssss, buhlowin, infer, peak, natl, ot, dose, appoint, agenda, msnbc,
 africa, pedophil, dolt, spun, straw, janitor, whatchu, wud, teas, ohshitnigga, dip-
 shit, blindsid, wbu, sun, descript, spanish, recommend, mannn, gshit, blitz, choppin,
 smilei, daniel, andrew, janemba, asleep, nuh, lov, badmon, row, girrrrl, crazzzzzi, trap-
 pin, guala, playn, fuckd, fuse, ancient, hong, kong, dickhead, cumin, cave, reciev,
 yeet, interv, tutu, indian, somth, ppint, deliveri, orr, lor, wyd, versi, aha, theeppp,
 derrrrrrr, showman, globe, dork, droid, dro, yeer, loredo, coolio, erbodi, speechless,
 healess, immacul, hath, fanfar, standbi, okaaaaai, yooo, elev, keiffer, wizkid, scent,
 bleach, coco, fuckkk, hunna, wei, dank, hoodi, scanger, ltao, dingi, desrv, masturb,

accent, hawt, imediatli, whamm, thursdai, tierd, knowww, turnin, raptor, 70k, qualif, dorki, five, transplant, ars, biotch, phuck, hellhol, anarchist, jr, author, compens, calwood, steer, nois, bewar, massiv, lens, veteran, tarah, elong, trueee, prenup, magin, salwar, politician, libtard, ahv, stitch, beacg, bod, ab, citizenship, amnesti, thestrugl, mutual, youz, witchu, iont, sarah, palin, amus, uglash, buse, random, hellen, keller, sprite, jkbridgeturstraight, chipotl, incas, buyin, babel, leopard, patienc, drool, deciph, par, dunk, gemini, prosecut, confirm, director, agen, larger, itch, memorabilia, therbi, hydrogen, peroxid, washer, hemroid, whoopass, addict, spazzin, scarc, spazz, alabama, donald, sterl, stamp, board, silver, snowboard, dyslexia, uber, taxi, wexican, ron, bumcia, xp, muscl, havti, heheh, scuff, bumblebe, griff, yessssssss, disbelief, rode, rofl, whinei, in2, icanhashtaghoweveriw, numb, betwn, homegirl, approv, former, wigg, barca, doorstep, melodi, duggi, raincoat, contrast, icon, vid, pace, gig, defect, nfl, josh, wantttt, dmx, bee, wheelin, tractor, firm, ricketi, curl, peanut, butter, wander, 13k, unprovok, induc, pouch, ily2, recyclabl, stare, captur, hai, emili, reprint, imustbestupid, singer, kenwood, toolbox, hysteria, moal, greas, tickl, disparag, slash, espect, befo, renew, awww, turbo, hp, charger, snag, experi, result, 3am, uninvit, rockin, heather, hv, cushion, tournei, schmang, fanboi, scrape, third, 6months, float, niggasupr, uya, rent, wun, uv, muh, pinch, panamono, asco, mint, gypo, rhym, saterlyt, shoz, bayg, ul, clever, firstli, secondli, payrol, discredit, whom, factual, moocher, massag, pummel, veic, horizon, muffi, mountain, 1800s, belief, frankenstein, kilm, frank, spi, damnit, shittt, bulb, faget, hid, translat, moulinyan, squirrelli, fuckkn, whenev, ridicul, puppet, intention, unifi, consensu, slot, forbid, insur, bulli, reagan, suprem, command, pud, lax, bcuz, spiritu, bailei, ceain, hail, tendici, infor, caer, abt, viue, theori, academ, bai, witta, summa, lyingggggg, ayi, balla, kok, dgaf, boooooi, lowest, workforc, pajama, barn, 2k14, foam, floppi, nh, baker, instagram, eew, carrrr, thuggin, shuddup, foe, orderin, stow, dayd, coz, tonk, badonka, ankh, spin, betrai, unloy, pacsun, olli, planet, 6pack, duti, oak, cheesebal, bitchez, bias, caption, haunt, diplomat, pepper, patch, journalist, impaial, yak, puff, assless, chap, cathol, gangster, knoww, dong, incomplet, youth, lack, stooooon, holdin, uhh, overplai, itv, empow, sameee, sequest, ehh, nyquil, spiritweek, profit, univers, burner, fab, creep, qquit, joei, avg, merk, grumbl, shutdown, intrigu, repuls, stegosauru, hiss, pterodactyl, rex, parrot, lure, roe, tupac, vent, insight, lotion, triesto, hahahaaha, overnight, rosecran, introduc, tammi, perform, washington, mirror, dykei, fruiti, quaf, basi, winter, daydream, powerbal, nerdi, 8th, bruv, welcum, niggur, skini, ruga, buss, cashier, bonfir, oyster, realer, sunset, blod, skrong, lamo, flew, nag, restricton, licens, revok, puttin, slid, impli, scholarship, unfriend, gangsta, scandal, sperri, pu, licker, comeov, natti, nutjob, swat, girll, tmrw, gatsbi, 100py, cuss, linda, seal, bishhh, mk, textith, fest, weigh, steel, prohibit, segreg, proper, richardson, finer, ducanvil, crappi, initi, saxophon, besti, arc, diaphragm, nuthin, gatoraid, ten, grove, sleev, taber, unleash, abo, autopsi, frc, lynch, suffrag, gardner, talentless, skag, malfunct, cheetah, gnarl, desir, mindless, hiphop, helmet, invis, spaceship, profan, bwahahahahahah, langdurig, gepest, worden, zei, kiem, smoren, vb, optreden, pumprul, bravo, qual, gamoot, nicetri, chik, fil, hipotl, celesti, muk, ceasar, tricycl, blade, hackin, bich, mum, scheme, protocol, steek, vinger, neu, zelfd, stenigt, vrouwen, bosj, scientist, discov, naaaa, lace, jackass, chewi, pager, monster, scorpion, flotat, devic, assur, hw, bloke, mill, attest, cameo, tote, overs, rotari, unsolicit, unaffili, piccolo, buri, ell, pier, senat, ri, proudli, whale, mammi, slag, puffin, viswa, mouli, nt, whoooo, pr20chat, genocid, combat, frozen, unexplain, isint, plasticass, dubya, aesthet, pow, harrass, tlk, mch, custodi, chirp, poke, method, emploi, franc, england, playbook, gull, adawg, getcho, tigher, sweatshi, hangov, sloot, nigorprobz, narcissist, instrument, getfre, senc, brandi, useless, geek, 15k, parseltoung, basilisk, ranch, pronounc, hammer, pffttt, visionari, bamoos, prophet, thy, fussi, constitut, deform, rocki, conclus, rhapsodi, maven, hermano, wuss, maxima, civic, lx, 180k, dslr, treadmill, vineyard, chubby, susi, shaven, stoke, orgi, schlump, squaaaaad, dove, bb,

evolut, ancestor, nottin, alex, tighten, joint, freestyler, redleg, coke, recal, llive, swell, belasco, secretli, lookng, 4getaboutit, 90s, egotist, krunkchip, brokeass, pedicur, dealership, 2months, hallelujah, onlif, yal, swim, descend, pigment, extract, coccu, costa, cochin, insect, cricket, maini, superman, uuuuuuuuuu, blushin, az, adrenalin, halftim, zactli, reggi, autist, hermaphrodit, nhl, asa, moist, bint, lob, gravel, woahh, java, habit, wha, showtim, talkn, lifetim, tomcat, lowlif, princip, pen, convoi, imi, businessoppoun, cher, vitriol, consol, pointi, beak, spider, carniv, shutup, wolverin, nigor, madden, every1, bigass, scorrr, wea, evem, shmoke, viva, hahahaahahahaha, gosh, drose, theatr, spiral, downward, raglyscrag, antvil, mmm, unpredict, knodel, vandyk, french, chrisi, jone, botta, conversatin, photographi, handyman, cabinet, cho, diggin, hiden, str8, askd, youn, gwenyth, 11k, oml, xbone, muni, curs, agru, formal, blaxican, glo, disguis, tittielift, balloon, wagon, mormon, raspi, rafter, sleepov, smdh, profeten, leeftijden, opeen, zelf, mn, oud, shelf, frumpi, mc, appointe, farcic, wasp, nugga, hardli, eas, brag, climb, latter, applaud, hunnid, hun, shuffl, approach, scold, tender, tradition, sketch, docket, undeni, breakherdown, maid, pharaoh, durin, shock- ingli, devour, chola, cael, tee, slouch, pj, cackl, jacket, stung, hippo, frisk, systemat, droolin, boutchu, brolic, boyswhotakepicsinsuit, absurd, ghost, scissor, yob, ouch, donefeedup, desol, smaug, bilbo, 15minute, nomor, shoest, compet, bash, foolin, pistol, wayn, tide, xx, fumbl, reel, racistaf, fancili, deepli, devotedli, waitress, duct, stapler, nage, palac, woyk, fenna, goooooooooooooood, cone, dougi, sudden, crave, neat, bitvj, bugoutsss, draya, prom, te, bl, afternoon, offa, duddi, sippin, coca, desk, scrappi, cuff, trife, luvin, jamammi, fakin, funk, phoni, loveee, ittttt, sober, youu, witti, charm, tweetin, winnin, bother, regist, southwest, 32ft, greatwhit, okaysomay- beimli, butiwasfish, shiiittt, snitchn, dollywood, hiccup, porai, sesh, blakk, climax, hag, suddenli, interrog, plane, peer, std, possess, omen, trojan, menac, hooooou- ussse, dwammm, tunchi, honk, 145lbs, nobodyknowshisrac, smith, butthead, on- slaught, rascal, biggovern, vei, marlei, camelto, doee, pusxi, vice, versa, unsold, item, thrift, ditch, claimin, opposit, develop, hardcor, jihadi, theorist, specif, relief, centre- vil, cvill, solut, demograph, advanc, misspel, phalarop, resembl, sandpip, schwa, spellingbe, diettim, colloss, poker, trump, prez, chao, glu, yuh, munchi, commerci, kendra, governor, dori, reproduc, donut, transluc, airbag, ritz, girlz, march, laundri, downei, sam, swab, motorobo, alsina, wiener, donjuuuan, ss, lemonad, noh, lettin, muafucka, slurpe, reactionari, drudgi, libearitard, raaain, whisper, vacant, stiff, con- test, aquafina, ova, beeee, chalk, coffin, petit, crazyyi, brussel, garlic, cheddar, chive, strang, rangatang, robber, brownshi, chant, bath, bt, wrath, embrac, pervers, multi- cultur, snooti, backbon, spine, reduc, shrink, nemesi, asse, itakeshitfromnoon, rippl, ocean, paradis, koozi, trill, toooooo, independ, 5spmg, wacker, awhil, gett, kicker, behav, audit, proudmom, legaci, tcha, sribpol, mngop, mnleg, tweeagram, squaw, hubbi, insidejok, conf, atound, midsect, greenmil, moe, big10, pacer, nba, hoosierst, paulgeorg, codyzel, booth, lastnight, biggi, recount, referendum, lgbt, naam, engel, dood, dacht, eerst, uhm, iet, heet, kat, oja, anarchi, mustard, lawyer, eri, brickk, redbook, dace, 3peat, froooooontin, menu, duhh, tropic, upscal, snatch, damnear, tam- bout, squash, extens, lash, deadli, wann, fxck, flexin, psa, limber, limbo, unprotect, chew, footer, rune, boister, belliger, impregn, sane, gadget, auditorium, lectur, rang, rover, chalmer, mozzarella, dub, backpag, bitchess, penitentiari, jitt, yelln, downlow, volum, kuz, lawd, failur, spaghetti, biti, boolin, bleedin, fuckkkkkkkkkkkkkk, grrrr, tot, lobster, sanduski, shidd, script, icecream, gucci, wingstop, dichter, gebeuren, racistisch, drek, nagenoeg, alleen, hoek, wheeler, outfit, coin, jaxon1114, dubz, stoplivingafuckingli, hatredisincreas, temper, harrrrd, highh, thatch, cottag, hand- stand, podcast, 13th, ruffl, agitprop, diz, princess, slumpin, bonnet, heaach, hotshot, huntin, floridaprimari, tonit, nahhhh, drawer, flawwssss, stove, remov, hallwai, grub, detail, revisit, hardest, slutin, unsucces, interrupt, givingup, shallow, ammo, kilt, mofo, appetit, lettuc, payment, dutchess, tch, cept, itti, clicc, toothpast, broil, cod, saut, spinach, aichok, lib, newspaper, review, rumor, sayfi, 9pm, turnout, primari, out-

law, redicul, vilifi, democraci, fukin, xcx, cheater, pumpkin, eater, altern, foreverrrr, younnnnng, flask, chupacabra, fuxk, monstrou, lipstick, ammend, diploma, bougi, headless, dannii, glow, madd, highwai, skyscraper, tryina, manziel, jen, nigg, ogd, slappin, slienc, ceddi, ridah, quan, dollah, luki, toppi, bestroommateev, materialist, ojo, ahora, que, puedo, vivir, ello, ponder, myriad, wettest, repetit, hank, underag, jockin, ka, cupcak, tighter, Obama, tiight, buff, quadripleg, exchang, clapclapclap, barrybond, poa, potti, mustang, fuq, lovehim, eege, platter, teamfluffnevabluff, junk, bootai, fuckkkk, 35am, splurg, led, nosleep, 2a, 8am, tore, platinum, ciroc, 4thof, noo, vite, paai, smelt, felonspleas, fatal, orient, juan, mode, gyp, pissi, diaper, grrrrrr, forgiv, fornic, grumpi, gibson, inconsider, speaker, femin, bruno, mar, debarg, ssm, widow, popcorn, poland, shore, flopper, lockdown, searchin, renam, galor, health, rope, exception, tastiest, chung, mulatta, calzon, bundi, salmon, flourish, filthiest, veggi, ding, counter, floatin, sandal, dingul, violent, caddi, on4s, reso, reclaim, bona, fide, 500k, muthaafuckin, bathrob, verifi, zayn, nicknam, knot, freckl, shoutout, moonlit, whiskei, hum, verbal, aggress, interact, slop, clinic, exempt, kickit, mingl, 3some, astro, widd, deja, justifi, vindict, veng, perm, product, aifici, plash, pol-ish, arrang, intent, nubuck, leather, saliv, tasti, foli, deux, fucktardmobil, geekin, dopest, inlov, kushi, bumpin, zetsu, midterm, jj, mybabyisallgrownup, overdo, sculptur, germani, hornymen, namast, pastor, motor, triton, handbook, frequent, motiv, respector, runoff, teddybear, eccentric, shiver, flawg, hyp, souf, outrag, tens, wae, foodi, mainten, sittn, humili, bunk, consciou, enuff, takendown, overdraft, beat-box, employe, compass, mole, cuzzint, delux, timin, smalltownproblem, neversaidit-wasabadth, brooksndunn, canunot, fuckoff, pale, pencil, esco, hustlaz, hittaz, client, crochet, pattern, halloween, steril, entre, tuna, feelliii, cent, tubbi, pompou, wif, regent, medicin, 240s, milkshak, drunkest, everclear, hash, clipper, flappybirdisruiningmylif, rerout, temptat, surfboard, rattlesnak, rattler, parachut, 9ers, linkkofrosess, cg, ceainli, psychologi, instanc, bold, founder, imapython, biege, mimiblargh, birb, 5iiive, hol, lee, 4l, december8th, consequ, 60s, gn, ladybug, trim, hollow, kaboom, succul, swoop, western, repoer, adveis, prize, themoreyouknow, recap, temperatur, archiv, pea, ibuprofen, primo, opp, huggin, idgafmod, honeybun, ayyyyyyyy, fleeto, h456d, yaw, pm, rebuild, curfew, laker, mula, analysi, scholar, produc, vast, wnba, brake, daark, wrist, prelud, liquid, oxycontin, oxymoron, flake, kickn, privaci, wiper, rubbin, secretari, maaan, lapdanc, mistress, usin, intro, overpaid, ae, dropkickkk, skier, joselin, juco, thurl, secondari, grimi, ambit, eww, crazyi, fumni, superhero, nigggga, hust, quak, intens, analyz, creek, bleed, ambul, tapatio, shampoo, derecho, thunderstorm, earl, lord, meani, turntup, webad, wepretti, gayvega, wwc, thoo, sandiego, uu, lisp, bouncin, pussayyi, vanilla, ketchup, lurkin, happiest, fruitsnack, cracka, niagra, undignifi, sprint, transfer, dawdl, slackin, hazelnut, rinki, ickblah, bloati, 2hr, whineytweet, kenfolk, limousin, pour, jeezi, comedian, apam, downtown, spilt, swimmin, warn, graphic, lnyhbt, tgdn, pjnet, bellicheck, quicc, macklemoor, ferri, kreenen, gather, ahahahha, otherwis, accus, adulteri, holidai, brew, danei, ari, thegoodlif, 18th, weavetrip, sail, kimorabla, craziest, resurrect, thincc, purchas, grandfath, grave, weirdtweet, rei, coool, anxieti, hickey, wiggi, handi, plenti, mass, kaep, attach, dontouch, checcin, 11wd, vag, goingtogethuagain, bratti, jason, triflin, patient, capri, manti, cruiz, openli, collab, naira, booyyyyyi, breez, postin, gmula, sniffei, poo, laptop, mw3, theater, process, sweeter, gushin, kimora, boobi, unlock, pokemon, dicc, tab, collar, lookingformor, dial, stir, hospit, foxandfriend, accompani, bong, coooooool, thenna, dissin, sessi, shaggi, elast, mah, kidnapp, breezi, gaggin, laggin, krenshaw, prayin, strait, adress, fai, hau, poki, endors, dwade, ee, sheep, penn, banjo, hoodiest, dere, satisfi, gamma, soak, cougar, kimono, yeen, thevref, dre, itun, meeeeeee, youuu, vastli, egregi, nsme, redskind, deemef, therefor, footin, 3k, mich, bestf, umpir, carin, enterin, enter, comprehens, poccet, striker, physic, ferkin, fiberglass, outa, noddin, packag, gif, eitha, lbv, sopris, 21st, centuri, viewer, dominican, feisti, firebird, seein, fufu, yg, 2more, uss, bittin, llab, cencu, loan, hummu, broccoli,

chirpin, stash, makeshitup, stuntin, nutella, wildnigga, karli, freaksandgeek, niether, imik, walkout, sweater, weiner, drugz, confess, boof, getatm, fuckmongo, naynay-ismongo, buttttttt, sworn, twitta, darker, frame, clich, quid, otha, frenemi, lac, taki, yeent, luvv, trenttruc, patricko, glorifi, shoobi, doo, manual, myth, cowardli, fling, savin, spoke, runner, erybodi, thrown, unread, donat, crumb, flamboy, ton, swung, budget, bitchhhh, rhineston, indirectli, revalut, expandin, utterli, cee, fink, afta, pacc, waaaaai, receptacl, limb, centaur, ughhhh, staci, lattisaw, lux, presenc, replai, fuckedd, ya3ne, thickkkkkk, gassss, gwop, gaug, gratata, michan, seater, vogu, paranoid, rollin, hoover, measli, fleec, cocaina, mervin, rhythm, asl, issssss, cowork, gooooo, headlock, streetz, randomli, crown, slurp, fuuuuuck, yoooouuu, request, mouthwork, rappin, wheresshitgo, thanx, parlai, dr, froyo, boldest, pasta, unnecessari, wishi, washi, baldheadass, theyr, junior, bitchnigga, complim, nshit, rim, rightou, allei, raccoon, gatorad, blink, throne, hopehegetskil, assign, stoppin, teddi, settll, unswol, cope, destin, tweef, ctfuu, cai, nansemond, perspect, bytche, hideou, parad, blood-boil, goodd, lube, tunechi, moneyi, whr, correspond, hamburg, oper, slippin, e350, amg, coup, felecia, sme, drizzi, looong, bibliographi, froze, hadnt, erm, digest, upsid, cornbread, catfishin, hustlelinaa, seeeeen, faceeee, wayyyi, l8v3, kombatt, learnt, stunna, beamer, impo, herbal, bacc, silki, slightli, toinight, wearabl, kit, fal, tunchei, myboi, tilt, doggi, fli, redonkulu, obnox, warp, yayyyyi, gaaaaaaaaaaaaai, fuckyou, acoust, dear, invest, groceri, luh, sicc, catalog, spite, toot, whilin, prenupti, crosshair, cheeki, playersmi, larri, casket, sleepi, research, usaa, fritag, odd, tae, junki, agoni, multi, bob, thought, spawn, stupidspec, lat, theyself, truu, ont, girli, map, cliff, comet, baggin, cologn, richest, boni, launcher, roadrag, jelli, cooti, herp, notint, manli, panomera, trotin, thotin, wankin, cume, soooooooooooooon, scurl, duunkk, firework, launch, dmv, californiadmv, 4s, rubberband, kappa, creak, util, loonei, doinv, gremlin, jade, romant, godamn, pride, chaser, followback, cornrow, rib, rural, roommat, chipmunk, heh, steam, dinosaur, uuuuhhuuhhhhhp, thier, tld, bri, usag, crept, trembl, revolv, carpool, wadi, barrel, 30s, 40s, uncomfo, tomboi, barbi, angl, decatur, mead, floss, string, pheonix, mustash, batteri, dess, wept, weep, idgt, smoker, gestur, hookah, sketchbal, 5grand, button, hoein, wnna, ihop, eeeen, utter, becam, where-aretheynow, bipolar, frown, cradl, goodi, badgui, noos, ambiti, gladli, felon, 200lbs, dunkin, muffin, cani, whack, layer, instant, nooki, girllll, conveni, clerk, gry, boppin, header, ioeno, homophobia, jog, saab1, squish, perfum, mentor, sitcom, 3d, defiantli, eyelash, dracula, ax, amari, hump, bussin, irrat, bachelor, stoop, hahha, fantasi, eldman, truefriendsarebasictogeth, murk, phonic, coolatta, flier, canari, trippp, wildin, pattyfuckingbog, rowdi, brasso, mattwho, bowleg, nanosecond, getyamindright, slur, nuttz, paicularli, brightest, razor, drove, hungov, seventeen, frai, mushi, disappear, becr, majest, gotonelessproblemwithoutya, subject, shitee, superb, unansw, kesha, inni, julisa, mma, saltin, tbtweet, dentist, gum, reced, hurrurr, overlord, jaw, rosebud, hahahahahaha, 3pm, illog, casino, dn, censorship, censor, wholesal, perus, twerkin, frisbe, unwrap, rio, committ, cite, shotti, bridg, rolly, diesel, strand, backpack, heck, painkil, choosin, gaf, crai, runna, nigca, puzzi, straighten, hem, anger, atom, trinititi, fakest, sandwich, blowi, growth, yanke, redsox, pie, forest, ect, invent, twittah, hadddd, bellybutton, yappin, poli, hazard, perman, viagra, treater, preppi, overgrown, sodapop, pucker, collagen, muhfuckin, nobl, royalti, arent, malnourish, burgular, tuat, wintersmith, barber, overal, nair, newborn, 24k, rillo, lickin, pubeless, runt, puddl, buster, graveyard, default, louisvil, directli, yassssssssss, nosi, nina, boogi, 20mins, suburban, niggaaaaa, elat, creativ, miguel, tono, cube, grinch, jame, hunch, wrk, prolyi, gamedai, rick, conceit, unboth, threatenwho, expung, funcci, acr, drank, resolv, feedm, tyler, perri, tetherbal, letsber, gratitud, eyelid, spasm, mascara, puls, sunshin, poppadom, livinthedream, unresolv, tourist, meadow, gasp, enforc, disrupt, malwar, enforcem, insist, smthng, evid, dodo, candid, bung, vend, cigar, addit, napk, nunn, nuffin, linc, faculti, staff, blowback, southsid, pissr, indianapoli, applic, wifingsquad2014, onlyattheducksgam, sandpap, wineprozb, smitten, ratio, ounce, recess,

boner, heabreak, swaggot, tenden, allergi, iguana, mondai, twenti, ayyyeee, babbbyyi, titanium, pear, interchang, bezel, disingenu, properli, maximum, stolenbas, 20pics, gaggle, toqu, blur, fifti, stucc, lotteri, ken, winteim, gorg, june, marathon, nvr, happin, ecosystem, uno, salt, popslei, 83ar, lolololol, linguist, deriv, ironi, vibrat, jumbo, theeees, lag, behead, struck, bounty, ploi, publish, pilot, iran, unpleas, behavior, paicip, identifi, ccot, hallucin, coalit, helicopt, prattl, taunt, paranoia, enhanc, neverforget, comment, 55th, loll, beatin, fk, gah, admir, wuteva, attornei, fingernail, spectin, flowciti, chic, coldest, casual, fking, 200x2, bumpi, feud, trenta, grl, yeaaaah, tryhard, gallop, mmkai, unfathom, hilar, journo, dissent, elix, drill, makerr, probat, biscuit, bloem, gekkigheid, simpel, oploss, tegen, maken, besliss, jac, checkin, theeeee, squier, reckless, outcha, sluttish, squid, orgasm, troubleman, conductor, couesi, yooooou, ipem, vez, japones, crearon, una, quina, atrapaba, ladron, whitehous, fl, meme, badder, strippin, suaw, bouncer, dopppz, julli, gemen, trollen, durven, mene, twijfel, nemen, zegj, kuch, cooch, uti, stiletto, yank, ovaaaaaa, ycg, stencil, traumat, infrastructur, bitchen, calc, whohu, accolad, gulp, sumpin, commenc, caller, heavili, yrd, vaniti, coupon, cocktail, unrepo, meeeeee, revolut, legislatur, icecub, nwa, mayn, unfair, doper, necess, cruel, refund, socialist, rivalri, authent, tep, ajai, montea, keke, lex, plzing, backup, rogu, xmen, thesi, secondlin, brooklyn, riri, layin, seasid, whaaat, andbeat, 9am, seagul, bumbl, 80s, ber, wallah, raff, kor, wett, bender, intellig, maaad, downgrad, jayin, 10am, whiteprivileg, gtfoh, custi, sidechick, sloth, trinidad, charcoal, aunti, relationshipgo, hahaha, atm, christin, wholesom, bogu, reform, growup, groupi, stagger, lawwwddd, wizdom, ginyu, lattim, nyyce, lmbo, usher, kaffir, hairdo, alllll, biker, federalboobieinspector, forward, breadstick, reppin, antigun, cellar, ghou, douchi, azgov, azvot, graviti, 2nite, tif, seeeeexxxaaai, crank, gearin, lbcc, shiiid, sumptin, pun, perez, hilton, gonab, grandest, instafrontin, forver, wackest, heifer, intoxic, heaburn, cuhh, uma, applebe, outgo, familiar, within, carryon, petunia, baddddddd, destini, schleeeeeeeeeppppppp, hydro, achiev, trickin, ngeli, polosi, nifo, bedtim, caress, 3hrs, chunk, hott, somedai, runwai, mari, jane, reluctantli, philosophi, reboot, sang, choir, espa, welp, deer, cobbler, defi, le, ahaaaaa, caldito, estuvo, snuggi, riiikkooo, tidli, spittin, leo, oppon, nine, columbian, prop, derail, interior, homeland, virginnnn, followin, moodi, dadsbeingsilli, dutchi, isni, smackhead, ww, tran, syst, clubinsomnia, vacai, shouldnt, reign, cmon, uppppppp, fabric, 8pm, central, arguem, argur, auto, pmo, faction, bre, hogg, flyer, brite, bagpip, unzip, cheapest, buter, syrup, retro, hetro, nintendo, benzo, fetch, bummer, prim, prescript, refil, mc nab, a1, fleekat, picslip, nikki, masqu, snapback, judgement, shoppin, drugzzz, ummm, nohsid, fuckssss, riri22barbie, georgie, yessssss, siri, dum, dawggg, clueless, whaaaaat, sandl, neic, astigmat, bratwurst, spooki, learnsomethingeverydai, kkeldalegend, porno, porker, mister, meaner, stiffer, pana, 2weeks, stankin, pushi, playlist, reggaeton, bachata, microphon, nogga, popz, pepsi, cola, ty, barefoot, yoo, marijuana, 2yrs, ainnn, turmoil, butta, unoffici, obamacar, congress, compromis, flyover, ign, givng, ji, sshop, youpeopl, chin, mothafuckin, oregon, crw, majesti, crab, maniac, workin, accessor, singin, leech, tint, jolli, rancher, chevron, stripe, charli, glossi, colon, gass, deerin, err, theft, theophyllin, crystallin, compound, gottem, cassidi, backkkk, gentleman, smallest, d1, triccin, pong, instal, preacher, shitttt, rev, gott, boit, frontin, cashin, dehydrat, grudg, fu, dickin, mussel, str888, trace, specul, chasin, skimp, kthxbai, task, insul, empir, outcom, phenomen, fals, fucknigga, unhappi, chitl, dodger, bainbridg, isl, iwanttoplai, christ, neanudda, bomber, undermin, mythologi, prop8, contribut, eurotrash, heir, spookyblack, wink, cardboard, flee, reassess, kite, alledg, butttttt, seper, infuri, unconsci, defenit, bobbl, steroid, busterposei, softer, tourebasebal, missil, vapor, wonderbaarlijk, alweer, aan, stok, nu, gevonden, laziest, noregret, fajita, dickhol, vap, hover, sake, prone, int, contend, grape, od, hairlin, unrecogniz, pho, saimigi, gawdd, awwwwwesomeeeee, fetish, booya, encount, natitud, gobuycomb, trashhhhhhhh, xii, sacc, counteop, factori, murki, edclv, uppppp, smoov, chloe, basedgod, spine-

less, tinker, fing, anorex, delight, xxxtra, anniversari, brainwork, pacemak, contract, pregnanc, invisiblebird, shorelin, parakeet, cici, whitebitch, access, promin, forum, russel, cliqu, proactiv, watcher, instantli, barbecu, hollor, wackkkkk, smurf, noon, superpow, resign, filet, mignon, amirit, bigot, esteem, mexcian, ummmm, brunch, hamper, reconcili, fatwa, dah, estaban, dando, vuelta, poller, mientra, cocinando, ast, cuando, waxi, soften, flash, whatwashedo, rooftop, rhetor, scampi, squeez, asinin, interfer, deadlin, freebi, badongl, uncivil, tweeter, status, playcal, blinker, moveout-mywai, unkept, fantasysgam, whether, diehard, debacl, tumbl, bleacher, resolut, disconnect, shmedium, drier, socialit, dragrac, dragqueen, glamazon, rupaulsdragrac, barb, wdywt, filter, advis, glue, getyourlif, anarcho, deafreaperventu, wayward, intensifi, holiest, pilgrimag, pooci, chea, metro, flaki, hustler, pyhscopath, bind, jewelri, viciou, yid, nid, milit, notfeed, typefac, font, skillet, spirit, discou, lowwww, discount, lowww, fareal, hollar, oo, preconceiv, preserv, utilti, glorydai, obei, sayi, bxtch, patriot, intrrvent, spice, bulldog, khloe, zaaaammnn, lineup, bedrock, ama, dijo, hoggin, criski, eras, quintessenti, embodi, feminin, clingi, sneakin, nobod, wi, 131st, stackin, crackin, yaaa, thanggg, muscular, yungin, knwin, circu, 49ers, yyyyy-eellllloooooowwwwww, dbh, bandanna, ladykil, poabl, allllll, peski, wisebrethrenword, celeb, lawmak, legisl, shelv, crr, militia, pregam, weepi, fog, soar, daft, elicit, lava, wiunion, bland, munnaaaa, section, funer, republicano, elegido, gobernador, juheard, razor, pluck, tonnnnniiiiiggggghhht, calori, suuuuck, fur, feeder, gla, firefli, stealin, profound, liek, sum1, complimentz, gown, select, sincer, wrd, pasa, shunsha, joda, waaa, poetri, daytim, sanctiti, rambo, assault, jordan, livestream, buut, thaat, rise, hackei, sacker, jacker, slapper, riddanc, caon, quibbl, spoken, overdu, scruffi, favourit, financi, stim, htt, caramel, snob, cardigan, drew, discontinu, karmic, answerd, bon, muthaufckin, shocut, sorry4thewait, stri, befriend, competit, jadapos, fashoo, swiftli, choo, nowai, hoethea, mtvhottest, brooo, janki, african, lul, saturdai, plyin, jongen, zich, probe, verdedigen, brief, pesten, yaasss, soulja, eyez, sc, crucifi, glimps, letterman, som, handshak, toothless, fckin, compassion, streeta, graffiti, mural, duo, storag, spacecraft, verdict, web, diagnosi, staircas, foriegn, nonsens, knowingli, seclud, balmi, autumn, irl, data, birdgang, violenc, flyin, discourag, rapeyass, mysterious, vanish, unemploi, proce, staer, pretenti, denomin, unclean, bamma, sharkiesha, codin, quasi, 2gether, suuuck, challeng, thermal, spree, followm, womanlog, thirstin, confid, catcher, bol, beur, abel, ooh, loveoohyi, skyylevelmedia, holipalooza, sympathy, grandbabi, 00am, naaa, madd, diein, yeaa, tiff, cellphon, sweethea, psychic, wyandanch, dana, unlimit, turntttt, hygien, rabbit, turner, scootin, wimmi, shithol, summfest, devot, packet, emotionaaa, critiqu, swole, kink, uppiti, skiseason, trial, rollen, calendar, lobbi, clicquot, dom, bitchhhhhhh, refurbish, journal, buzz, fella, flowin, vitamin, kissther, steve, yeaaaaahhhh, av, dc, youoksi, earnest, slobin, steez, rir, bracelet, underground, encourag, refreshin, atraccion, abandonado, twelv, dynamit, revers, spong, liftin, damp, 3times, fain, fuccin, blacc, schooler, dicki, terribli, trucker, stoprush, tighti, whiti, twitterafterdark, sharia, fundamentalist, oppressor, persecu, cornbal, couldnt, choosi, formula, sublimin, th, zoo, varieti, migratori, storm, moooob, bou, uughh, uuuu, dippin, begrudgingli, likeman, softwar, cabl, nest, wildlif, wal, kobeshia, alongsid, cringiest, knowyourplac, babidi, overboard, farewell, underachiev, dez, weeden, offshor, stunner, gin, complac, whammer, animos, awok, andr, chuckl, reveal, cycle, whiff, faint, resum, poem, por, jugar, corazon, ganarl, su, potassium, fux, perch, eager, leotard, anaconda, hou, bluer, denabitch, stroll, flo, skyrim, theme, youda, recogn, buggin, fractur, windshield, clownin, torn, signatur, profus, margin, wcvb, asvab, 11am, prollu, skyler, 17k, retriev, allegi, broom, meaningless, 10xs, herkenbaar, hesj, eigen, jaren, bevreesd, ooit, wer, magnet, darkest, gallon, dolphin, hitler, dens, booz, inadequaci, acquir, looter, risk, urg, mocha, sapiosexu, chainwax, mammal, amphibian, heisman, yeterdai, keg, betcha, ev, greyhound, commend, nerd, thickest, marriott, mansion, hunni, prep, dobett, woozi, fac, wanta, laughter, communist, healthcar, repeatedli, trassshhh, soa, cole, abou, withou,

falcant, barbarian, benzino, douc, theit, facad, lyi, semest, alpha, clubmetro, ram-pag, klutzi, redempt, greadi, uncanni, sooooooooooooooooo, maanden, stel, hoeren, ge, absent, merit, sholl, restrain, shmonei, fuuuck, horrifi, convict, franchis, ston-naaaaa, keef, ewwwwwww, carefulli, attir, helot, persona, atop, balconi, hitm, dwig, snicker, bankrol, everybi, remark, sooooooooooooo, gettn, cuti, pwoosi, pissin, gonor-rhea, berg, strictli, reli, shiit, thicker, starleasha, gatorn, unattend, feil, setup, ea, horizon, contoionist, thir, cork, inferior, gpa, shhhh, unheal, wound, ahhi, fresh-men, nea, barlei, yearbook, twig, chili, apologis, candl, undo, cheesecak, sel, guid, billion, weaaaak, 2pac, mme1636, blackkingz, adorb, aluminum, zima, outdoorpool-pai, shutemdown, villain, disr, yeeye, lupe, fiasco, illegitim, shud, jumpin, forgiven, transgress, needi, escal, tomb, polar, bustin, toughest, coexist, occupi, margarita, barstool, notif, cle, clevelandfan, clevelandprid, clevelandbrown, clevelandspo, mfz, jeopardi, yacht, pornstar, holic, hospic, doodi, museum, admiss, gallo, asadita, madu-rito, amor, chism, therapist, drastic, 11pm, attain, spandex, overst, inconspicu, huck, patrol, domin, conceive, dive, diver, hunti, slaaaayi, gent, fanni, olivia, cheeseburg, byeeee, swirl, diva, girlfight, longhorn, logo, locker, pand, kingtunchi, fuckem, di-recti, leerkrachten, pest, kunt, voorstellen, groot, pestproblematiek, onder, leerlingen, tig, istg, jigger, wrench, happybihdaytom, outnumb, thankfulli, dismemb, global, cal, carl, glenn, maggi, priorit, lan, energet, knowwwwww, yaga, itstoofuckingeasi, fuckherrightinthepussi, stuft, whe, equat, scrambl, grwn, loven, comma, vinegar, tal, immedi, mohe, ouuua, siana, spermicid, mold, ml, maaaaaan, alanah, superstar, lent, lamest, birffdai, truestori, gooder, whiteknight, overpass, ru, vma, ver, gluton, trappa, lana, unhelp, blatantli, 00pm, preoccupi, thse, soho, scrimmag, flashback, amici, behalf, canttrustanyon, hatefakepeopl, ilusm, pc, springbreak, 2escape, re-straint, nimbu, ratha, weakkkkkkkk, easiest, investig, spous, wunna, tosoon, cluck, sumtim, asthma, nihha, shoryi, glizzi, bekuz, sting, hippi, abstract, ipod, qb, lather, wednesday, tbb, dickmat, gothic, forthick, hop2get, cmchat, esa, odia, whisker, union-memb, sleigh, louder, persian, appropri, flounder, bonu, groovi, mobil, scam, latt, swagfag, baltimor, ratchetttttt, stake, simultan, bowebergdahl, lopsid, steakhous, vin-tag, camo, itni, bahaduri, hamesha, marn, tayyar, reht, emergen, mulligan, cinema, projectdrug, wcvbpoli, cranberri, hotnigga, motherf, ker, megaldon, len, thew, panel, linguin, whacker, busk, occas, dough, zrgrizz, wr, sucha, mamma, fuh, fvck, offsea-son, corps, onto, treatment, paydai, viral, sheeeeeit, bologna, ooooo, heyyi, guber-natori, gota, envi, birdhous, crazzyyyyyyi, maaannnnnn, umma, youresilli, fye, loi, ian, equip, mcconnel, ooberli, starbuck, uggboot, leggo, algebra, silk, sneaker, black-board, disc, flagrant, eject, substanc, duel, yd, brawd, poopin, chapter, hulk, hogan, changethenam, hustla, bruinsfan, unrealist, wemblei, loom, oili, bulbou, shriek, mea, gambl, enlarg, heckl, annouc, headac, summ, yun, aroundddd, vape, inequ, veer, be-gan, serenad, ovari, iq, imit, mfer, confin, pt1, tier, cit, msg, cring, ontop, supa, ki, sewage, fuckn, fang, depth, unreal, comed, gimmmmmi, mmy, flavio, deuc, gi, faith-ful, typo, tuesday, tramp, repoedli, dept, nye14, drunkinlov, beyonc, streak, teezi, eit, birdi, putt, behi, watchu, silent, passerbi, killllllla, dieselst, awf, focal, slopperi, everyo, m8, crotch, ignit, brawl, embassi, inducte, asset, deadass, whichever, trash-bucketchalleng, luuuuub, luuuub, shri, horoscop, badger, ethic, mainli, piou, scarlet, 100gram, bett, 4wasting, yaknow, yazz, applewood, kk, barrass, hitin, comeback-tor, tougher, unn, rail, gentl, tranquil, gender, neutral, tsunami, extramarit, com-mut, tremper, turnip, tremend, leadership, nomine, fisherman, annual, luncheon, haili, survivor, calcul, circumfer, parallel, ne, amongst, ana, chai, congressman, douchetard, butterbal, mega, carrot, hanger, goug, harmless, fetu, napkin, snail, screennam, trench, fedora, stronger, bihd, accordingli, superfici, endeth, necogn, fightin, categori, yellin, wh, sombodi, tuleneck, ih, wassuh, foster, uuuup, vulgar, boxer, bliss, crop, astronaut, igggggi, yoi, chamber, twerkteam, stigma, 6s, wise-word, knaidel, elv, embrras, enti, curiou, smear, sash, shostop, ac, seven, grounder, innin, fuckk, waaaaaa, gingerbread, cactu, unattract, fiji, cinammon, sav, dab, ahh-

hhh, defund, kilgor, success, huj, ebolian, rapp, pep, tenni, shag, astrologi, mellow, twitterspher, desi, inviat, mangia, getlostfakebitch, tong, lightest, everybodyyyyi, fuckingggggg, septemb, judgmen, gunrun, leaf, crunch, gir, orajel, sleept, 50k, kool, loudest, unbutton, adventur, har, backstab, deceiv, festiv, termin, hurl, mothafuck, littlest, dumbest, finder, flighti, fuccck, bombass, mythic, foreplai, mask, wheneva, carrol, tim, photobomb, mewtwo, sharpen, homegrown, waka, bitxh, chru, judgment, naawww, spankin, noun, perve, airplan, cand, bishop, baffl, upmost, chivalri, duff, fergi, bypass, reus, soap, dressin, sliden, slippen, propon, lineback, fym, fucksug, lmaoooooooo, caboos, lanki, endang, prg, conclud, heterochromia, iridum, swinger, cheerio, flaco, errybodi, observ, brute, knockout, changin, jank, mattress, steampunk, largest, wealthiest, brad, pitt, trei, chopper, whopper, ness, phonei, skank, pec, brutal, routin, skur, pinpoint, monger, supremacist, whatcha, gatewai, yoursid, menstrual, twinkl, wmn, neighbour, veil, juxtaposit, htgawm, 98lb, inhal, veuv, cliquot, marshmallow, mosh, scooter, heeli, glide, ios8, gb, sundi, mj, hose, lmaoooooooo, outfield, perhap, deepest, 3b, 2b, walkoff, leadoff, storybook, troopthank, billboard, pinstrip, outlast, homestand, underr, factor, hoelmfao, enlist, whi, italian, casserol, wii, nah-hhhh, 60th, slidin, chiquito, cucumb, dewd, lyssa, twatch, bubba, chuuv, feenin, koula, nooooooooo, youv, courag, skitdaddl, iggi, numer, ugg, disqualifi, jerryspring, truthhu, possum, nikka, naaaaaaaaa, konnnichiwa, belo, fucki, bru, raven, shego, patsgonnasubtweet, chappel, cemeteri, melanin, gaggggg, ovehink, gooo, preeeeeeeach, webo, questionofthedai, epidem, verb, lmaoho, sophist, lice, bxtche, zee, fatter, reelect, mainlin, muthafxcka, tyle, upstairs, oss, oral, trev, assassin, waaaaannnnnt, drunken, flail, incoher, teapot, haiku, mijikai, admin, fund, devilish, 2day, homei, wildcat, asmsg, erotica, shostori, litet, grad, 15a, drugssss, flawless, peach, evalu, crossbow, cishetero, darn, prope, statin, 3phone, decemb, retirin, explainafilmplotbadli, classmat, starin, probl, wear, hahaa, gentrif, tyranni, scien, backless, dressess, enthusiasm, censu, tempest, 5mil, uglier, forwd, signal, sincerest, cantstandy, bec, beli, ved, bountyhunters4lyfe, grapevin, lewisvil, shoen, mandat, unconstitut, babbyyi, gawd, returnthefavor, cruze2014, bitchpleas, carni, pokeflut, derang, serial, exam, testicl, painlessli, m4w, sacram, lancast, refight, poten, grime, visibl, sewn, noheel, gayest, tdf, fse, fuke, gonetofar, cruelty, saveanim, classiest, hooooow, petal, shiiiiit, rifl, knuckl, fatti, djmemphis10, pigeon, jetter, mayonnais, theperfectansw, brendon, uri, bac, mak, oven, sshitti, lu, hoo, pigd, cori, latin, scotch, fwu, pub, rivvv, 10k, 5hrs, bleedgreen, melo, allowin, 2play, unsuspect, girlboo, doggpound, bask, dreamt, cotto, hims, chula, vista, splash, peppermint, instinct, nov, pedest, contempt, smoothli, misde, skndndndnd, legroom, ventil, marehood, bron, mlp, ba, swaggin, max, slingi, salamand, gna, rot, socket, paragraph, tfti, jers, prejudic, prov, snowpatricksdai, credibl, killeri, twirl, traprinthion, autograph, scheelp, lefti, frivol, submarin, eeri, handin, chines, jo, switcharoo, katiedodds15, gd, waldo, soab, wheelchair, bo, criticis, vermontgirlsbelik, metropol, ro, lamin, emascul, ford, adept, dopeman, soulmat, thingi, rarest, 60k, dyi, backpagepussi, fe, hen, paridg, upsaught, fuxin, refere, iter, inki, muthafuckin, hibern, mandatori, gish, sucki, hoodcomedi, flytv, blahblah, dictat, corp, stump, 15m, column, erect, 3hunnad, boycott, indi, genr, disown, sitter, cleveland, frowni, crisi, atmospher, deser, 2parasites, deodor, twofuck, ihoheitssuposetobetonight, bello, emand, veryon, onei, bject, ollect, edistribut, uppoer, spoo, nooooo, dilli, exclus, unicorn, leisuuu, fearless, apka, wais, bhi, khatam, chukka, seeee, sti, squaddd, che, boddi, mu, dull, siren, exp, ke, photogen, scr, chalupa, newwww, likin, koala, kangaroo, prei, emu, randomthought, randomthot, shitiwouldneverdo, revalu, manur, pharmacist, stillwai, pretttttti, amazi, sunnyslop, memphi, tenn, hoze, falisha, 10mins, kelli, 4nem, 2many, boutiqu, signedtothestreets2, mascot, wouldv, geni, datz, curat, niggga, gerri, talki, sch, bonner, lookout, mimi, grader, canker, hinder, giantduck, pittsburghduck, wpxi, noflit, bff, xfactor, shiii, frican, shimmi, uncouth, uncivilis, inmat, benihana, refresh, dhimmi, mayor, 30k, fridayfav, lmaooooooooooooooooooooooooo, peppa, barbeequee, superh,

maggot, sac, gluten, heav, brighten, occasion, hookup, horseman, twink, suplexin, addin, raci, knife, willi, nilli, incit, classless, baseba, winnnn, lion, 24hrs, justif, annoy, buuut, gen, crumbl, chronicbitchfac, sorryimscari, cockiest, belvita, robin, loyalist, plea, bham, aintnobread, lmfaoooooo, decor, 10m, 33ft, raspberri, gelato, sorbet, bck, mahanain, godddddd, exhal, jiggi, sci, fi, checkout, curriculum, chimp, twe, solar, cockroach, costli, abu, thebooti, ohgawd, grip, bronem, boutcha, clarifi, jinki, velma, scoobi, gr8, goodmorn, mongoloid, reinforc, uneduc, skim, consecut, liquor, sailor, bitchesbelik, newyork, hoodbitch, sickipedia, simplest, oop, oldi, hy, patent, sanitari, discreet, gradeschool, unforgiv, ceram, boiz, fukd, ramo, idkmadz, yuuuuuuuuuaaaaaaaa, comfi, southernshi, postseason, grai, 3x, lakeeri, 24s, str8up, stale, percentag, lohanthoni, highkei, niggas, cam, bucketlist, bronco, wordsofadvic, ethnic, dgaffff, 23y, awk, fwy, jabroni, burk, 6ft, yoursel, povei, roam, sett, blameanotherfuck, fucccccccck, houseeee, cuttin, declin, pounder, san, athea, onnat, ra, gringo, 29th, sephora, braggin, harvest14, haatsmurfen, slagveld, werd, sorrow, hirin, biiaaaatch, teamspad, highgang, aerosol, keel, countless, documentari, birkin, furnitur, scar, paperbal, jitterbug, fiance, difficult, honeymoon, spatoon, indyfam, berzerk, sheen, ludacri, despit, heimlich, maneuv, snowman, ikea, treati, yass, boyz, shambl, disgu, outbreak, frum, dhem, mistakin, asia, shoer, wierd, iss, sleazi, onset, hearin, tuff, fuccd, nacho, unclaim, conform, raindrop, subwai, peev, ph, cockei, underperform, peed, professorav, blocklist, topless, fukk, erydai, cnt, yeezi, eeeeeee, macklemor, adam, levin, dresser, thinkpiec, dogg, linux, kernel, coughlin, geriatri, justin, bieber, barackobama, decoi, bettehanamobst, xan, ut, perpetr, uck, arroz, habichuela, karaok, sunglass, wasteoftim, drone, yesiamstillsalti, clubbb, reaffirm, token, calf, remarriag, bangin, grail, kamm, wvnnextin6, coverup, altar, pf, pedo, chitown, sb2014, bunga, pursu, ry, quietli, roulett, varsiti, ironwood, straightup, tenur, worldwide, lyfe, jetpack, buncha, odio, finito, shii, surg, humpin, motorcycl, fuccn, hom, brook, imsad, seduc, rehash, gentrifi, cluuuuub, tron, elder, digniti, concours, mistaken, emoji, thriller, bookgeek, lop, drippn, implant, dotn, b00gie, suppli, goddess, mobbin, domest, jasmin, dec, decreas, whass, hannin, bearer, messinwithsasquach, pentagon, friendship, shordi, cdfuuu, freakshow, shroom, mesquito, pope, medellin, fulltim, oveim, rival, 5h, youngin, eattin, slater, rusti, ash, rake, illuminati, bruda, bihe, werewolf, dreamcast, summm, panick, wwn, tunnel, slither, coil, jaceyjanett, backdoor, flashi, waaaai, tedgibson, abund, whoppin, pancrea, imagineherfac, paycheck, demo, derbi, bktrack, echo, garag, paraphernalia, asap, plasma, infio, 27and, meetin, mighta, toodl, hisself, fairweath, farwel, tub, approxim, excel, sociolog, oval, drumlin, relentless, trickn, hangn, croquett, facilit, sugapuss, heroic, pessimist, awaaaaai, household, griffin, unbecom, temporarili, perfectionist, defec, reevalu, cpr, ceific, durham, woodi, garland, merica, breakkkk, fantasyfootballproblem, esophagu, sweaterweath, booty4ever, dvd, oppuun, freshfac, kenya, plow, taxpay, outttta, pimpinnn, uoeno, gushi, bankruptci, eyyyi, ferguson, tpot, stainless, applianc, silverwar, golli, ce, schoolgirl, brainer, mop, moustach, flightless, yawn, pburg, trillion, mogag, brokanes, filterless, dari, handjob, trendin, penetr, mineeee, pleadin, 5ths, tre, testicoli, fstow, flatfoot, pilchard, alllllll, shld, hypnotiz, reta, crazzzi, fixit, cur, 631k, hollerin, cranki, lyingggggg, qualitest, numba, lispi, memoriesofidot, mulatto, chillllll, ouutttt, composur, crawfish, maplerow, lassi, gregg, instig, shack, frenzi, breaker, sweati, mighti, minivan, diarrhea, pinchbach, teamrealbooti, idt, choosabl, freemarket, randpaul, tachiro, fou, restructur, narr, outlin, inferno, lesserfilm, ideolog, amber, chestnut, welcomehom, strung, bengal, voguet, bugout, freeee, upstat, yeast, tommy, dean, firechor, fouh, hokag, mac, thuge, fowl, trashyyi, reallli, homiez, hoppi, pice, abouttim, timb, ritual, cypher, skool, pilgrim, awfulli, compel, sacr, suspicion, roug, wog, geometri, niggad, crazier, taser, ringless, undesir, impecc, affili, willow, deprec, earlob, strvp, ripe, shoota, grandmama, grandmoma, taz, happyhour, mutant, chariot, beeeitch, wk, consisten, spliff, pharr, dropper, worldcup, skrr, lawn, mower, headlight, reallif, boringggggg, baddi, whitw, epp, irri, sodaa, redund,

drawin, monthli, cheeto, likka, smite, aquat, havnt, 2chainz, loyalll, flawgen, 2much, chequ, unhealthi, queef, vagin, stickin, movin, idgf, crewwww, huf, sangin, zipper, prematur, chruch, babygirl, tge, quiccer, busto, clumsy, invad, expand, cellular, civil, gurlei, retak, sandi, waaai, godfath, maddiston, saggin, masterchefjunior, bish, fraudul, sped, invok, bap, clack, biatch, cankl, sagg, toothbrush, lightbil, enngram, horseradish, 26th, fuckwhatyouheard, 3abde, 2013shit, hornyfuck, instat, blndsundoll4mj, voci, lockthatbitchup, ku, cobain, ruff, punchin, gwap, 2minutes, rippin, redtail, registr, thatshitdoesntlookgood, blare, tailgat, huffi, girlby, overlap, wuzzi, niggg, nastiest, hairstylist, nisha, beeni, reathi, alia, maaco, guareente, Indiana, fucksamattawithy, knick, upk, turf, jayonna, spinelli, thinh, almond, flour, johnel, rubik, aaron, jammer, nerp, villag, fittin, soooooooooooooo, onlyi, submit, beeotch, slapp, workshop, pricklypear, rager, chepa, aghh, tack, linin, ausmu, handler, turn-down, follin, euphor, milwauke, funfetti, branch, sunburnt, michiganst, lv, whateva, apostl, bullshittin, thoroughli, dribbl, vein, rabi, wavei, thr, shakei, stankiest, knotch, joker, gabl, tina, songz, lsd, sawdust, sodium, unsavori, sumbodi, rebound, long-exposur, lightwrit, unfil, mcbitcherson, flossin, ticker, dyk, kissin, lyt, youuuu, fulton, hawkin, oversteppin, boundir, slump, arrst, assoc, tech, incarn, baptism, pollito, cruzaba, frontera, zorro, tropieza, youngjef, uneaten, snappin, denton, awfi, birdddd, spectat, whippin, f4, primetim, vnd, restor, cast, nld, thunderpunch, curri, awwwww, sheepl, boootyyyyi, neeeeed, heini, nahhhhhh, kimbal, livestock, crc, worldcup2014, puravida, colt, unii, malici, buschi, onlywantonenight, gangstaz, wive, hmmmmm, ceelo, birdman, fitm, lipgloss, dispossess, fluffi, mybabi, prowl, jaymohrspo, patio, minu, wildcard, musician, jhud, edm, pshh, snivel, comprehend, enuf, sorceri, mis-plac, brethren, wuh, indycar, hoopin, jambore, tootsi, fukn, chapsnat, pearlbluey, hibben, forf, thankin, dap, audibl, stepper, sarri, workproblem, workflow, byebitch, whyyyyi, hologram, roastin, hotdog, igg, nano, oldhead, carbon, emiss, dioxid, vdai, weknow, curios, righteou, goooo, wobn, wefo, thingspeoplesai, expend, youhave-justbeen, endlesslov, thorough, heroin, womp, 1on1, unpunish, snuggli, richi, telli, surpris, sibl, shitless, olympic, apparel, lilwayn, alexi, assist, gie, getlost, prosecutor, coordin, ticckler, pansi, rebelli, titz, chihuahua, babymama, serg, influenti, yeahhhh-hhh, mumbo, monetari, sixth, enerv, mayo, condim, cuzin, snupe, upward, bgc, acab, pooest, sando, faher, monistat, witchuuuu, yaaaaaa, sidechicc, whataburg, telephon, trustin, homerun, tingli, uni, sorrynotsorr, yaz, grouch, acn, fuckfriendzon, waxx, kylie, jenner, suhh, skunk, premier, summn, letr, choosinh, throwbac, boyyi, fireston, scrapehous, bullshittin, gaggl, errbodi, goldfish, ull, arguin, slutttt, spoilt, ohwel, eryth, thief, bess, estupid, sarcophagu, lmfaooo, exercis, findin, confrus, liessss, boyyyyyyyyi, burri, pleasant, slittin, runn, landfil, burden, uptight, ayeeee, muzzl, lung, saditi, capuano, shone, sinf, drunktalk, thingamabob, bradi, ode, thumper, jusi, intrest, jezzi, joystick, theshield, onion, mothafucka, adjust, intercours, inflam, mascato, voz, mando, forestgump, aaahhhhh, christma, drunkenli, winni, pooh, erinblair, gmix, ahahahh, ping, rolex, shutupcrybabi, infam, basicbitch, almightydavehunna, inli, ashlei, holmezz, shiesti, maintain, zeec, flamin, sapl, pogo, juelz, lans, nocturn, toughbreak, ferrari, pleeeeeas, haannnn, arod, ddaaawwgggffaaacce, cccaallddeerooonn, aktin, drizzown, downnnnn, hillllll, heaux, xtima, guessin, trail, cinegram, peekin, overwhelm, hmmmm, napa, fewer, injur, sapphir, 18k, detect, brass, polygamist, yooooo, 4lokos, damm, stingi, errrryth, hydrant, boltupdo, ughh, zahra, downspout, denim, halfwai, creme, porkchop, celeri, cayenn, beth, damnnnn, darf, pli, dblite, bachman, slumber, minutesm, lmfaooooooooooooo, adderal, dodgerofzion, trai, assss, draymond, doodoo, egnog, eharmoni, taquito, bunge, eli, emer, comic, whatttt, pregnant, noooooooooo, lurk, reblog, flicke, trinaaa, katrinaaaa, montana, upd, dik, deeeez, suker, geekylesbianscientist, theblairbetch, douglasrichardsonship, kayla, givenchi, glenladen, osu, waiter, teardrop, concret, fuckittt, smokewe, teamloud-pack, sidetrack, greatwhiteprivileg, zucchini, diyyyi, henni, unhing, hagg, receatt, indiegamepickuplin, shawnda, chanel, dandelion, antonio, aftermath, wyome, exp-

los, settin, islamophob, fondl, reassur, speciali, holocaust, jeweleri, shinin, summit, bootyyyyyyi, nonstop, subconscious, handmad, handcut, marin, claritin, flea, donta, tissu, phatti, shool, deprec, ftw, emosquad2k10, rlly, eachotha, myi, pp, michaellangelo, jamaica, dancehal, frog, seafood, unrespect, supervisor, ackin, everrrrrrr, slower, lynch, howler, shittiest, voodoo, yolk, uckin, freebe, hm, gigant, rethink, mexico, obv, umbrella, weeaboo, poppa, lbr, fellaz, jacki, jacob, janet, retrograd, levit, lousivil, jm, joooooook, tailor, mutter, aloud, cussss, doesss, kyle, falcon, steven, wackson, fap, bond, robb, s2g, dorito, collabor, orai, tweaker, asfck, loner, hannnnnnn, shite, nhl14, sadden, maddi, karissa, cierra, fuckdimmi, vinnysnotmadon, billgets-bun, nemo, hiv, marchmad, maryjan, omari, mickeyblowsyourmind, b2k, fuxker, menthol, vandal, supper, sicker, creami, rosta, sheriff, nowwww, bangbro, otter, debt, btch, gne, fwhe, roxi, wheezi, chronic, pillz, repress, broiler, braxton, regularli, insuffer, civilis, ofcours, dingbat, ky, centimet, okc, unthaw, mainestatepi, schooldanc, duval, mikepp, granola, sequin, phantom, cardin, illest, teef, constitutionalist, ratifi, centerpiec, ouh, jammin, grigio, moscato, fagg, procrastin, pppppoppin, popper, lataa, raaa, pussi, hairlessss, currenttv, slight, afteast, disposit, mileag, sheryl, pullz, specki, lesbo, coolcunt, absolutev, meati, apt, cudi, snowday2014, elsewhere, orbit, boast, uo, tshi, nisa, unfollw, audac, bola, vee, steph, beleib, sweeti, cannon, arena, iwaited5yearsforfobandiallgotwasthisshttyarena, trustisbroken, satir, stewi, genesi, tna, bittersweet, loudli, netherland, rosa, mexicano, 2ssss, yada, jeff, fisher, seamstress, googli, rhianna, jant, fragil, mayweath, superweak, stem, alcohol, poc, svsu, rj, killyouself, zodiac, plaza, thugga, rental, lasagna, thrive, econom, sector, pussya, windoowww, versac, badonkadonk, grizzli, baylor, nino, jiz, lamb, coleslaw, wheeet, choker, downi, mimosa, allen, cav, finnegan, ceifi, 13yr, brewer, booshi, velcor, wonderad, japanes, wobbuffet, missi, thanksgiv, swur, layout, yaya, manbooti, thursti, boogawolf, muthaf, hymn

D.2 Post-STTD

D.2.1 DS1: Suicidal Ideation

1. T set:

fuke, shipper, choos, lmao, drone, clearli, blue, avid, nearli, bro, saintsfc, probe, thnx, tonsil, argh, neglect, epidem, straighten, ooh, luv, ballin, playin, calv, yhink, expkod, ky, confus, methodologi, kaci, synonym, tbh, temp, unbench, easi, 3yrs, procrastin, wrap, duvet, burrito, measur, faux, met, intestin, kev, josh, daniel, laura, dom, jayani, fleur, leann, tbfh, li, easier, numb, stupidest, puddl, ovehink, stair, horror, par, cacahu, te, crumb, fuckidna, yoloa, vote5sos, infam, hungarian, revamp, grow, michael, jackson, beyond, belief, urghhhh, mi, mam, eveh, 30mins, cloud, paus, calm, happier, stronger, leo, charli, bam4xmas, bing, solut, sooooooth, pardew, button, cross, lit, feed, updat, depriv, fed, wrist, itch, sir, scream, quickli, aargh, die, complain, never, my, mind, anymor, so, don, goodby, want, again, readi, probabl, life, best, fall, actual, food, month, total, drown, right, funni, bed, busi, shop, centr, suppos, earli, wake, y, drive, far, alleg, break

2. $B(T, O)$ set:

myself, hate, bitch, selfharm, mock, leg, oh, album, tire, up, give, can, not, everyth, already, low, much, hu, tho, here, toward, sleep, breath, end, physic, im, honestli, fuck, pl, movi, absolut, sorri, super, pain, wan, na, definit, barrier, poor, omg, averag, gon, kinda, deep, arm, scare, pill, revis, fuckin, couldn, exam, perhap, god, atm, suck, rn, past, black, alon, spend, internet, badli, massiv, popular, both, itself, wont, sometim, seen, inspir, possibli, shitti, dark, got, ta, dog, id, v, fun, squad, idk, despair, instead, empti, memori, drink, zayn, safe

3. *O set:*

joshiesanud, step, nna, her, equival, who, complet, selfish, ain, help, nobodi, charg, he, problem, left, behind, cope, answer, she, said, phrase, your, ask, fm, which, omfg, ars, pigeon, flew, into, offic, window, fallen, fire, escap, receipt, bore, deliv, lectur, killmenow, mentalhealthawar, messag, our, websit, young, bulli, mentalhealth, doe, ian, team, 2counter, attack, upgrad, intelligen, bang, experienc, mental, health, issu, at, higher, risk, timetotalk, campaign, social, network, identifi, prevent, constantli, torn, between, everyon, around, father, type, close, spite, parent, must, proud, launch, improv, dream, wear, floweri, 14th, jerseyshor, jersei, attemp, off, ninth, floor, high, rise, structur, happi, dramat, awai, min, film, resili, storytel, perform, dw, mum, threw, stereo, bc, season, loud, everdai, dure, year, okai, such, bullshit, gai, becaus, psycholog, unstabl, feud, fact, colleg, today, till, new, web, resourc, live, more, surpris, some, tell, yesterdai, cool, 10th, lead, blog, we, hope, reduc, rel, found, tripl, murder, author, spent, two, got, chanc, old, lock, herself, car, ll, muffin, tee, brilliant, swoop, assist, nine, boi, comit, sicken, fresh, hospit, minut, somebodi, attempt, speak, freak, did, question, ever, contempl, emotion, heal, recoveri, tweet, babe, rare, anyth, posit, shoot, idiot, b, devotedtothedemonsinsid, sh, advic, follow, similiar, x, ripe, ag, hahaha, eah, bomb, driven, by, al, prison, 30pm, http, polit, worker, via, joke, disord, struggl, bomber, name, learn, largest, pilot, airlin, crash, plane, reveng, mood, swing, frequent, spoke, vultur, wait, starv, later, haven, accomplish, yet, long, term, unemploi, avail, come, romantic, cara, tipo, eu, ou, o, lbum, bmth, uma, veze, por, dia, ahauhauhaua, show, been, onlin, appear, r, notic, societi, care, histori, htt, member, star, rainbow, knew, sister, rap, skin, job, dislik, stigma, sound, headlin, grabber, big, didn, despit, recess, fig, through, nose, nhschangedai, pledg, mentalil, save, famili, friend, mourn, view, mate, looooooooool, sinc, miss, wrong, hatebeing-soppi, associ, w, increas, review, children, bye, nerd, h, women, masculin, ideal, expect, male, nate, tragedi, account, cultur, lone, co, founder, bui, hotlin, bring, coffe, call, moshingx, l0st, insecur3, angel, home, own, chip, figur, annual, road, wonder, alloc, address, depressionhu, mani, product, sixth, form, remain, under, rais, awar, saveyoungl, yea, pack, blow, fckn, brain, share, hea, obsess, band, sheep, jump, cliff, first, dy, 4th, grade, unbrow, pic, stitch, well, confid, lowest, silver, crisi, respons, statist, suiciden, dress, weird, n, ladi, pull, test, alcohol, aicl, power, petit, site, against, spread, line, galatasari, sure, couldnt, brand, chav, loooool, gear, train, sourc, insid, alwai, within, 5sos, lazi, smoke, cigarett, slept, geographi, drop, lose, crayon, fell, shower, thumb, vind, een, van, leuk, declin, reason, col, without, babi, copi, tape, work, tri, singl, tomorrow, move, music, feat, lost, factor, soldier, linger, effect, rape, shade, lighter, everi, countri, loan, differ, degre, pai, cassandra, local, intern, level, law, dump, common, wha, sens, anorexia, longest, shot, himself, head, bullet, cure, becom, profession, pa, includ, genuin, broke, tail, bone, mid, interview, bodi, unknown, legit, wan, dear, repo, whole, them, paicularli, temperament, suscept, killer, incas, worri, game, time, tradit, cyberbulli, hashtag, clinic, bereav, either, headbang, onc, silenc, whoo, masarap, gawin, kapag, pinagsabai, ang, aral, trabaho, superwoman, fatigu, final, street, free, download, compil, 1st, link, victim, cyber, west, technologi, pair, beat, agent, assault, three, surrend, femal, immigr, lucki, seriou, cunt, twitter, tumblr, mockeri, pretend, jeffyaldden, tttt, teensuicid, topic, girl, chat, bruh, aint, ur, digniti, stripp, whose, son, daughter, fouh, bad, l, design, wren, find, paner, 13yrs, front, page, these, paper, injur, treat, polic, classi, told, lover, warn, 11s, hei, x989, x848, fifa, st, grand, enjoi, schizophrenia, slightli, concern, refer, pictur, suspect, team999, run, pun, stori, loss, 1pm, debt, talkhealth, join, shoe, count, urself, stai, uni, mondai, nd, wednesdai, sui, among, teen, main, woke, next, order, cherish, moment, etern, unconfid, esteem, insecur, quiet, ugly, littl, rat, hotel, relationship, breakdown, bless, thousand, good, luck, ignor, fear, aviat, engin, aboard, until, upon, exhaust, coupl, di, pact, prayforheidi, overdos, role, model, teenag, skip, load, protein, workout, volcano, gone, earlier, studi, primari, wk, junk, quick, sugar,

energi, kamikaz, mission, human, um, fly, invulner, whistleblow, expos, ht, loui, triniti, win, offici, postnat, send, meet, wenger, finish, search, investig, crush, meant, boyfriend, believ, ki, whyi, cutteerr, weekend, yorktown, lakeland, heroin, westchest, safeti, commun, newyork, saw, air, max, assess, led, woman, watchdog, benefit, amaz, rescu, reject, sick, unchalleng, yr, spo, hat, draft, drug, walk, rout, survei, teach, prof, patient, directli, relat, number, chang, treatment, tricyclic, acut, toxic, smai, patientsaftei, cricket, zombi, roach, parasit, tale, xxxantastic3, obv, pathet, weak, abl, hold, dine, tabl, kalori, plate, emegerd, sweettooth, sugarcrush, least, qualifi, masseus, quit, master, massag, gym, stub, toe, nail, simpl, sniper, six, fighter, set, vest, poison, jumaat, ni, balik, perak, lari, pecut, kelil, rumah, sebab, eksit, threat, shouldn, lightli, upset, possibl, brussel, sprout, app, seek, indigenousealth, chariti, stomach, bloodi, captur, caught, background, wouldn, matern, develop, mmia, migraine, bard, memoir, seiz, grief, credit, creepi, iron, quaalud, extinct, propos, state, approv, afraid, rebuild, insult, fat, assumpt, pretti, though, notyo, letter, took, might, hous, unless, milkid, weep, joint, chin, wors, due, distress, underli, same, forev, hit, ic, youth, point, horribl, replai, lesson, read, float, sea, 5s, vine, pillow, circumst, non, outcom, terribl, episod, evid, where, donat, fund, bipolar, week, slow, olofofounit, school, earlywhat, anywher, westcoast, ov, eatingdisord, taboo, onl, mother, broken, sttech, grossli, offens, comment, piss, checklist, speakout, attract, adolesc, third, crisiscontrol, librari, book, librarian, cours, sirfeel, wristband, park, morn, rumour, grind, project, physician, consid, fli, mhsm, hungri, forgot, indirect, wallet, teacher, afterlif, illogicalbrilli, terrifi, beauti, rapper, remov, peni, statu, tokyo, ago, xfile, equal, horrend, swell, mom, screen, wide, variou, factori, oper, condit, sign, anti, hard, lot, date, nl, minist, straig, extrem, impact, significantli, etc, ya, push, edg, full, inhal, subwai, sub, door, us, illeg, punish, cyberstalk, cat, thru, trauma, asmsg, downward, spiral, rifl, row, inde, numer, dementia, injuri, intens, harder, cold, experi, blame, allow, spectacular, ad, sudoku, seppuku, hannah, bond, easili, rather, admit, didnt, spot, schedul, rude, 10pm, tour, soul, scum, sympathi, ok, bunch, their, somon, imperson, wow, capit, emploi, fisher, hire, drag, att, great, endit, piec, roadkil, fox, driver, chill, ma, 7up, ghana, highest, worst, om, dose, place, secur, exist, kick, reasonsforliv, pupil, scene, repoer, taliban, justifi, inc, mosqu, deni, misspel, cutest, wifi, thank, sat, crawl, hole, erad, incr, research, onset, nicer, aist, audienc, ca, describ, white, supremacist, youi, someonewhen, haywardsheath, fix, plank, hazwalk, mile, counti, uk, consol, 1in, pple, attend, 5yrs, mine, card, dm, open, let, somewher, practic, steal, favorit, colour, weather, wife, twilight, netflix, rl, ball, sma, stand, togeth, f, boat, warship, esco, ongo, recent, fb, satisfactori, tyrone, fiz, maria, storylin, corri, breakfast, 11am, dinner, 9pm, profil, behaviour, biggest, men, perfect, wo, guard, matter, complic, avonrock, blakes7, bigger, tit, trailer, 29th, sociologi, lie, inpati, vote, text, savethemal, ugh, transgend, encourag, alo, reaction, shame, poem, elect, broadcast, ani, hau5, mai, fam, goe, newsfe, phone, radio, global, releas, 2day, aw, ripheath, 5sosfam, wrote, 2x2, math, ex, fight, e, each, per, occur, bastard, superbul, yolo, everydai, nervou, laughter, burst, laugh, lack, holiday, player, braveri, sit, hitler, disgust, penalti, infidel, interest, public, understand, commerci, intent, violenc, war, while, diarrhea, wellb, semest, flat, pennsalt, regard, carri, media, coverag, 15yr, involv, explain, yearbook, harri, openli, suddenli, attent, veteran, sought, unsuccessfulli, glass, 9th, quot, sexual, conflict, 4rm, rock, hasn, deal, stress, yall, publish, top, build, yourself, forward, whatev, soon, leap, hurdl, land, sho, notim, hug, fashion, survivor, pregnant, choic, pick, promis, hear, map, illumin, gun, homicid, cost, billion, povei, known, contact, those, cal, almost, champ, leagu, aswel, volunt, center, veri, suici, check, daili, fake, touch, typ, waist, hip, hoorai, print, apologi, unfollow, closer, usa, fender, guitar, ticket, reloc, premis, discuss, abstain, ep, throne, contin, wale, militari, singer, cell, hangi, strongest, polici, suggest, imho, ppl, respect, standardis, anchor, industri, dii, un, 3rd, confer, kind, block, chose, jihadist, recruit, celebr, gossip, kudunew, ing, com-

mut, aid, stayal, multi, appli, nurs, virgin, hand, judgment, compat, accept, ideat, syndrome, trusti, action, wed, delai, late, chief, psychiatric, friendli, disclosur, hang, squeez, ass, neck, asham, awk, trial, athlet, cou, traumat, psychologist, visit, afterward, mainstori, ahaha, nah, mass, record, instanc, turn, abus, decid, scale, crack, condemn, repeal, adult, disappear, scari, recur, favourit, bandmat, tada, sensit, subject, bein, gener, serious, idea, fairli, eastern, isra, ship, island, aboion, present, demand, crime, rail, renationalis, elector, jealousy, evolv, voic, blacktwitt, spiritu, petti, bandwagon, blew, cousin, near, market, provinc, ptv, prove, barrel, small, venu, produc, lifetim, succeed, worldwid, accord, assisteddi, patronis, approach, pedantri, individu, untiltheend, purg, pregnanc, blogger, blogboost, brigad, israel, tank, booklet, provid, guidanc, shark, dad, tomorrowpaperstodai, disrespect, latest, troop, 11th, hospi, inner, calf, exact, gave, bih, cramp, muscl, whate, enough, prompt, sleeleep, bitterli, crazi, situat, vulner, 4suic, sing, gunna, stretch, bout, remind, journalist, method, repoingsuicid, alaska, servic, prior, wall, protect, youcannotbereplac, em, karo, gi, vehic, blood, predict, chemic, alter, g, drunk, mo, matti, heali, look, determin, jail, intercept, en, bee, 20am, secret, ginger, rich, ridicul, sanction, scientist, sadder, explicitli, graphic, fulli, repair, pitchmark, desper, arson, shift, stem, guzzl, boot, mini, ski, sneaki, creat, surpass, cancer, diseas, earphon, sunb, woh, annoi, con, lib, price, brb, destroi, patsi, gran, repli, summer, middl, pougues, comedian, repoodli, icon, reso, legend, shake, len, themsel, celeb, mayv, hero, actor, impoant, judgem, scariest, klaxon, embarrass, platform, spotlight, psychoanalyst, fill, airway, clue, comfo, longer, grip, brink, hell, reevalu, geniu, robinwillam, true, robinwilliam, locat, comedi, reach, tragic, anybodi, usual, shaken, ckv, compass, neither, sadli, fav, espec, compel, saddest, yeah, outlet, ignoredadvic, gr, opinion, debat, coron, receiv, tribut, shown, announc, museum, journo, guid, asphyxia, heed, incredibli, legendari, twist, recommend, contagion, devast, apologis, et, avoid, excess, detail, guidelin, tabloid, faith, compani, net, grant, stock, reckless, displai, larg, inform, couesi, espec, c, tait, histor, du, curiou, fame, connect, urg, confirm, aha, realtalk, la, yanno, qual, coward, onto, duti, responsibli, reader, hidden, financi, struggle2get, system, liber, ideologi, safer, 3hr, programm, therapi, direct, flight, accom, plz, hopefulli, honor, exp, mention, bbcaq, experien, schiz, wtf, bookruin, killin, trait, greater, potenti, miracl, haunt, complex, recognis, ol, fals, dichotom, edit, caesarean, section, moi, aussi, je, excus, vou, ai, pardon, mutil, j, fai, de, tent, nightmar, helplin, gethelp, passpo, tourist, opt, obin, ash, scatter, size, mean, conform, warp, 8pm, 3pm, pressur, newspap, column, peacock, lilahi, rajioon, compar, prob, ride, prepar, ramp, anoth, chant, ifiwaswhit, violent, pro, shoddi, accid, proce, provis, continu, discharg, express, tryna, happen, seri, savet, process, neighbor, ta, ayi, benno, hoopspleasedo, pass, ti, elder, peupl, demandera, compt, pour, chaqu, ch, meur, sesp, pouss, au, grab, granola, bar, myth, behavior, shock, heard, stat, fr, lap, intervent, older, suicidium, caeder, oneself, act, intention, outspoken, advoc, joanriv, pre, ven, tune, judiciari, hors, lawyer, maial, wit, intimid, rage, anger, mone, detent, rang, bell, rule, five, previou, suicideprevent, globalmentalhealth, 10am, 5pm, sa, refus, comicnew, disclaim, lad, mode, discrimin, regardless, sex, race, wealth, everybodybusi, worldsuicidepreventionandai, activ, wspd, connected, sweden, suicidepr, awesom, taux, est, foi, plu, lev, chez, le, jeun, journeemondial, endors, initi, ouch, inspector, million, across, globe, balconi, dollar, cocain, brought, fightstigma, mentalh, sheet, guilti, speed, inconvenienc, themself, ashton, verdict, flee, argu, prosecut, bail, timelin, helpfu, footbal, gambl, addict, drove, hihc, imper, lyric, list, 1000s, whilst, doctor, tempt, fade, swear, captain, overcom, battl, rattl, forefront, socia, checkpoint, blast, target, smh, came, haram, zone, dropout, juri, repeat, taught, cri, email, realis, acquaint, threaten, bet, emascul, ego, civil, servant, shutup, milkshak, ruim, q, agora, mina, faz, rabisco, corpo, ja, se, acha, fia, com, ess, poe, vai, dar, trabalhar, chile, cuz, committin, slowli, mufukka, tough, squirrel, ledg, nohshield, catch, evil, pedo, comet, deathsent, promot, econom, fuher, blight, countrysid, wildlif, govt, env,

preach, xx, friendship, nice, burger, webinar, collabor, explos, outsid, conc, hall, consist, doorstep, becam, ironi, appt, credibl, activist, terror, ub, dozen, itsgood-talk, homophob, justic, over10000, eng, shire, 18th, pound, fil, corp, enlac, ont, tattoo, analysi, requir, internfil, hound, autist, former, th, nash, fergi, attitud, de-meanour, moodi, cover, needfriend, dyinginsid, heaach, nohop, capita, wax, harass, uniqu, tip, overpass, ft, toll, town, pra, plead, howev, shun, surg, yknow, miseri, charact, patch, tombston, therapist, kei, case, control, porn, proof, overse, cringiest, vile, ei, imag, emphas, classic, ward, percent, difficult, economi, marginalis, interf, corps, aim, user, glorifi, psychopath, poll, wipeout, untaint, progress, core, return, longgrass, childlin, danisnotonfir, crude, tool, flag, tast, armour, arrest, sell, weapon, crimin, ahead, lfc, eventu, endur, clich, 1in4, climb, border, dare, manipul, responsibil, shem, k, grate, cheer, hahah, toi, fab, xxxx, grim, insight, abit, youngster, playlist, erect, nunchuk, written, askbbfc, paradox, incap, detect, begin, trace, lool, smell, basic, peasant, bag, bucket, twat, futur, cast, mix, correct, disguis, uniform, silen, kobani, barfin, nestl, iguala, villain, golddust, singersongwrit, sent, socialmedia, marri, owner, loos, event, upcom, homeless, stopthehu, lil, disabl, titl, prick, uncontrol, poorli, iv, gotten, biggiesmal, devastat, bu, 6ft, sun, abov, melt, 21st, session, staff, shout, huh, weasel, stolen, stick, counsel, dunno, tbf, bleak, influenc, slip, interven, wash, hr, shini, turnout, skynew, blind, widow, incapac, donor, nab, lynch, kanawa, ptx, livedexp, stuff, sever, difficulti, bridg, appeal, doit, fair, objet, suivi, dan, strat, gie, national, sant, unhappi, thrash, metal, add, misinform, areuther, depressionquot, warmth, soft, challeng, xma, tree, light, cop, poltw, optic, emhlabeni, kanti, kwenzakalani, decis, 56m, attitudin, anorex, contribut, neo, cheerlead, op, af, psych, sack, tottenham, bowl, cream, undercook, frozen, pizza, monstros, host, four, sglovexxx, function, ly, stare, ceil, livestream, any1, stage, cobaincas, justice4ku, tend, heel, invent, enter, crock, pot, spici, sausag, queso, prayer, innoc, guess, mas-sacr, scarier, heav, frustrat, roof, aftr, felin, fecal, glad, went, breakup, sextoion, unfinished, bio, vet, achiev, brag, plot, 43am, notjustcrim, christma, studentparamed, abt, gcse, loooooooooooooooooool, 10k, weet, cam, pree, linguini, bcoz, hunger, reveal, tran, fighti, tear, heabreak, heighten, advocaci, pmdd, hormon, mimic, symptom, neg, feminin, extent, exception, gunnu, ab, unwanted, panicattack, chelseapo, profeminist, sto, constant, pbuh, ant, terrorist, insan, profit, slaughter, beach, firearm, access, treasur, railwai, 35s, regim, starvat, royal, embrac, whether, citi, txt, pat, commissair, loyal, knock, ey, mouth, bollock, int, 10yr, shi, mail, cobain, deceas, fee, macaroon, first-worldprobz, critic, bungl, becca, replac, intellectu, properli, insta, highlight, career, argum, hover, doesnt, pissi, husband, stab, qui, overhaul, tackl, brother, sweet, ink, unemploy, writer, controversi, camp, tomhardi, wage, legitim, gender, psychiatrist, scandal, presid, prosecutor, doubt, accus, pow, cbb, 2b, prioriti, howardleagu, folk, defend, 4prevention, frenzi, ptsd, backlog, wen, gona, wasnt, ova, talkin, bbc, smash, fa, cup, itv, workshop, suicideawar, univers, stigmat, modern, poetic, peotic, quiero, una, relacion, seria, dominik, room, pero, acuerdo, que, personaj, pasa, impoanc, tailor, combat, class, pool, popul, inmat, empathi, award, novelist, skinni, 2much, pig, i, for, that, and, to, wa, think, about, kill, t, you, just, someon, like, most, be, dead, leav, u, hour, then, back, suicid, s, option, if, a, of, suffer, an, student, commit, over, result, kid, have, not, listen, hi, eat, him, man, hair, or, nan, ha, ye, m, fan, re, gon, na, get, peopl, all, ff, cut, but, it, the, onli, wai, stop, go, me, now, real, lol, can, pleas, group, child, in, no, noth, p, night, feel, ill, even, ve, on, photo, too, with, side, am, befor, do, gui, make, write, monei, thi, tonight, doesn, els, ar, anyon, sad, stupid, were, rate, suppo, claim, would, caus, talk, death, how, down, know, what, keep, aliv, should, video, sai, had, few, dai, forc, face, world, take, word, cant, than, emot, could, d, still, surviv, seem, see, less, second, better, appar, love, also, made, song, need, wish, thei, when, there, out, fail, watch, liter, depress, thought, last, put, from, cry, plai, after, will, someth, snapchat, wasn, person, taken, other, dont, why, bit, isn, retweet, self, harm, post, affect, note, burn, sta, thing, done, try, straight, anxieti, asleep, won, hot,

press, rememb, violet, nooooo, larri, shit, felt, disrupt

D.2.2 DS2: Misogyny

1. *T* set:

pierc, licens, ic, talent, ejecul, dm, ss, imma, aight, dope, sterolin, olli, equailti, charli, wjahjaaj, darl, lick, moe, steak, rice, corn, cuf, shook, twerk, barricad, sweati, mo, shi, sparkl, bootyhol, baekyeol, coldest, chloe, mediocr, coverup, loyal, jenni, lucki, envi, unblend, shadow, unlin, lip, foundat, powder, weinstein, walletdrain, paypig, moma, teas, cher, kayleigh, corbett, yah, resid, halavyaahhh, altogeth, indirect, gif, belong, frat, malici, flop, ariana, squaw, blackfac, appl, amber, pedo, motherfuckin, mothbal, seungkwan, visual, fuk, backseat, letter, antichrist, warlock, oil, paicip, 21st, drag, major, snoer, quaer, fucktard, groupi, boob, upsid, citi, mario, smd, cell, moview, drill, stiff, descend, shoi, fuckkk, explan, yea, driver, ral, invent, yeast, loop, lazi, flexin, champagn, rm, airpo, string, attach, sayin, tracker, postin, bath, droppin, smurf, sloppi, bib, flight, slippin, peiod, womenareevil, evilwomen, mermaid, stink, womencantmakeburrito, sheforgottheguacamol, badburri, chemo, glove, smaer, womenaredumb, constitioun, shutthellupwomen, subwai, ihatefemal, ilovefood, homecookedm, rode, cott, flopper, jug, suppos, fucki, haloween, karen, determin, odin, perman, imprint, fist, plate, cookout, saint, rider, polio, instanc, minseok, bididi, keyshia, ka, gucci, shoulda, gotti, eah, blah, rania, deactiv, brainless, empow, scienc, mathemat, engin, medicin, jihaad, hijab, blond, babymomma, meetoo, underhand, dyke, nvm, omega, okada, slutbag, rubbign, tori, pest, lower, snake, vermin, marr, somlalia, twinkl, findom, jayceejuic, granni, fame, masochist, frost, limo, carpet, housewif, bringin, concubin, capac, embed, jizz, packag, strateg, bloodi, semen, tackl, lb, stain, capabl, slutti, sharia, tie, hitam, bogu, field, hockei, didy-ouknow, larger, suffrag, temporarili, inact, lightbulb, machin, pencil, translat, mini, ski, alik, flat, permiss, viewer, unabl, jk, menstruafact, weiner, behav, cooki, presenc, sweatin, snotti, throat, sunglass, ador, rib, height, weight, zone, salti, prei, brunett, ginger, immor, slam, finna, panni, becuz, orgi, pari, glitter, cyberbulli, freeli, mmm, request, ahshshsj, recycl, rerock, window, hug, lmaoo, stretch, curiou, wank, enter, groan, aloud, crude, donthecon, ada, rubber, donni, happili, cracker, downgrad, googli, prolli, nun, drove, naw, spite, funer, hypothet, cuddl, thottiessssss, mnet, underag, stched, theyll, stepson, flavor, dildo, stalk, dump, wassup, wing, nohwest, cuckold, episod, waaai, profession, iv, seth, chuckl, rack, h20, neighbour, gum, okeyo, laptop, bonu, moon, rough, handjob, matriarchi, boner, dressin, percentag, passiv, betwn, ravag, begin, desk, sendin, sundress, water, eyebrow, fallin, regardless, wasteheime2016, fetal, syndrome, umm, doggi, vers, tat, fighter, saga, hmp, fanboi, fianc, nurs, assist, dumber, eatin, raw, niec, conceiv, gahdam, jobless, jongin, sehun, forehead, tipto, wack, rebound, jesd, elimin, iron, clad, bop, wna, model, bottl, sheet, nippl, weedthought, armsesh420, betta, stilllllll, loner, eyein, knowl- edg, nak, melalak, sorang, kelli, anytim, gear, liar, cross, fwu, buis, plu, cu, violet, momma, nauseou, symmetra, turret, getalif, stopspreadingli, twitch, stoop, wombl, alud, reciev, peep, congrat, yare, despis, havin, niqqa, buh, hav, goin, trap, showin, transgend, rawin, burnin, chicago, preserv, uhh, sweedish, explicitli, flex, bob, over- watch, english, assign, subtleti, conniv, soa, reign, ungrat, inde, agta, nicki, pussc, pamper, abandon, amateur, wealth, criteria, goofi, hmmm, wylin, fricken, bitchin, wana, fvcking, proper, spazz, narcolept, trai, shuttl, barbz, butch, geek, frontal, stylist, scam, scrap, sunt, ting, vacuou, greed, standoffish, confer, workin, homi, rl, ku, pageant, ogl, mexican, hoein, lmaaaaaoooo, britch, woop, length, mixtap, knuckl, sixth, bummi, filthhyi, stepmom, blown, hopefulli, nxt, thismorn, hahaha- hahahaha, sexiest, twatch, classi, domthi, ref, lymph, node, swollen, spreadshit, fren, sour, fling, waffl, slipperi, slow, fashion, sucker, tampon, strive, ambit, snowmen,

xoxoxo, btch, whaaat, barbi, damm, morh, amus, quaerback, swept, yeen, hag, bend, strech, ghost, counteract, nace, bien, jock, jeopardi, protestor, dolli, cn, beneath, acumen, empti, publicli, contest, trashass, outlaw, appropo, descript, aggressor, merci, candidaci, mitch, gossip, obtus, derp, fund, ourselv, janel, ran, tattl, ari, lister, nugget, repress, afghanistan, gma, miniski, 70s, iran, destabil, vilifi, american, disrupt, adult, hyster, nb, ik, clutch, pearl, slutwhor, zero, hysteria, wander, disconnect, uteru, chase, mirag, haath, angoor, similar, katelyn, spine, wo, bitterli, terrifi, 40yr, um, hahahaha, thousand, petul, 2understand, refuge, childr, eminem, reviv, commi, task, realtalk, blather, platitud, persona, recipi, brah, gomez, addam, pum, goodnight, tl, confidenti, floodgat, qanon, aspir, sparr, vy, harpi, prioriti, contempt, nomin, deplor, hind, gargl, mouthwash, therapisti, alo, darlin, album, crossdress, femboi, mtf, futanari, engrav, trophi, convent, 20s, talm, complic, toddler, wearthestorm, barii, baasto, infront, blahe, flack, parrot, courag, congress, dipshit, fd, pollywog, groomsman, receipt, bridesmaid, insist, rudest, cliff, recess, sustain, procliv, histrion, bread, cue, heaectomi, hothead, runnin, thief, guild, mission, sword, slinger, parapet, stanc, angela, hideou, thrill, wireless, headphon, dishwasher, cheatin, credibl, ugliest, fatter, 5x, backpack, wth, hubbi, musti, surgeri, slope, arbitrari, backb, uniform, nearest, perimet, 380k, republican, samantha, wou, wood, incompet, void, stack, deck, civil, bribe, monopol, conspirat, brainwash, decept, cretin, stem, blowback, greed, rent, scank, hystericalnow, mustard, sand, cowardic, coyot, niggaz, yal, abo, symptom, stupud, meltdown, bcse, trendi, ton, mami, elit, clair, groundbreak, materi, gravel, pine, needl, unconsci, oracl, greec, mediev, freakout, plane, crypt, esm, supervisor, brief, helpless, exhaust, neglect, piti, taxi, ard, backand, stiletto, omgggg, beeeennn, foreverrrrr, sitcom, sissi, toasterno, poll, melt, handmaid, ca, conquer, lookinthemirror, soooooo, fucktwaddl, embarrass, icebox, occas, evolv, doit, pornstair, bouta, yt, else2, real3, cunt4, boii, batshit, household, island, grift, administr, imprison, osteopath, prescrib, chamber, maid, avali, 1900s, skil, nohwestern, twear, fohright, answ, humili, bbcbreakfast, remot, strut, 50s, redefin, basi, bitch, suck, skinny, bye, draft, hoe, push, energi, class, queen, tf, ma, loud, aint, da, save, vagina, tryin, corner, toi, retard, shoe, dii, selfish, tv, wed, hat, red, moral, low, lesbian, whine, privileg, ball, loos, unless, futur, horni, nasti, nerv, lane, three, trashy, pant, innoc, proof, nose, lone, douch, drown, outsid, fa, lame, regard, pound, mirror, mama, isnt, rid, understood, balanc, roster, nan, picki, inferior, fraction, signific, disgrac, airplan, benefit, accept, separ, fear, lemm, seem, child, yr, speech, context, help, pot, forc, dodger, term, place, eras, profit, planet, idea, power, listen, lose, violat, school, color, grandmoth, calm, relax, piss, correct, post, stock, ga, serv, terrorist, candi, spot, wipe, pass, middl, hundr, concern, count, public, between, social, absolut, near, bit, industri, set, degre, strong, aliv, prison, statu, proud, across, bigger, doctor, anti, convers, smile, fuckboi, drink, talkin, slide, lit, bruh, bless, tire, front, limit, reflex, mass, interrupt, pocket, normal, manner, bird, origin, buddi, trend, convo, militari, nor, de, reaction, muslim, traitor, paper, hormon, frankli, thick, drama, everytim, unfoun, lust, physic, brilliant, pregnanc, acc, trope, health, mental, hahaha, arrest, homophob, rais, rat, lowlif, wat, remind, gun, concentr, honestli, issu, road, ridicul, mate, thru, ky, amaz, train, economi, facial, afford, honest, alon, rub, humor, snapchat, rob, whini, witch, focu, desper, appal, uncl, cocksuck, develop, 6th, sack, hypocrit, hairi, bibl, aswel, disappear, sacrific

2. $B(T, O)$ set:

sister, it, s, to, cancer, not, for, you, i, love, my, and, but, a, till, ve, got, won, t, have, then, cock, interest, understand, if, want, go, down, that, hole, thei, didn, rape, how, long, ar, ride, shit, ladi, of, ani, so, in, societi, those, who, these, act, pl, die, don, know, about, k, bare, happi, we, kick, your, ass, off, the, live, mean, kill, piec, garbag, hope, rot, hell, onli, thing, dick, monei, small, do, park, sidewai, car, lol, blame, thi, make, difficult, just, or, look, had, great, chanc, show, everyon, re, cunt, on, fuck, up,

more, girl, u, talk, kid, eat, better, than, ll, ever, life, see, bunch, peopl, can, plai, from, real, world, moan, ugh, dumb, sta, should, be, tri, asshol, spread, right, where, control, shut, me, dai, gag, hot, entir, bag, serious, seen, him, an, now, ask, catch, rare, fish, with, like, two, left, season, dude, such, all, fam, get, hand, readi, sai, ganti, line, paid, fake, come, enabl, sick, hate, becaus, highli, matur, dig, ignor, sad, teach, am, sure, hair, sound, take, care, bad, wave, annoi, man, wive, women, old, religion, demand, chang, law, after, rule, sex, smoke, r, cuz, y, cousin, doesn, reveal, also, been, year, awesom, mistak, did, believ, joke, horrend, ear, last, person, d, too, crave, month, told, will, stand, effo, librari, hi, free, thank, no, everyth, deserv, l, their, continu, promot, project, her, ey, clear, ain, here, already, 1st, damn, ta, beat, ya, stole, someth, think, big, when, put, first, hold, breath, caus, stank, lmao, gui, rememb, twitter, call, whore, wasn, them, steal, ok, by, perfect, sink, need, hide, avoid, fool, glad, bro, out, wai, earli, ha, time, walk, home, differ, still, claim, doubt, human, children, watch, nigga, problem, becam, busi, alwai, good, work, veri, stupid, crazi, irrat, over, emot, woman, whole, matter, drop, wan, na, crawl, stai, there, forev, vote, instagram, admit, actin, m, mouth, face, sweeti, oh, god, tattoo, todai, everybodi, stop, cuff, style, at, read, consensu, other, yourself, guess, what, lie, pink, white, would, into, room, night, yell, win, probabl, most, us, wa, chat, said, disrespect, knew, why, answer, question, w, domest, speak, our, advoc, hard, much, move, he, anyth, retweet, back, tbh, silent, hour, sue, job, anoth, crack, run, enjoi, few, comment, write, under, vid, block, weasel, feel, hear, self, side, final, gave, reason, investig, give, bodi, dub, forgot, violent, attack, tryna, mind, dead, text, messag, some, name, throw, compar, million, im, everydai, which, repo, touch, dog, wear, doe, never, worker, gang, lost, angri, suspend, promis, monster, dont, bed, befor, knock, mani, chew, n, enough, lifetime, enteain, allow, app, onc, prefer, suggest, skip, laugh, els, somebodi, fun, beauti, gon, famili, deliv, slag, babi, instead, bihdai, main, angel, pretti, plot, point, awai, sorri, mai, black, singular, same, tweet, okai, ly, trash, guid, marriag, engag, wait, might, learn, bomb, deliveri, blow, silli, wall, either, bone, bank, object, insult, brain, hous, finish, anyon, whilst, ur, pull, try, pretend, liter, aren, confirm, screen, while, ahead, sens, husband, doesnt, reach, sit, breed, kno, send, nude, wet, sleep, bottom, notic, tell, could, fall, girlfriend, nice, least, own, even, except, though, countri, whoever, america, convict, far, weak, head, phone, fix, soon, ye, mom, protect, fuckin, dream, return, bark, friend, wife, disagre, prevent, death, find, leader, card, common, success, prosecut, add, respond, shitti, everi, seller, displai, price, cultur, entitl, end, gener, within, bet, let, distract, fact, quit, quot, expect, were, follow, close, door, pussi, went, lunch, pai, done, gone, treat, wors, bullet, odd, scene, hit, intern, chop, pure, irrelev, bald, bih, size, mother, belli, grown, excus, insid, without, caught, second, invit, round, spend, dare, pa, heard, capit, punch, file, fill, shame, wont, again, wouldn, twat, broke, ankl, slut, danc, past, shotgun, open, li, war, mood, well, load, shove, boyfriend, poor, tast, extrem, vile, next, rest, true, sky, littl, butt, hu, respect, sodom, wasnt, candid, permit, polit, hea, share, photo, she, nuur, choos, nd, battl, infant, c, bean, everywher, keep, deep, burn, wallet, giant, togeth, demon, cover, politician, v, funni, media, made, convinc, sun, anymor, squeez, through, cut, morn, evil, remov, foot, pal, relationship, cry, sadli, haha, wrong, dummi, via, best, cold, smell, booti, marri, box, extra, member, happen, tour, upon, bill, econom, submit, yet, racist, risk, ars, af, shout, couldn, fals, trump, bui, daughter, week, bite, pie, screw, young, around, wanker, bio, bastard, aist, jump, state, local, em, slap, huge, mine, miss, noth, tho, video, idubbbz, nigger, tit, date, pic, posit, isn, sometim, peac, protest, march, twice, nobodi, dragon, aggress, exist, bc, sinc, west, experi, new, explain, kinda, turn, beta, male, ppl, ago, fat, luv, lot, team, bang, athlet, boo, appreci, dress, born, presid, privat, hardli, idiot, usual, o, elect, didnt, shine, period, sell, cake, pleas, involv, race, secretli, tcot, step, affair, blogger, folk, kunt, less, gai, pathet, seat, air, although, multipl, herself, freak, actual, utter, yesterdai, record, insensit, shoot, pregnant, advic, speed, elitist, relev, dat, b, wit, colleg, femal, jail, bum, forget, sud-

denli, later, abl, total, rich, pop, club, wealthi, profil, surpris, glass, hei, content, obviou, switch, po, nut, faster, reso, opinion, given, asham, destroi, xx, grow, fli, goal, promin, poison, break, crush, agenda, damag, took, advantag, counter, both, impress, sexi, hurri, hospit, chelsea, hasn, whatev, quick, favorit, suppoer, event, agre, excel, solid, worst, came, perform, check, doubl, standard, yesallmen, leg, word, clearli, drive, almost, fine, harder, racism, spo, equal, titl, built, correctli, commun, cancel, bull, armi, grab, fight, fellow, oomf, typic, sexist, femin, must, skill, role, soldier, fair, trade, leav, trust, goddamn, safe, gym, outfit, sext, groceri, plan, movi, theater, cop, kind, deal, appropri, met, somethin, domin, thought, goe, vacat, sugar, choke, figur, outta, father, psychotic, wi, therapist, bff, shake, peni, fit, space, condom, bought, waitress, celebr, half, offer, cheat, wake, comin, alcohol, rather, shave, gangster, titti, weird, sing, song, complet, shower, truli, apa, sweat, unfollow, award, level, cute, compani, responsibli, finger, sent, crib, sandwich, boss, bring, feet, dumbass, cup, swap, ugli, blunt, chill, hang, princess, safeti, pineappl, wtf, light, number, cool, petti, ctfu, bust, fire, wish, hobbi, lesson, consid, wast, drunken, thinkin, order, h, neighborhood, amount, chick, coke, gloriou, pictur, scare, applic, wore, welcom, maker, test, each, until, famou, scream, random, slip, booger, sign, seriou, respons, stick, stroke, confus, jealousy, saw, cat, wine, flip, earn, arrog, prove, accur, attitud, cum, aboion, greater, obsess, masturb, woh, wohless, disgust, emoji, none, orgasm, fault, wash, miser, laid, herp, option, situat, summer, loss, sma, anywher, brutal, store, sewage, dure, belt, kept, dry, ruin, dumpster, rip, stuf, attract, lock, found, cri, di, itself, access, yeah, present, basic, opposit, sum, desir, kei, spirit, site, bj, email, popular, idgaf, roast, beef, copi, filter, list, idk, cloth, sight, sensit, bathroom, along, dear, makeup, perfectli, dad, psycho, sperm, simpli, regular, log, internet, singl, boat, natur, favor, deni, solut, equival, thread, troll, lmaooooo, wen, exit, immedi, twist, scum, sock, demi, land, inbr, q, payment, aunt, faggot, inbox, honk, mum, bitter, east, theori, grade, seek, vapid, bullshit, type, curs, definit, virgin, properli, prostitut, e, x, homo, clean, straight, tale, exactli, pleasur, lack, offend, mayb, systemic, sa, carri, effect, equat, bf, repli, phrase, al, g, stfu, worri, urg, ceainli, predat, king, label, pick, thirsti, nastiest, skank, cheap, cost, street, judgem, bug, headass, toxic, cant, havent, np, numer, approach, meant, lolol, honei, statem, warn, punish, hysteric, exagger, crisi, languag, deliber, strike, root, grope, loon, full, valid, legal, lover, bent, flap, stress, spew, wise, rage, whom, complain, histor, blind, sexism, church, mock, liber, often, unbeliev, bu, doll, insan, educ, express, assur, hilari, ratio, whack, se, stair, immatur, fucker, depress, pour, karma, lyric, mention, withhold, threesom, slept, tellin, spin, bedroom, handl, parent, sampl, tranni, shock, broken, hatr, beater, lawyer, tip, automat, clit, puss, gate, juic, hurrican, mistress, thot, phase, catcal, abt, suckin, exampl, addict, fav, rn, relat, mommi, beast, inter, incred, pig, mess, evid, terribl, swear, irl, identifi, insecur, otherwis, instantli, irrit, argu, guilti, bash, vicious, jerk, degrad, obvious, repres, cook, spoil, cherish, plenti, clueless, problemat, nail, urself, coz, quickli, forgiv, unwant, advanc, asid, juici, awhil, vocabulari, th, beetch, democrat, feminismiscanc, biggest, patriarchi, bdai, lax, dodg, treason, base, deadass, unleash, jr, relentless, bulli, ship, fur, coat, diss, vulner, struggl, wolf, cave, threw, boutta, declin, gf, easili, si, snitch, ditch, orang, potu, wow, edit, degener, split, meanwhil, ancient, dark, boot, pr, pile, lineup, pro, puta, hungri, intellectu, pin, per, grandma, devour, judgment, non, anybodi, shouldn, asylum, crimin, critic, footbal, aka, neck, motherfuck, tight, despici, five, longer, trick, beg, sat, kitchen, garden, older, fucken, hop, abov, draw, competit, gross, statist, ill, rebel, studi, yall, clout, soul, wherev, incit, perpetu, creatur, univers, treatment, feminazi, corrupt, barefoot, lynch, bother, creat, intent, smear, whisper, flame, ju, whistl, weirdo, redneck, werent, sheep, establish, fuher, illeg, camera, monkei, custom, scari, infect, filthi, teeth, smash, rotten, wouldnt, sold, slave, yourselv, afraid, co, decad, surpris, version, embrac, thier, ultim, sole, prob, immigr, decen, cent, acknowledg, catfish, trynna, grasp, youtub, youll, manipul, angl, strip, radic, fulli, toe, anon, swallow, povei, brought,

tough, meat, border, sin, hatin, career, dusti, workplac, trigger, harrass, heat, neon-azi, naked, blowjob, buss, band, vibrat, mansplain, tax, til, wage, stood, condescend, research, jew, tall, smelli, ins, symbol, spit, porn, encourag, pole, river, due, mi, bot, dammit, cult

3. *O* set:

religi, gin, insight, uncov, applaud, threat, inn, ap, bh, cricket, contin, socialist, emul, worship, meal, glamouris, twit, dy, oppress, stun, disembodi, raven, m8, serioi, gotchu, legitim, goodbye, podcast, actor, prosecutor, 11yr, cigaret, suke, fetu, rant, youngest, taken, charat, condon, slightest, heav, huf, puf, dismantl, sympathi, student, renov, gasp, hack, pillag, massiv, current, cupboard, seri, outlier, shield, powerhous, rate, star, abysmal, testifi, rightnow, curbsarenomyfriend, skale, gutter, accident, monologu, nahh, myasu, mislead, coerc, barber, serrat, knife, raevin, namjoon, predict, jinx, mobo, default, highest, frequen, ban, stung, unwil, violenc, antarctica, woodi, uk, trailer, bama, pix, novel, miaow, mysogenist, pizza, histori, heritag, rapper, allin, impeach, obstruct, jack, hentai, breakfast, yummi, sauc, beanbag, panel, rubiu, versu, righteou, boycott, roach, flowi, shop, owner, direct, dosent, mulla, nate, acct, womentakeovewitt, arnt, asset, build, prop, mod, 16gb, lamer, whoop, hee, merienda, siopao, elyu, gya, kya, strang, fanc, jurgonaut, inform, perceiv, impercept, cringei, fwhim, nowher, superb, esp, divorc, enrag, booth, cou, grand, skrew, rise, backward, fast, print, eventprof, businessman, donat, lac, muslin, dou, hemlock, fly, expel, graduat, humbl, gaya, milega, primari, highlight, smut, thankfulli, minor, lmfao, fasho, alredai, thu, stuff, tow, sourc, fck, bubbl, union, shape, bunker, alfa, floor, chopper, nightmar, privaci, pressuris, stream, lesigh, chip, 6h, furio, caution, possibl, organis, ensur, belief, prior, maasai, wako, aid, lavish, lifestyl, bedbug, captiv, condemn, relaxther, humbleclearli, infidel, openli, nelli, weapon, mix, gaw, 16k, upgrad, revers, 1k, execut, yer, ranger, maw, hahahaha, canin, canal, puppi, inse, seemingli, harmless, websit, credit, chicken, hawk, offici, swamp, plz, j, undermin, apologis, pre, empt, note, memori, shini, ipad, justifi, heabreak, repai, betray, acca, id, passion, hall, combin, priest, sexualabus, manufactur, traumat, taught, alter, milkei, seed, saibaba, lord, krishna, suicid, comatos, assail, hypnotiz, synthesiz, luxurycar, luxuri, supercar, integr, perpetr, ali, ticket, underneath, held, activist, exclusionari, van, chile, la, plant, jst, lyk, hog, quran, arw, islam, thow, lid, centr, breakingnew, tech, bitcoin, digit, paradis, donkei, 3am, outag, wax, mutil, third, pigeon, discredit, view, net, spice, knight, thestressninja, lifecoach, blackest, 10cm, pillow, lai, stomach, foul, calcul, eastward, ty, charizard, marshadow, pokei, duh, gc, yellow, everwher, remain, audac, thanet, reserv, admiss, rudig, bench, behead, wrath, utterli, insur, dom, form, press, slang, associ, area, forcefulli, broom, possibli, advent, calendar, throughout, offic, verg, resign, democraci, holi, peopel, needi, rahim, genuin, whatabout, ident, keynot, hater, anxieti, nibbl, gobbl, rome, poetic, prai, rmpire, impal, everybodyd, derbi, detail, dcfcfan, tgt, spill, slot, occupi, apologi, oooooohh, astound, voic, romanc, mere, inordin, system, fail, braver, assassin, autocorrect, patriot, lv, inappropri, behavior, possibl, trial, equivalen, lacross, accu, greatli, modestli, re-poedli, diff, generos, staff, underwai, campu, slaughter, goat, renam, upmanship, belittl, belat, condol, brand, ambassador, jai, hill, tha, fook, delici, espec, crore, fifth, tape, constantli, billion, yogi, captur, ycot, pjnet, silo, tunnel, structur, stephapprov, earlier, templ, dess, peel, banana, graphicdesign, thirst, blew, tower, resear, dyson, steep, 13yr, amidst, employ, arent, flea, tastebud, yoi, div, wankstain, cabin, indoor, unawar, wink, process, replac, graphic, crowbar, snivel, sore, faith, wayyyyyi, headmast, verdict, lala, prettiest, starv, empath, chant, bulk, cpu, ssd, contact, design, brew, frustrat, bagel, tasti, bound, dialogu, unplug, minimum, devic, isol, shahjahan, mandir, render, hotel, golf, analysi, historian, coalit, paner, freakin, visit, receiv, pupil, jame, brush, shoulder, deficien, healthcar, crook, heappen, radio, alot, era, almighty, construct, amend, constitut, tina, grim, achiev, illus, fantast, any1, pussy-

ishi, brim, fishi, simpl, reject, prego, hahahahaha, narcissist, satisfi, comedi, whore-
 hous, qualifi, path, six, pram, traffic, endear, bromanc, keyboard, crime, tide, featur,
 info, verifi, brochur, ongo, amen, equalright, ham, chees, rye, obj, meninist, inch,
 impact, aicl, jackandjackdoingitright, previous, repair, driven, movem, stat, monthli,
 action, padr, menrdec, shrewcultur, bb16, jobsrepo, mensright, misandryisr, misan-
 dri, tlot, bigot, berat, activ, masculin, fascism, altern, nazi, fascist, backup, philosoph,
 comrad, enemi, resolut, squad, digest, breakup, transit, paycheck, snack, moo, clue,
 repostapp, mumbl, android, chillin, cramp, weekdai, rag, butter, selfi, turkei, ba-
 con, vicari, bae, fallen, hint, carb, ten, missionari, pair, psychopath, shithead, up-
 stair, flush, toilet, ing, announc, pride, claimin, holla, textp, onlin, blackout, quietli,
 thrive, awkward, holder, brag, cowork, stranger, joint, crew, whether, egg, weed,
 whitest, soap, livin, edg, govern, appar, fuckeri, pe, funnyshit, coffe, jean, liver, cuf-
 fin, repossess, cure, includ, wifi, baender, verbal, cruelty, expans, habit, grammar,
 gettin, hungov, stolen, watermark, stingrai, blatant, comfoabl, liabl, inabl, interview,
 loooooooooooooool, sweethea, lemon, sub, mustach, greet, stalkin, fella, goodgirlwith-
 badthought, grai, haiiiiiiii, bachelorett, staer, recollect, highwai, 5am, liquor, tough-
 est, gangbang, horribli, wingman, bun, fend, confid, panda, stalker, plain, ab, ro-
 mancein2016, pool, breez, subtl, eaten, drier, dese, huntermour, twiddl, satisfact,
 hump, buri, cremat, comprehend, slick, apolog, carefre, unprotect, spelt, cardio, ap-
 peal, adveis, organ, protein, dumbfuck, flatter, daydream, xp, hangov, photoshop,
 taco, toast, checkin, strung, copyright, cupcak, legend, squier, platform, sc, mysteri,
 silver, cuss, rotat, revolv, clingi, touchi, feeli, warm, awak, bruise, sorrrri, infuri, soul-
 mat, nonetheless, innuendo, repeatedli, accid, viva, extens, unicorn, waiter, signatur,
 mask, cough, headlin, ceain, tune, tap, gut, contour, crash, psychic, surgeon, sav-
 ageri, chair, flew, drivin, briefli, crackhead, purg, materialist, leisur, thrown, updat,
 templat, 5th, hoop, evolut, discuss, grid, refriger, fruit, veget, memo, rockin, point-
 less, center, chronolog, butterfly, gotten, ensu, babygirl, gift, wm, essai, sip, indec,
 exposur, magnific, emotion, guidelin, reactiv, shrimp, fleekin, slid, rival, stealin, re-
 configur, allerg, latex, green, tea, healthi, fatten, fascin, handicap, necessari, stroll,
 sail, spell, outdo, specif, unfunni, casa, su, tent, impuls, spout, individu, purposefulli,
 indign, microwav, fragil, subv, grad, shoutout, wrote, dwarf, hnr, killer, aveng, fuss,
 denounc, porcupin, crab, grate, fuccin, brawl, promptli, conduct, walahi, mna, lsa,
 basm3ha, m3rfsh, wala, sudfa, loool, farmer, fckin, tp, ummm, incorpor, sabotag,
 ancestor, clarifi, misun, combo, gimm, bunt, dunt, eunt, funt, gunt, iunt, junt, lunt,
 munt, nunt, ou, ht, motherless, blast, ego, limmi, search, logic, wond, spastic, freshm,
 civili, curl, mhmmm, daytim, crowd, cishet, roulett, yoke, culpabl, docil, rea, pon-
 der, creep, beca, derail, topic, badli, recognit, journalist, lik, vic, perv, yooh, unfair,
 slur, auspol, rold, immodestli, fau, adject, feminin, macho, brave, oppressor, neu-
 tral, constituen, mindset, stare, kenyan, vocifer, lightn, jim, hopper, selfless, sketchi,
 peer, trauma, behoov, narciss, uh, tone, harsh, disappoint, broad, daylight, sincer,
 debat, circl, jar, braggin, ofc, presum, premis, distinct, contradict, inquiri, homeboi,
 coflict, generalis, lee, everret, ev, crafti, variat, frog, som, cautiou, godless, heathen,
 underli, defam, ejemplo, curfew, danger, chaqu, chose, temp, fetch, clip, slangin,
 grabber, cha, pursu, gosh, grip, louis, horribl, roc, marco, hannah, montana, thinf,
 oppos, brei, regga, holidai, bestfriend, slimi, closet, phat, premium, jeremykyl, attir,
 mighti, warrior, cycle, grabag, shall, polici, idi, taqiyya, thin, underestim, revolut,
 hing, satir, rantin, systemat, section, suspect, conf, innov, centuri, overreact, plagu,
 unfail, paranoid, rodeo, sooth, mountain, paint, shah, denial, stan, depo, signag, cron-
 greg, spinster, dismi, ci, petteist, becau, firm, connect, towa, abid, pill, beyon, ego-
 maniac, sudd, accent, grief, keeper, junior, gaslight, lib, knell, kingdom, delusion,
 capitul, perhap, mentor, peri, stigmat, conclus, widow, disregard, diagnost, tribut,
 laughter, dentist, taylor, vet, factori, crybabi, faint, girli, cocktail, senior, somehow,
 invad, pitcher, intention, bat, basebal, four, password, ti, haircut, regret, cougar, rang,
 miseri, pussiest, delight, dive, brunch, chub, drinkin, disguis, beefin, volum, 11am,

lurk, demean, alr, hv, lure, film, reclaim, servo, crutch, johnfkelli, golden, callk, woe, eboni, midget, tini, unlov, moth, ejacul, bloke, jogger, grei, asher, dislik, greeneyjon, gape, slit, muff, gash, egirl, cumhold, tsunami, guarante, nicest, dean, anniversari, ea, mutt, demur, shrew, sultana, kickupafuss, refut, besid, stillllll, yuo, tidi, absente, goddess, allll, mut, reciproc, cok, mall, unheard, assad, coin, idc, intens, meeeeeee, cumbutt, gaymanfetish, nohoslut, elli, fandom, wail, attempt, repent, cork, paicular, chauvinist, weav, haras, prophet, shy, protector, irresist, embodi, cognit, disson, adul, wahhhh, persu, anatom, bulki, fearless, geniu, written, wh, resembl, shitload, objectifi, creeper, 16th, gawd, fightin, yat, mcm, rly, tribe, instablock, learnt, alien, below, easier, stir, ohy, stanot, euro, schlong, abit, bass, hunter, headbutt, useless, fuckhead, meth, pen, tube, foil, morrissei, extern, iloveparanormalrom, lad, fiction, ch, lowest, handcuff, halloween, swing, twank, twink, lo, y7fdhch, inshallah, butthead, duduk, diam, richardspenceruf, usnavi, timemagazin, bieber, cpc, sandwichmak, applianc, notori, er, timelin, swat, reprehens, ind, compel, notallwomen, kennedi, grimi, sexualis, patienc, viue, corpor, began, cdg, egotist, monger, sooki, monki, react, tim, smeon, financ, yearss, thunder, punchlin, fo, scumpig, brainwa, 2grow, throb, knot, prude, sean, voicemail, pi, eomma, char, pee, rankl, implic, pale, flaw, secret, 2cthey, use2gain, bid, filth, sew, digniti, gntlement, eheh, psa, binari, frame, dichotomi, divid, patriarch, paradigm, paicularli, classic, skaterboi, len, chast, complex, pedal, honor, slate, injuri, contradictori, imo, anchovi, eater, tooth, hoodi, pizzag, owl, luck, fuckwit, coach, progress, goooooo, daft, concept, unfamiliar, foll, horsei, hors, respek, 8th, wannab, averag, bi, fuker, besti, streamer, bow, bred, ree, seper, collus, font, sec, hotdog, shrill, blam, encount, sentenc, gamut, eyerol, pornifi, fantasi, scandal, beach, warrant, nine, seeker, assault, technologi, cinema, bolt, mire, duck, cack, bafaf, wang, flout, hbox, dadd, peg, redund, prolaps, rhyme, trim, nigha, penetr, heel, some1, kindli, uplift, discours, versatil, kpop, horrifi, spa, sigh, beaten, bratti, 4raping, 4showing, wom, disingenu, denigr, castig, sooner, abbrevi, engross, ena, x4, oreo, z2, runner, beco, grandstand, varieti, 2k19, tm, grave, scissor, bouncer, growth, propei, backlash, cori, foam, milag, pple, provo, development, disabl, baffl, purs, obli, atheist, arang, 30yo, wk, fantas, gorgeou, unapologet, fig, norm, assumpt, bakeri, butcher, biologi, everrrr, perp, pinch, bridg, fold, donor, fever, iknowwhatkindofniggasaregonnafindthistweet, icecream, sexualharass, warp, fathom, meantim, societ, predominantli, strongli, theyv, pentagon, griev, induc, author, alt, perjuri, 1950s, shown, modest, unattract, reduc, com, mysoginist, retir, tumor, libtard, cra, comic, refund, comicbook, tear, audienc, approv, reput, rapi, hve, bigx, recreat, infanticid, adjust, nomeansno, parcel, withdraw, factor, cage, cube, edawn, hyuna, sm, jyp, yg, lmaoooooooo, inuendo, homosexu, imaginari, magnitud, quiz, incessantli, knowin, accordingli, mete, racial, popul, blood, mp, hasnt, comedian, mr, instil, russia, maial, putang, ina, lentek, lang, naririnig, ko, dute, destruct, impo, launch, badass, rig, commonli, forbid, speci, friendli, modern, increas, emphat, enorm, nicer, jo, demonstr, drama, mamma, docum, avail, lectur, colleagu, plantat, molest, statutori, anyt, 2t2, dickkkkkkkk, hr, goddammit, acid, funniest, blacklist, fungu, preclos, whatsoev, occur, campaign, clench, jaw, grind, pleasant, spidei, grill, stfukthxbai, sarcasm, 25th, oblig, slappin, greeneri, poppin, villag, corps, arrang, youv, reclus, noooo, gifset, pali, beastli, thought, solostan, perspect, womenvot, unmotiv, script, bud, goodli, moogli, kooki, cooker, corrien, injust, harras, recognis, emploi, journal, firstoftheyear, firstofmani, mickeyhaslowt, disqualifi, citizenship, chain, migrat, decor, swine, flu, bin, rapistsinuniform, anklet, passag, blurri, dox, thug, arena, kitten, rocki, typo, shoer, jojo, siwa, hick, ironi, renew, vow, waitin, nk, tirad, categor, comfo, nank, jap, odwyer, supposedli, wisdom, dysphoria, compat, harress, janitor, acquit, feeble, semant, straw, system2nd, troop, sacrific, yadayada, duti, douchebag, riverbank, jailhous, funn, residu, borrow, brigad, impun, prejudic, character, assault, 400k, nomine, transparen, hm, delusio, couldnt, yank, chancla, teammat, walker, raggi, playlist, analogi, cliqu, kai, impuni, background, divers, quota, juri, overcom,

allegedli, embassi, scorn, hardest, 2gether, strict, remix, faher, megaphon, defec, suppress, intoler, distraught, pose, republ, dictatorship, censor, blank, falsiti, jesu, meaningless, mindless, drone, core, ordinari, sui, slob, addit, puffin, chaeyoung, absurd, kamela, growl, ohohohoh, couch, strap, shoota, righteous, sprai, petrol, neuter, hung, squ, lessoni, takin, colour, y0ur, fridg, magnet, sale, metal, motto, luuuuhh, gameag, platoon, depth, foreskin, ligma, chi, senseless, pelt, programm, proclaim, pinki, sumn, salad, conscienc, pogo, foh, plaintiv, wistfulli, hesit, heafelt, mark, sang, pointedli, asleep, cumslut, fuckm, naughti, cumtribut, jailbait, submiss, venu, theindiggn, govt, mob, conven, conferenc, incl, jok, adam, timid, peo, 2k, below, knetz, gn, harv, 250kdonation, foundation990, 450million, rose, uninform, poorli, motherhood, unequ, dickhol, ri, flow, chapter, insinu, chef, teenag, reatrd, rightw, russian, evad, complicit, greatest, whacko, corngat, raggedi, stinki, cmon, signal, supremacist, youporn, sdm, pickup, lindsei, mypickupgirl, upski, streetpickupstub, brutalpickup, psycholog, leat, complaint, menopaus, hotflashtrump, trail, toad, distast, relief, cked, flabbi, skinsuit, session, thx, affirm, misogynistsdrawlikeshit, deciev, fornic, adulteri, scammer, wah, 44m, porno, shift, roaster, truest, reward, regularli, leftist, winter, channel, tend, paicul, mustn, gimp, lem, victim, boi, against, weekend, murder, ho, amp, abus, son, game, men, book, decid, spent, bore, ow, whenev, bar, stori, lemonad, sir, account, valu, someon, sacr, tree, harass, consent, sexual, accus, stone, assault, suppo, maledomin, food, survivor, argum, tabl, gender, tinder, upcom, meet, suffer, minut, becom, shot, drunk, awar, drug, servic, player, tonight, charg, mutha, fucka, repeat, special, known, sneak, practic, snap, ram, narr, rapist, teen, pimp, feed, stuck, blog, loser, wonder, savag, easi, experienc, ag, imagin, inspir, meme, nah, produc, recent, myself, alleg, hunt, defend, ad, refus, appoint, sake, scumbag, excit, super, ex, moment, case, cours, sho, truth, page, wild, theme, defens, delet, beyond, late, aw, notallmen, potenti, assum, refer, town, behind, neg, describ, metoo, toward, appli, embarrass, sudden, medic, conserv, actress, music, high, threaten, rap, commit, misogyni, target, polic, creepi, brother, prais, clown, rabbit, judg, appear, misogynist, con, market, decent, p, pain, choic, impoant, spoke, dinner, legit, etc, quiet, crap, anim, match, tran, resist, collect, dismiss, pack, himself, mostli, lead, flag, charact, moron, fan, group, justic, haven, tomorrow, felt, decis, daili, costum, exp, parodi, nap, stronger, 4th, stove, sweet, yo, magic, attent, bout, huh, kiss, gold, surviv, depend, fr, pump, top, wide, join, mad, shameless, olympic, manag, camp, deeper, restaur, blue, settl, board, childish, leagu, doin, gain, anywai, inner, spank, anal, daddi, vomit, coward, themself, btw, unlik, whose, intellig, alright, ah, tongu, ring, arm, fag, stereotyp, lil, fugli, f, omg, rude, juggl, ol, forward, diet, theyr, silenc, shouldnt, weren, brat, maga, smack, suit, offens, ima, charm, imposs, snowflak, shite, ground, dem, mf, coupl, wrap, lookin, preach, 3rd, rock, uneduc, risk, sever, shawti, holler, recogn, feminist, unblock, homeless, complim, kidnap, younger, thang, serial, bitc, influenc, smh, buffoon, propos, tag, saniti, liar, dawg, slither, releas, ay, promiscu, previou, harri, bold, stripper

D.2.3 DS3: Hate Speech

1. *T* set:

gaywad, alsarabsss, blacklist, glitter, lassen, youll, blondeproblem, evaaaa, shitmybosssai, smmfh, mongerl, ayo, azflood, clone, rome, sprinkler, naacp, indiviu, milesthompson, banner, agg, recruit, buku, warehous, gaywrit, breaking11, dammn, retweeettt, 1000x, pharrel, bazinga, aaaaaaaaand, hijack, presser, causung, mischief, properi, 2have, maria, hypebeast, knockdown, itwa, hesgai, faaaaggggottttt, shrek, goddam, 100x, butthol, placem, tang, enrag, bia, drream, soca, heyyyyyyyyyyi, vaca, gank, imo, niggerfood, niggerperson, h8, monki, coher, barnyard, ovenjew, encrust, niger, fairli, dan, blasphem, islamofascist, reto, idioci, whse, mgr, girlboi,

spon, mouthi, nigeria, akly, geta, shabbat, witcho, balless, swaagg, elem, tourer,
 whooooo, faze, fazeisgai, calld, usen, christian, picka, nanni, medal, railroad, con-
 stitu, jap, ofmin, infatu, okiecop, lolli, premium, stuckup, zak, fergusonriot, wad,
 wayan, foxx, threat2, apost, kufar, cld, islam, overrun, mongrel, perish, webb, fug-
 gin, codeword, zionist, antisemit, reverend, minstrel, sewer, homewreck, usernam,
 tusk, beetl, banwagon, toois, retar, oppress, magazin, chromeasom, kindergarden,
 nebraska, gayer, niggress, inclin, isol, hamster, obes, cement, moham, spaz, amigo,
 ballsack, lego, goldbar, eric, holder, 5eva, weve, deed, wher, imperfect, standn,
 mideast, indentur, servant, hayse, yaselv, barg, skater, gazel, popey, gger, hairstyl,
 bulldoz, pundit, homophob, darl, lotto, radic, batshit, breeder, dumbi, yt, laugh-
 abl, schitt, buckciti, racismisaliveandwellbro, conduct, chainsaw, kai, thnk, wishy-
 wash, forsak, templ, arkansa, clearer, sonic, likea, anon, backped, trigonometr, libei,
 parenthet, explan, cultist, bisexu, oblig, tomyfacebro, oki, everycunt, thii, toosoon,
 crusad, hoomi, clout, manhood, defenc, sheboon, tradit, limelight, wacthh, nahh-
 hhhaahahahaha, mauri, psychiatri, immor, gypsi, fuckri, hindi, moslem, ahhahaha-
 haha, peasant, unwash, roleplayinggam, absolv, suburb, crisco, idfk, baiter, trashiest,
 perceiv, injustic, asphalt, chava, cob, tittyi, loooooool, phillip, oscar, beta, democr,
 3yrs, restau, pigfuck, rambl, lust, bromanc, whomp, honour, furrybah, rancho, de-
 vianc, tragedi, pedestrian, snipe, immun, liesaboutvinsculli, condon, knowwww,
 kamikaz, whitepow, suspici, printer, chimpout, metlif, hd, bearfac, yusa, straggot,
 honcho, unselfish, stalkin, fuuck, dicklick, kenni, ble, tun, zipperhead, gettingr,
 whitest, knooooooooow, biden, plantat, nuur, anthoni, overbreed, swill, sexist, teabag-
 gerswho, antic, fixitjesu, downsiz, nooooooooo, huff, humplayproblem, lucricu, dagger,
 cousintouch, clash, midwest, priesthood, histor, beverli, transmitt, 3mins, recept,
 sycksyllabl, stoopid, reconnaiss, gahdamn, peckin, axin, aslina, midlan, doughnut,
 wifebeat, fuckhead, carv, sista, heeeei, tutor, waahh, gezu, houston, nbomb, rando,
 inb4, boyyyyyyi, lmaoooooooooooo, subordin, mariachi, hjhdyhdhlgjdftilh, crip, re-
 ceptionist, kraut, towelhead, rush, spic, wetback, yoself, pitbul, shrug, legit, stab,
 uniqu, knowin, lamar, evil, justic, muslim, slang, sneez, yer, border, tn, church, store,
 obvious, coo, convo, lolz, righttt, dryer, 100k, religi, profil, arriv, sissi, fucktard,
 ninja, disgrac, hesit, stubborn, harri, jumper, creepi, resid, jiggaboo, shook, witch,
 elit, parasit, teabag, pecker, hasn, vomit, dini, spur, combin, goodbye, flatter, carpet,
 dispers, nurs, session, object, wax, ed, extend, niga, fuckboi, ink, machin, goon,
 noooo, shaft, jar, privileg, michael, delusion, reject, librari, congratul, nem, cub,
 ponytail, unbeliev, jigaboo, caoon, pullin, soup, rol, wage, uhhh, mid, rd, hav, jockey,
 chucker, smaer, stadium, dictionari, emo, sleepin, shoulder, firefight, highlight, rag-
 head, butch, mudda, michigan, chosen, scope, prosper, sundai, fox, faggit, environ,
 slum, cc, bot, escap, airlin, sicken, ceil, madonna, becuz

2. $B(T, O)$ set:

wan, na, fag, racist, faggot, ant, kidnap, pat, got, ta, pi, white, gtfo, nate, zoe, snake,
 america, nigger, vision, welfar, toni, gon, pal, crybabi, urself, phrase, rel, honkei,
 dyke, swept, establish, queer, bibl, campu, race, possibli, panic, warrior, intern, hatr,
 hurrican, crimin, goauch, gook, coon, uncl, tom, ni, lbum, foto, trout, loaf, ight, reli-
 gion, bundl, unfunni, beaner, yap, breed, shittin, picker, movem, homo, 1d, hill, illeg,
 closet, rape, guilt, grammar, sympathiz, indic, notion, badg, dealt, human, search,
 mango, homosexu, increas, filthi, hire, laff, satan, kickin, gaga, ahah, incom, dis-
 abl, slaughter, muzzi, conserv, trailer, inbr, infest, savag, kike, nowher, heal, niglet,
 chink, lover, wuz, intvw, whitei, alla, noisi, superior, seek, toilet, fatherless, horrif,
 greedi, vocabulari, naaaaa, cocksuck, galaxi, blk, spear, chucker, dramat, filth, what-
 soev, typic, fenc, payin, lethal, citizen, tpsi, bastard, flaw, infant, slaveri, non, roid,
 lizard, photoshop, wedlock, knob, gobbl, dictionari, wannab, error, fuher, jerkin, hip-
 ster, aight, nativ, meh, influenc, yolo, ashi, sperm, scumbag, imperson, ginger, deem,
 newest, disgust, terrorist, racial, sand, paial, depa, nephew, hitch, honda, psychotic,

ew, hmm, ud, nevermind, chu, subhuman, unarm, imposs, diabet, arsen, wallet, fite, activ, jigaboo, threaten, sword, paicular, picki, exact, owner, inspect, rescu, light-skin, nuttin, alik, august, mcdonald, shoulder, overus, american, limp, beiber, minor, friggin, deze, bigga, couldv, douchebag, cow, marriag, goos, tru, backward, propei, extinct, infiltr, expir, gtt, weirdo, ivi, grindr, happili, stinki, whistl, therapi, sidekick, mosquito, ship, rapist, fkn, some1, butch, blown, can, not, legitim, migrat, radar, munch, teenag, procreat, nigha, scientif, outlook, 3d, sharpi, handicap, contrarian, bringin, holler, gutter, divers, meek, allah, circul, knife, wut, heterosexu, towel, bossi, whitetrash, gusta, lawless, leftist, prosper, farmer, among, cutest, engin, degener, scalp, transformthursdai, vegasshowgirl, juri, mcm, disciplin, givin, flinch, fox, nw, bball, skidmark, reptil, bend, environ, soooooo, ultim, lid, gga, sassi, sniper, robe, drinkin, stereotyp, pothead, publicli, fuel, davi, styl, latina, airlin, sidewai, harm, ov, smashin, chariti, whilst, oliv, fendi, yoself, herb, wo, mildli, gyro, hentai, region, arrow, bankrupt, gassin, hound, segment, genet, hustlin, snoop, ou, youza, warfar, flesh, punish, tomato, endur, poot, rout, teammat, clan, durag, randi, tick, barbershop, jalen, michel, depam, peyton, ponk, york, kevin, fudg

3. O set:

shouldn, tyga, dwn, faker, skinni, hobbi, includ, curv, everyon, convers, toe, hardwood, floor, met, trippi, txt, wetter, excit, wrap, app, mane, clown, momma, insid, doghous, naughti, yello, thick, brand, cuf, dodg, bound, cleaner, model, woof, scal, lad, kany, gf, sole, oreo, complet, eggplant, seh, shower, cuain, ahmesehwet, skateboard, wood, bathtim, soooo, sidewalk, mvp, funnnnnnn, cuteeee, worship, lost, buttcheek, ungrat, fr, homework, john, paul, riot, loot, attend, hella, tinder, brought, propl, depress, foh, lbvsbitch, cuzzo, second, amen, milei, emotion, damag, wayyyyi, idc, meow, 12th, ny, vixen, ent, threw, foothil, yoooooooouuuuu, wheet, earli, owl, worm, heavi, fairi, creatur, careless, hahaha, kiss, khaki, colour, cargo, haircut, yup, lap, screamn, anybodi, jersei, lmmfao, lo, slap, ainna, edg, tooth, bandit, hack, duh, hacki, sma, relationship, spark, chav, sockfetish, keezi, oooooow, pornhub, stream, featur, iguess, theyll, molli, seed, peel, rewind, io, alu, record, pe, anywaaaaaaai, tape, upcom, mixtap, flag, iffi, knight, dry, condom, burb, holograph, cum, easi, major, bae, twerk, cook, booti, sheesh, tune, updat, repo, 1b, program, cowboi, cri, potent, slept, frat, arch, depend, vagina, toto, santi, choos, vibe, tight, grim, grandkid, climat, gurl, track, taller, blurri, obsess, lowkei, quiet, homeboi, speed, stripper, dancer, ballet, comput, takin, slander, role, lime, tree, inna, hoe-saintloy, retweetin, lmaooo, romo, mav, cowgirl, catfish, slick, handl, scoot, tent, hungri, ionn, lead, 27th, intercept, senior, mansplain, impress, control, tuku, blah, cuh, suur, ita, magaluf, probli, thigh, supahot, fohead, forev, slush, med, workout, stoner, traphousseeee, stark, harbor, bitchi, promo, smuggler, explain, avi, expos, mewhi, boost, size, healthi, near, stalker, loco, marack, taught, sike, beef, 9th, advantag, everyjuan, stack, cinco, harder, niggaye, ewww, fresh, greatest, mild, deni, oooh, betta, meat, trainer, perv, demand, sophomor, soul, treasur, teeth, gold, shhhhh, roller, lie, friendzon, tryin, score, endzon, land, gimp, tht, distanc, uh, millon, violet, window, sill, shy, kiki, angeliqu, sip, tea, gym, patron, al, arrest, airpo, bby, aboion, argu, tweeti, link, li, baldhead, tweakin, shmurda, 7th, sneakersex, sniff, trainersex, kinky, eaterrrrrrrr, 51st, screen, sumn, tryout, bowl, frfr, contact, blinder, rea, pe-riod, neva, hahahahahahah, hahahahah, broadcast, nbc, abc, cnn, etc, weirdosand, browni, kind, yah, mx, slope, mate, action, promis, local, ajumma, rank, sneak, shi-iii, yasss, bestfriend, raw, frenchscal, panti, burrito, potosino, powder, boil, fade, perpetu, fresher, rite, huggi, chavhot, newli, kno, ainn, accessori, dea, view, wee, ex, isnt, batter, nail, bando, hotter, realist, feelin, imperialist, duce, disagre, loyalest, fall, meee, dragon, goku, flappi, node, tube, lucki, trinna, imma, gung, zone, hilari, thrill, billi, liquor, meeedd, tamar, chug, alot, shittallysai, jada, picket, latifah, niec, titi, halibut, bang, troubadour, individu, eatin, grin, dream, sold, older, matur, fool,

cup, wolf, flock, dizzi, separ, overheard, younger, shout, download, robot, surround, dimpl, prayer, dip, cinnamon, dig, irrit, syndrome, wave, tie, basem, donkei, hahaha-hahahahahaha, 50centmovie, beforeiselfdestruct, anthem, direction, alleg, bedroom, naiv, husband, hunter, brick, mama, remot, penguin, ahoi, spank, pimpin, smackin, cake, rose, adida, lighter, doet, haar, net, ze, ongesteld, vragen, waar, je, denkt, ik, weer, uit, kirk, 5am, yoooo, motha, freeeeez, loss, meanwhile, boat, kendrick, gotten, dy, freestyl, timelin, belli, million, incred, quest, ingredi, materi, fast, remix, thee, wheat, wigga, du, rag, swamp, player, needl, aftereah, yuppi, plain, borderlin, chunki, wick, brown, restrict, pickin, petti, snuck, divis, motherfuck, recip, leftov, eaten, repres, noneee, diverg, tunheimr, 200k, empti, cab, latest, titti, phat, biologi, spam, chri, hahahahaha, shank, cevich, rough, ym, egyptian, inherit, ethiopian, yardi, horn, wohi, sublet, feet, puss, flower, collect, stormi, jake, toco, bell, miracl, swerv, scro, tard, imag, concuss, flat, ig, far, resili, drama, attribut, catchin, erri, judgem, jumbotron, majjinn, buu, settl, headbutt, raver, venn, diagram, larg, intersect, stockton, choppa, luke, fatherrr, wasnt, deck, tyson, combo, uppercut, keeper, rip, britnei, leviticu, studio, mufuckin, suit, boomin, disput, ilysm, weekend, fabul, naa, nae, ko, fuckgm, fridg, toilla, wth, moment, 1personidbitchslap, tl, spare, leavin, dairi, tribut, remain, caucu, dock, coverag, fruit, loop, baender, pain, sosa, bangbang, exist, sodomi, uphold, cou, detest, air, heavenli, valuabl, hungrier, diet, actor, uou, tuck, boob, easier, sacrif, crest, bride, yard, dangl, ting, pang, drum, swing, flick, alarm, bic, whiffi, involuntari, climatechang, lifelong, sunris, dawn, thebird, jerryre, flu, metaphor, polici, vital, host, tail, savior, futurist, dayum, ij, wontgetm, jig, trap-houseeeeeee, coloni, injun, callou, buffalo, sampl, cider, vegan, slider, shall, tread, given, unto, leader, champion, hoosiern, hoosier, honorari, cooler, prostitut, madam, 6th, nomg, sofunni, snoin, gov, troop, sever, defeat, chatter, rave, averag, cleanin, plate, remind, perplex, feat, radio, edit, hundr, meter, dash, niqqa, 10th, iubb, indiana, reflex, breast, tuh, solv, awaken, livid, focus, focu, whaddup, cloud, hog, wind-turbin, gasbag, granni, sweep, dispos, 4ever, hadn, exit, z, ai, viru, ling, bladder, stub, katrina, moan, stroke, dump, extrem, anoyin, violat, sovereignti, fantast, pitcher, outduel, seri, blackout, satellit, bullpen, game7, flex, earn, lower, strength, hitter, bounc, beaten, ez, mlb, corrupt, possibl, cattl, prod, badd, anywer, palm, boom, bsife, 40st, space, creamteam, cockbreath, jesuschrist, ahead, gaymarriag, pocket, foxnew, balanc, network, gouach, inktob, oldpaint, mt, tiki, wahin, surf, happysundai, honestyhour, honeybadg, codi, zeller, nomin, guido, shitbag, twentysix, snappi, pappi, 5x2, sabl, paintbrush, ncaa, hoosierdaddi, kloku, longhair, gayboyproblem, champ, metal, morningjo, righti, con, emot, decis, motto, commiss, waveslid, waterwalk, notkook, vinyl, jazz, loung, browngal, nationaldoughnutdai, nowplai, witcha, inda, ona, sofa, plastic, np, paus, cud, philhugh, nyi, android, iphon, ipad, xxx, gape, nylon, creampi, british, anal, pound, eboni, babe, rub, beach, preggi, swollen, amateur, milf, cumshot, closeup, cre, un, paki, texa, bbw, deep, ram, facial, dildo, rubber, hiddencam, hidden, submiss, outdoor, korean, pump, lingerie, mastu, german, stepdad, toi, homemad, polandia, putabirdonit, realtalk, tow, johndeer, reject-edpeanutsspeci, southcarolina, highschool, uninform, stateoftheunion, 15mins, clap, tbt, rap, likkl, mississippi, oppos, minimum, labor, scab, sweatshop, throwback, tik-iti, eventu, ashtrai, truefriendtuesdai, tweetlikelexi, ultimatepickuplin, direct, beautiful, vega, wallofthewasatch, wrongfilmquot, everytim, kitchen, refriger, xfactorau, sing, youaremoreattract, bid, dreami, bud, plu, trip, torch, drain, finess, fuckkkkk, ittt, killer, salad, passeng, dun, lotta, fck, grew, bokoo, condo, deaf, tche, thinkn, sh, congrat, housewif, marbl, thinccin, 3rd, needa, seminar, hooousee, simpli, peic, impoant, temporari, fa, quaer, lean, hittin, cooder, stomach, mufucka, maaaaannnn, rid, mike, cyru, worsum, foun, mistak, burnt, tu, puta, madr, rooki, relax, beam, hobbit, brittani, sellin, pork, chop, brisket, sizzlin, laid, puddi, cheap, tacki, southridg, explor, kinda, bucket, honestli, leash, funci, yep, dontrym, bitchmod, testm, roster, haahaa, everrrrrr, dinner, nap, event, shovel, bat, ak, roach, bouta, quench, unfaith,

fountain, prettier, step, wht, bm, guidanc, til, sink, silenc, vodka, bent, strip, built, fiya, threesom, txt, tlkn, speakin, geniu, se, llama, delgado, gino, csitali, east, st, 2million, nugget, toss, curb, ear, breath, unk, broski, nug, fasho, lmfaooooo, coat, warm, skill, sat, attempt, mtlhockey, stone, madea, thong, fvckin, mud, shark, itsi, bitsi, teeni, weeni, pock, dot, bikini, shaquita, yee, bahaha, wym, technic, breakup, pine, tar, zebra, print, sheet, irrelev, foreal, boosi, thur, ili, cramp, aspir, yuhhhh, absolut, sausag, clit, eva, pussai, rainbow, lezzzbehonest, blasphem, boneless, symptom, nervou, starv, banana, plug, hole, desper, overli, fill, 2for5, neither, flight, tweak, wealth, nb, wantin, crissi, shyt, bonei, nam, carburetor, foyer, chevi, c10, rebuilt, serious, slide, male, cheerlead, avoid, 5k, grind, lmfaoooo, helloooo, avail, upload, ham, souvenir, swimm, wana, liq, waitin, return, slowli, bare, spent, childhood, webbi, trade, vdawg, omw, scratch, lai, normal, kobe, hidei, noyvou, dusti, asf, train, extra, headach, linkiden, denna, skinedddd, wc, juic, suspect, privat, tekken, correctli, scrotum, entitl, huge, wahog, bite, denial, aux, cord, glori, lmfaooooooooo, mermaid, fishi, loosen, tangi, punni, shutcho, ass, lexi, lmfaoooo, reduct, anotha, circl, cream, hottest, ego, freeway, hurri, ohhhhhh, yesss, readi, omgggg, fucka, hors, coolin, uhhe, photo, snip, manifesto, hoser, adopt, path, sockin, funniest, heat, null, han, sextap, chile, user, wulf, beani, zip, yessssirrrrr, unblock, dreamgirl, wooonnnnttt, gal, sweg, yess, honei, foreskin, circumcis, pillow, vermontproblem, alotta, excess, kush, elbow, bosh, mcbob, elig, ulcer, nomo, backatown, onyur, essai, dawg, een, mi, figur, brah, cuddl, ahaha, dent, fax, googl, fold, autocorrect, foul, starburst, candi, wardrob, consist, guilti, protein, polo, sparkl, bling, evn, preach, photograph, believethat, inspir, slim, waist, innoc, truuuuuu, tribe, agreem, fsu, ewwww, gospel, weaaaakkk, lmfaooooooooooooo, amanda, fizz, geddit, switch, roo, shaq, onna, blackgirl, jealousy, lamp, lighten, measur, fruitcak, bio, vehicl, trait, spongebob, pander, jizzbag, stolen, witchcraft, holla, brotha, swine, nile, administr, 4get, stapl, rello, poni, benefit, gap, bruhhh, hahahahahahahahahaah, botch, libdog, bark, grandpa, playground, panda, panera, nosei, shooter, slam, poppin, dilemma, bun, jam, unfoun, ashit, shawti, textin, accident, pledg, xbox, coolest, asid, kaya, constant, fear, gero, destroi, gimm, award, handcuff, freaki, seatbelt, kept, beep, fckn, whini, classi, musti, subtweet, braid, gell, havin, sittin, couuuuuch, flame, king, trav, crash, practic, snow, bruhh, costum, skate, innat, backwood, woe, homer, monsta, gei, batch, relo, fell, comb, successfulli, origin, wrestl, weezi, vers, diamond, goofi, simp, degrad, shuuutt, iittt, headband, hoop, sexiest, turkei, soggi, regroup, boooti, weight, orangutan, actress, interview, scoreless, 2nd, reliev, 4th, ga, hint, mug, buttock, wodeh, content, dee, smokei, jealou, blank, thotti, giggl, stunt, purg, bayou, classic, drinker, 4got, trippin, clock, insensit, ayee, sphere, bitti, lingo, whoa, turnt, shawn, jugg, weakkk, vic, quicker, griiind, luuuuuuv, wishfulthink, nicer, ahhh, 2faces, bib, allstar, weewekend, mardi, gra, spici, boa, trippen, brave, diss, slip, reunion, yanno, sydney, fucn, alll, bless, atl, turnup, infront, sarcast, elf, brush, daaaaaaaam, trigger, tabl, sloppi, demolish, whoever, fandomapologi, 5sos, hoppin, homecom, 17th, besid, kim, appreci, jawn, peen, idgaf, publix, stair, theo, headphon, seventh, brian, jigga, fav, plaq, hc, heabroken, inniz, uniform, epic, smooth, wiz, khalifa, cocki, shutupandplai, twitpic, proven, fckd, truuu, deeper, dishin, flyest, stress, paner, lift, tempt, breakfast, doc, bit, harsh, strap, muhfucka, fukkin, wicha, squar, wind, noll, eagl, mcoi, wine, dine, 1d, diana, written, boyzzzzzz, bow, oleeee, price, smut, indirect, blast, subbin, celib, dislik, nicki, minaj, triff, tooo, comfoabl, gut, nooo, stefani, diari, optim, ie, glass, insan, grown, kardashian, puke, master, chan, luhv, tioo, sumo, wrestler, misfit, saddest, websit, password, hahahahahah, boon, nvm, milk, doeeee, undercov, raid, bestadvic, scariest, feloni, popul, hung, receipt, bitchiest, byyyyyyrrrrrrrrrrrr, herd, associ, sno, bop, vote5sos, ananconda, dumpster, modern, farm, comeout, dasss, worryin, meal, wealthi, handsom, tend, highest, anytim, netflix, chucki, sew, pizza, curvi, chuassup, badli, hahahah, ayyyyi, predict, troubl, honest, lemm, histori, crap, fraud, happend, coast, sweetest, shed, pussyreal, benz, edc, contempl, cig, lovei, nike,

mic, bada, decaf, humor, traffic, understood, fucken, sprai, febreez, sag, bandz, rachet, scriptur, mee, moanin, nn, ecstasi, moaaaaanin, moovin, hoova, tweekin, playen, hitta, valet, lordddd, whipppppppen, drift, fliin, friendli, bracken, killa, meeeeee, bein, ina, cherri, witha, sooo, 4owe, foo, fw, proof, mouthpiec, lesson, cost, thinkkk, shee, maaaa, otheeeeeeeeer, countin, finest, finalist, babbbbbbbyyyi, mission, loyalty, muhhfuckin, rat, proton, otp, struggl, instruct, fucccccckn, cuhz, chip, limit, inbox, nevvvvva, gangbang, controllin, cryin, stressin, allegedli, bitccccch, steadi, lovin, ayeee, itchin, gossip, attract, drippen, vanillaaaaa, killaaaa, digger, drip, checker, grab, emm, lmaooooooooooooo, hangin, 2k, holllll, thirst, owiee, wifi, dedic, gottttta, maddddd, maddddddd, messin, tall, touchdown, hostel, iii, eem, watchin, salut, moral, brace, yaself, drown, swam, 2ur, eloqu, messag, bilingu, provid, sticker, nametag, pronoun, pin, bitchmast, backflip, unrol, scroll, nearest, skip, retir, mw2, afterward, flap, karat, acceler, era, wrinkl, squak, defianc, lovingli, ribbon, chief, thatd, motel, gift, requir, soundcloud, tumblr, orang, flavor, bubblegum, tablet, baller, inde, ostrich, buck, deliv, wah, adult, effect, concept, inevit, impeach, bait, inform, grace, avatar, dampen, mushroom, fallout, stylish, market, faster, stock, unrequit, howev, revamp, bussi, lone, micdrop, semi, evolv, valid, salsa, mile, radiu, 100s, 50s, 20s, depot, pussyfootin, xxxma, santa, claw, oz, arizona, egg, sunni, scrap, murderin, noe, pollo, killin, 1x, tower, 7s, 1wayhustle, bloomington, btown, iu, skull, glock, funnygui, 20k, suppoiv, chillin, talent, 2fine4cheapwine, com, millionair, coldhea, neverlovingsomeoneagain, dontneedanyon, wid, meijer, caddilac, luxuri, virgin, heel, smellin, moke, snitch, facil, gummi, powerad, yuhhh, awak, bull, forese, hockei, crazycat, 5s, thnx, 5thharmony, heheheheh, relat, chilli, speci, percent, radiat, 3xx, profession, untal, sea, delici, baldli, gorgeou, signific, whiper, pitch, touchin, saggi, graham, cereal, peddl, heeb, stain, reflect, calam, cometh, beast, sky, democrat, mawbar, selv, belt, prais, sonsof, realnigg, qualitati, massah, tase, doll, somewher, emoticon, gran, showin, earlier, rhyme, gag, greasebal, ruthless, alphabet, amend, 14th, freed, loophol, squirrel, suav, fuzzi, abound, sigh, scarf, grous, bug, tornado, mon, franklin, gunsens, blanket, crusti, 6am, sweat, clam, comedi, writer, untru, tad, illmissu, shiner, fro, blog, rube, cell, riversid, peter, 12pck, lool, niic, schinder, rob, green, ski, camouflag, pan, dimension, gore, overpow, incess, cooli, lyric, dismiss, poster, 30th, lam, prego, squin, smd, monopoli, swipe, credit, distant, perfectli, guitar, saidddd, despis, intellectu, highli, principl, elementari, pom, join, sammich, flameeee, note, forreal, dri, mutat, convolut, gene, currieri, thoe, omm, bord, fuckjng, mann, throb, incredibli, scout, prospect, ranger, bishhhhhh, waasup, sucker, toward, b4, grindin, cuzz, thou, mia, trilla, lha, elitist, yourselv, china, winner, rug, misogynist, pile, salon, chuck, fulla, 10x, acct, higher, jet, xma, iit, chow, mein, ala, profici, pointless, stat, memor, mick, folei, morph, super, playa, 10yrs, boyi, gladbagflow, conscienceless, victori, await, collegehoop, volcano, bomb, zealou, doj, stach, fawk, ginzo, nassau, copi, nowb, momz, loveit, paayyyi, eldorato, bowf, therfor, campaign, sexism, beg, servic, jfk, regret, determin, condescend, bandana, getup, steak, gravi, coal, crew, cd, bump, banger, fosho, il, brazil, tour, similar, 2accounts, statu, lololol, angela, pearl, awnser, duper, current, complem, acid, rooster, degre, couch, fault, wtfiswrongwithnebraska, perk, load, tap, ja, moest, plisi, niet, meteen, gaan, denken, willen, wel, meer, mensen, mij, veellen, moet, center, dubstep, 70s, quadraphon, stereo, bitchlol, nog, dollaz, version, haul, jab, logic, complimentari, cap, career, ballot, cheek, gop, substitut, terrifi, mfa, waddup, cooper, throwin, mouf, wussup, umm, crunk, colder, immigr, elissa, leprechaun, 5yr, warrant, rod, weeknd, idunno, muzik, volg, maar, zij, komt, vandaan, zal, preci, uitleggen, panni, talm, paccag, coincid, tame, cajuncharm, dancerproblem, fin, edgewat, allus, hotel, stanki, snack, fierc, saga, droppin, snd, vampir, slingin, skyrocket, fallen, sharpli, contrari, math, askim5, pee, chest, kinfolk, btw, plaquemin, fwm, maa, sharkett, rii, sponsor, insomnia, midnight, nat, colei, whammm, swerve, sahara, ooo, moos, forcin, byeeeee, whitetear, lessonofthedai, ador, thisti, ps4, wrote, golden, appar, heffa, fever, talker,

cdfu, shown, tini, kitten, plot, huski, bitin, erhan, der, roadrunnin, hacker, shoplift,
 lake, held, leas, gill, tournam, kiddin, fishin, bulbasuar, la, poll, integr, slimi, pogu,
 merch, wam, concentr, yoke, toast, quirk, giant, phallic, necessari, wobbl, wibbler,
 hahah, espec, papoos, plano, sensibl, statist, purp, knw, contain, chemic, azodicar-
 bonamid, yoga, mat, iron, trashcan, 5th, misread, evolutionari, depa, hunger, hy-
 poshit, downstair, juggl, amcon, merri, awww, sellout, yassss, booner, machineri,
 nab, nor, legendari, pleasur, platform, languag, below, kindergaen, shid, hahahahaha,
 apologi, fee, gullibl, hallon, yasssss, welt, sesam, fuk, unknown, somewher, pug,
 paak, ning, locat, blaze, skype, dmt, chowder, aww, affair, op, greaser, sasquatch,
 wearin, armor, slayer, helm, droppi, overr, tomar, english, outstand, accur, gobbledi,
 aoa, helli, khay, freakin, cheaper, vouch, crook, motif, zo, ieder, zijn, zaken, mag,
 noemen, wilt, ben, namelijk, erg, voor, vrijheid, meningsuit, khan, mutt, necessit,
 smaphon, toddler, lmsoooo, wolv, lox, mook, rook, progress, x2, nun, dolla, stood,
 penni, stall, wib, serio, wassuo, unexcept, clinger, gamer, itself, flood, newsfe, tar-
 get, texan, finessin, prime, nigra, wipe, hyu, ffffffffuck, rebellion, sharkeisha,
 sneaki, nite, magnum, vitaligro, semen, 2x, nunchuck, stuf, crust, brooooo, grant,
 xavier, diff, thristi, dye, jai, bei, screw, kou, fend, manpow, bootleg, borrow, biiiii-
 itch, iight, og, burg, standard, goh, heeft, pauz, steed, bij, hoofdstuk, haal, multipl,
 rare, beggin, microwav, catchup, prog, releg, reid, toaster, vraag, hij, licht, kleur,
 beter, het, morel, kompa, werkt, kleurenblind, sal, lazi, geweest, vaak, ook, zegt, dit,
 nooit, veonen, dierngedrag, layov, whatta, hmu, kimlau, sq, wore, hilli, clue, peep,
 dada, beefin, crutch, headstand, canon, equival, mm, rocket, swore, wooden, dammit,
 reach, stripei, hormon, shelbi, circular, motion, ach, juici, eleph, coochi, hmmm, letz,
 vocal, emoto, trunk, niiiieeggaaa, ratchetest, yous, donno, demz, iz, gurll, squi,
 geyser, lemon, eyi, pushin, hah, inch, 1v1, although, conced, funnel, opul, refrain,
 cuntrag, expans, wed, lyin, rind, marmalad, saran, askkevin, incid, amount, marker,
 anyhow, dink, uknow, elimin, consent, denot, somewhat, collag, jewel, caier, anx-
 iou, clai, zimmerman, leezi, function, decad, redeem, core, wizard, mullet, hooker,
 aicl, goldig, uncircumcis, pressur, revel, energi, electrifi, sukka, maker, prick, yuhh,
 spy, twice, fume, jess, nigggaaa, context, lolol, jenni, perf, theorem, assumpt, dust,
 height, mummi, interject, rum, moldi, wobbli, raggedi, ins, persist, victim, yokel,
 wyo, freelikeabird, neo, zoom, maxi, dweeb, option, piker, gm, whet, thuggeri, awar,
 sob, bingo, dread, southern, mute, vile, spai, mace, exsposin, toein, bel, nowadai,
 flite, bainbridgian, likkadawgg, kass, butcher, cheer, girlllaaaa, click, skylar, mornin,
 brazilian, lik, meech, yuck, bigotri, witout, gramat, puctur, nit, twit, esp, paddi, 20th,
 conjug, venu, diamondback, snuggl, stupidest, brb, appli, thunder, vallei, bummi,
 floyd, pac, rotat, quiz, niggaa, tien, cansada, patchouli, squat, distract, icu, osi, tan-
 gibl, fie, lea, lahi, toughen, 11th, ward, carn, asada, pinto, tajada, verd, queso, frito,
 milca, psh, hectic, hahahh, koiya, pinada, frost, transform, pole, electr, puppi, saian,
 volunt, guinea, oft, scrawni, prairi, saint, underwear, stomp, nada, disast, recoveri,
 condit, draggn, nutt, tgere, burger, waffl, fml, yute, brow, darg, jst, play, overpr,
 piti, benghazi, shell, bass, cape, travel, cyber, concern, psycho, acronym, harlem,
 fad, manga, longest, parker, aaryn, looser, tampon, crayon, blissfulli, thinker, chump,
 hostess, uk, lmaooooo, exot, secur, jetsgreen, pleasee, battl, code, scuf, frail, coconut,
 oil, grei, speckl, midsol, ici, fifa, matt, zombi, mojo, goth, critic, glove, ft, crys-
 tal, eeeeeeeee, guest, cure, biz, malzeno, funnier, mugg, dj, stranger, whith, cheesi,
 tegenwoordig, weet, vlee, eet, aap, per, p2, duuuuuuuu, copacet, luckili, prioriti, thx,
 missingtheaussi, scorecard, merci, stoppag, grass, greener, septic, ayyi, facebook,
 wouldnt, condemn, yaaaa, toooo, meth, discrimin, spunk, walker, scarri, riff, mapl,
 doughnut, sec, swingin, championship, present, kingdom, lbe, screamin, mfn, rachel,
 snobbi, rach, snutti, sup, tiger, weaken, environment, regul, infinit, decim, spike,
 regardless, sheez, iv, trae, poser, fug, ohhhhhh, spokesman, gbe, tink, lookatathe-
 hood, nightclub, crackhead, wacko, builder, samba, ck, geez, ohh, yaa, pinki, bake,
 yh, congreg, blockhead, freez, mhm, impact, deflect, circumst, notch, dex, growin,

wishin, braisin, wire, pup, shhh, cutter, lyinest, district, yhe, stanc, smaest, patti, drippin, bobbi, gta, passion, sumthin, cookin, blackish, doublestandard, permiss, wayyyee, kindli, velvet, waiv, island, comparison, bicep, anydai, tellin, noodl, coun-tryass, supposedli, messier, unfriendli, spout, naah, smelli, craycrai, canyon, key-board, commando, overbit, intimid, republican, assbat, stockboi, pinoccio, shadow, realm, kik, pool, edict, govt, ordin, whose, aim, communion, charlott, mintu, cd-fuuuu, debat, weaker, smaller, sparki, spamblock, spew, pancak, veto, chr, favor, closest, stunk, goalkeep, visual, lesser, mtn, irish, lmoa, giraff, chomper, candyass, djk, wiki, regard, situp, jammi, purnt, yung, nakalagai, sa, ng, handout, lalagai, pad, shouldv, slo, litebrit, atheist, hollywood, honesti, ukulel, quickli, realis, quad, oath, lmore, curli, somehow, reviv, strawberri, shocak, spung, freshli, sssshhhhhh, hispan, scan, sushi, booni, laughin, sae, en, feeld, kawkin, nawl, dolo, biiiiiititch, niggggg, scoop, shrimp, midget, dwarf, x3, fought, infin, angel, lml, bargain, pirelli, whit, bowbow, wade, shine, lem, potenti, reek, havoc, societi, flute, spring, allerg, reac-tion, memo, tryanna, moma, tone, drag, recycl, bin, limewir, mediocr, basura, raider, chemistri, farquaad, byee, iverrishaa, jim, selena, horni, 2am, linkup, rawest, bam, robberi, soundtrack, server, litter, mohawk, scrub, royal, snotti, entranc, samuela, conc, nicest, rig, bumgarn, proofread, vacat, cdc, treatin, blogger, moxi, credenti, nonexist, headass, shift, sloppili, oakleaf, improv, timber, chair, skit, hive, lactos, in-toler, crisp, talkinfgalot, photshop, bespectacl, mourn, zeitgeist, bitchier, parri, clariti, dunc, wya, whatnot, standtal, halp, downfal, dne, abov, ish, sprout, cordon, dif, bur-row, chad, reed, neon, gauntlet, sentiment, damian, shiddd, reall, brazen, unabash, accustom, bih, latino, uncal, impost, idol, enviou, simul, plagiarist, aist, situat, en-dear, mhmm, hangout, volleybal, hii, mover, propos, brilliant, savant, juvenil, un-qualifi, appeal, educ, groom, voter, thedumbesteabagg, stockmantheliar, ruler, ted, cruz, cheatin, scoundrel, bush, havent, meathead, mong, daylight, squinti, guidelin, shamu, seaword, twatchin, nie, temp, abouta, 30pm, goooood, savouri, agent, harvei, valverd, swagner, skinnier, transcend, grandstand, explod, parch, mickei, mous, up-grad, ceas, disturb, oversea, resist, unaccomplish, gladiola, rust, truuuu, pari, effo, label, werent, hawk, ricki, badass, kuzi, sociopath, humanitarian, cuntfac, poison, twin, nick, aahahah, meridian, omi, ado, fock, scoon, classroom, rebel, mattress, slipperi, economi, thinkingofy, diylov, sexxi, boooooooooo, steeler, pulledpork, baby-jesu, lilsmokei, mywife, beard, herkfact, talkier, recognit, gabbi, uggo, memori, su-perbowl, fuss, rink, river, mono, payback, valentin, mobb, budden, popular, reconsid, almighti, poon, hashtag, moder, consider, vegetarian, muthafukin, react, vain, euro, goal, jello, pobo, bench, ned, ultra, zing, taylor, vegeta, announc, closer, soyvic, yai, pennant, dominion, checken, ging, heftig, wond, verwacht, beterschap, hoor, creanandcrimson, mil, revenu, clappmeat, toung, tule, marijauna, wannnnnaaa, trea-son, spectacl, displai, thuglif, cleat, gain, quavo, offset, solid, ayyyyyyeEEEE, mite, shootin, banter, pomegran, gonn, trynna, thu, loudmouth, dumbfuck, westsid, cj, spiller, ivori, usta, lien, chocolatei, yummi, puto, mutha, fuckah, founat, cont, pro-mot, film, incent, s3, 4g, audienc, squander, roof, heavyweight, nook, cranni, saniti, orig, godli, yaaaasssss, buhlowin, infer, peak, natl, ot, dose, appoint, agenda, msnbc, africa, pedophil, dolt, spun, straw, janitor, whatchu, wud, teas, ohshitnigga, dip-shit, blindsid, wbu, sun, descript, spanish, recommend, mannn, gshit, blitz, choppin, smilei, daniel, andrew, janemba, asleep, nuh, lov, badmon, row, girrrrl, crazzzzzi, trap-pin, guala, playn, fuckd, fuse, ancient, hong, kong, dickhead, cumin, cave, reciev, yeet, interv, tutu, indian, somth, ppint, deliveri, orr, lor, wyd, versi, aha, theeepp, derrrrrrr, showman, globe, dork, droid, dro, yeer, loredo, coolio, erbodi, speechless, healess, immacul, hath, fanfar, standbi, okaaaaai, yooo, elev, keiffer, wizkid, scent, bleach, coco, fuckkk, hunna, wei, dank, hoodi, scanger, ltao, dingi, desrv, masturb, accent, hawt, imediatli, whamm, thursdai, tierd, knowww, turnin, raptor, 70k, qualif, dorki, five, transplant, ars, biotch, phuck, hellhol, anarchist, jr, author, compens, cal-wood, steer, nois, bewar, massiv, lens, veteran, tarah, elong, trueee, prenup, magin,

salwar, politician, libtard, ahv, stitch, beacg, bod, ab, citizenship, amnesti, thestrugl, mutual, youz, witchu, iont, sarah, palin, amus, uglass, buse, random, hellen, keller, sprite, jkbridgeturstraight, chipotl, incas, buyin, babel, leopard, patienc, drool, deciph, par, dunk, gemini, prosecut, confirm, director, agen, larger, itch, memorabilia, therbi, hydrogen, peroxid, washer, hemroid, whoopass, addict, spazzin, scarc, spazz, alabama, donald, sterl, stamp, board, silver, snowboard, dyslexia, uber, taxi, wexican, ron, bumcia, xp, muscl, havti, heheh, scuff, bumblebe, griff, yessssssss, disbelief, rode, rofl, whinei, in2, icanhashtaghoweveriw, numb, betwn, homegirl, approv, former, wigg, barca, doorstep, melodi, duggi, raincoat, contrast, icon, vid, pace, gig, defect, nfl, josh, wantttt, dmx, bee, wheelin, tractor, firm, ricketi, curl, peanut, butter, wander, 13k, unprovok, induc, pouch, ily2, recyclabl, stare, captur, hai, emili, reprint, imustbestupid, singer, kenwood, toolbox, hysteria, moal, greas, tickl, disparag, slash, espect, befo, renew, awww, turbo, hp, charger, snag, experi, result, 3am, uninvit, rockin, heather, hv, cushion, tournei, schmang, fanboi, scrape, third, 6months, float, niggasupr, uya, rent, wun, uv, muh, pinch, panamono, asco, mint, gypo, rhym, saterlyt, shoz, bayg, ul, clever, firstli, secondli, payrol, discredit, whom, factual, moocher, massag, pummel, veic, horizont, muffi, mountain, 1800s, belief, frankenstein, kikm, frank, spi, damnit, shittt, bulb, faget, hid, translat, moulinyan, squirrelli, fuckkn, whenev, ridicul, puppet, intention, unifi, consensu, slot, forbid, insur, bulli, reagan, suprem, command, pud, lax, bcuz, spiritu, bailei, ceain, hail, tendici, infor, caer, abt, viue, theori, academ, bai, witta, summa, lyingggggg, ayi, balla, kok, dgaf, boooooi, lowest, workforc, pajama, barn, 2k14, foam, floppi, nh, baker, instagram, eew, carrrr, thuggin, shuddup, foe, orderin, stow, dayd, coz, tonk, badonka, ankh, spin, betrai, unloy, pacsun, olli, planet, 6pack, duti, oak, cheesebal, bitchez, bias, caption, haunt, diplomat, pepper, patch, journalist, impaial, yak, puff, assless, chap, cathol, gangster, knoww, dong, incomplet, youth, lack, stooooon, holdin, uhh, overplai, itv, empow, sameee, sequest, ehh, nyquil, spiritweek, profit, univers, burner, fab, creep, qquit, joei, avg, merk, grumbl, shutdown, intrigu, repuls, stegosauru, hiss, pterodactyl, rex, parrot, lure, roe, tupac, vent, insight, lotion, triesto, hahahaaha, overnight, rosecran, introduc, tammi, perform, washington, mirror, dykei, fruiti, quaf, basi, winter, daydream, powerbal, nerdi, 8th, bruv, welcum, niggur, skini, ruga, buss, cashier, bonfir, oyster, realer, sunset, blod, skrong, lamo, flew, nag, restricton, licens, revok, puttin, slid, impli, scholarship, unfriend, gangsta, scandal, sperri, pu, licker, comeov, natti, nutjob, swat, girll, tmrw, gatsbi, 100py, cuss, linda, seal, bishhh, mk, textith, fest, weigh, steel, prohibit, segreg, proper, richardson, finer, ducanvil, crappi, initi, saxophon, besti, arc, diaphragm, nuthin, gatoraid, ten, grove, sleev, taber, unleash, abo, autopsi, frc, lynch, suffrag, gardner, talentless, skag, malfunct, cheetah, gnarl, desir, mindless, hiphop, helmet, invis, spaceship, profan, bwahahahahahah, langdurig, gepest, worden, zei, kiem, smoren, vb, optreden, pumprul, bravo, qual, gamoot, nicetri, chik, fil, hipotl, celesti, muk, ceasar, tricycl, blade, hackin, bich, mum, scheme, protocol, steek, vinger, neu, zelfd, stenigt, vrouwen, bosj, scientist, discov, naaaa, lace, jackass, chewi, pager, monster, scorpion, flotat, devic, assur, hw, bloke, mill, attest, cameo, tote, overs, rotari, unsolicit, unaffili, piccolo, buri, ell, pier, senat, ri, proudli, whale, mammi, slag, puffin, viswa, mouli, nt, whoooo, pr20chat, genocid, combat, frozen, unexplain, isint, plasticass, dubya, aesthet, pow, harrass, tlk, mch, custodi, chirp, poke, method, emploi, franc, england, playbook, gull, adawg, getcho, tigher, sweatshi, hangov, sloot, nigorprozb, narcissist, instrument, getfre, senc, brandi, useless, geek, 15k, parseltoung, basilisk, ranch, pronounc, hammer, pffttt, visionari, bamoos, prophet, thy, fussi, constitut, deform, rocki, conclus, rhapsodi, maven, hermano, wuss, maxima, civic, lx, 180k, dsrl, treadmill, vineyard, chubbi, susi, shaven, stoke, orgi, schlump, squaaaaad, dove, bb, evolut, ancestor, nottin, alex, tighten, joint, freestyler, redleg, coke, recal, llive, swell, belasco, secretli, lookng, 4getaboutit, 90s, egotist, krunkchip, brokeass, pedicur, dealership, 2months, hallelujah, onlif, yal, swim, descend, pigment, extract, coccu,

costa, cochin, insect, cricket, maini, superman, uuuuuuuuuu, blushin, az, adrenalin, halftim, zactli, reggi, autist, hermaphrodit, nhl, asa, moist, bint, lob, gravel, woahh, java, habit, wha, showtim, talkn, lifetim, tomcat, lowlif, princip, pen, convoi, imi, businessoppoun, cher, vitriol, consol, pointi, beak, spider, carniv, shutup, wolverin, nigor, madden, every1, bigass, scorr, wea, evem, shmoke, viva, hahahaahahahaha, gosh, drose, theatr, spiral, downward, raglyscrag, antvil, mmm, unpredict, knodel, vandyk, french, chrisi, jone, botta, conversatin, photographi, handyman, cabinet, cho, diggin, hiden, str8, askd, youn, gwenyth, 11k, oml, xbone, muni, curs, agru, formal, blaxican, glo, disguis, tittielift, balloon, wagon, mormon, raspi, rafter, sleepov, smdh, profeten, leeftijd, opeen, zelf, mn, oud, shelf, frumpi, mc, appointe, farcic, wasp, nugga, hardli, eas, brag, climb, latter, applaud, hunnid, hun, shuffl, approach, scold, tender, tradition, sketch, docket, undeni, breakherdown, maid, pharaoh, durin, shock- ingli, devour, chola, cael, tee, slouch, pj, cackl, jacket, stung, hippo, frisk, systemat, droolin, boutchu, brolic, boyswhotakepicsinsuit, absurd, ghost, scissor, yob, ouch, donefeedup, desol, smaug, bilbo, 15minute, nomor, shoest, compet, bash, foolin, pistol, wayn, tide, xx, fumbl, reel, racistaf, fancili, deepli, devotedli, waitress, duct, stapler, nage, palac, woyk, fenna, goooooooooooooood, cone, dougi, sudden, crave, neat, bitvj, bugoutsss, draya, prom, te, bl, afternoon, offa, duddi, sippin, coca, desk, scrappi, cuff, trife, luvin, jamammi, fakin, funk, phoni, loveee, ittttt, sober, youu, witti, charm, tweetin, winnin, bother, regist, southwest, 32ft, greatwhit, okaysomay- beimli, butiwasfish, shiiittt, snitchn, dollywood, hiccup, porai, sesh, blakk, climax, hag, suddenli, interrog, plane, peer, std, possess, omen, trojan, menac, hooooou- usse, dwammm, tunchi, honk, 145lbs, nobodyknowshisrac, smith, butthead, on- slaught, rascal, biggovern, vei, marlei, camelto, doee, pusxi, vice, versa, unsold, item, thrift, ditch, claimin, opposit, develop, hardcor, jihadi, theorist, specif, relief, centre- vil, cvill, solut, demograph, avanc, misspel, phalarop, resembl, sandpip, schwa, spellingbe, diettim, colloss, poker, trump, prez, chao, glu, yuh, munchi, commerci, kendra, governor, dori, reproduc, donut, transluc, airbag, ritz, girlz, march, laundri, downei, sam, swab, motorobo, alsina, wiener, donjuuuan, ss, lemonad, noh, lettin, muafucka, slurpe, reactionari, drudgi, libearitard, raaain, whisper, vacant, stiff, con- test, aquafina, ova, beeee, chalk, coffin, petit, crazyyi, brussel, garlic, cheddar, chive, strang, rangatang, robber, brownshi, chant, bath, bt, wrath, embrac, pervers, multi- cultur, snooti, backbon, spine, reduc, shrink, nemesi, asse, itakeshitfromnoon, rippl, ocean, paradis, koozi, trill, toooooo, independ, 5spmg, wacker, awhil, gett, kicker, behav, audit, proudmom, legaci, tcha, sribpol, mngop, mnleg, tweeagram, squaw, hubbi, insidejok, conf, atound, midsect, greenmil, moe, big10, pacer, nba, hoosierst, paulgeorg, codyzel, booth, lastnight, biggi, recount, referendum, lgbt, naam, engel, dood, dacht, eerst, uhm, iet, heet, kat, oja, anarchi, mustard, lawyer, eri, brickk, redbook, dace, 3peat, froooooontin, menu, duhh, tropic, upscal, snatch, damnear, tam- bout, squash, extens, lash, deadli, wann, fxck, flexin, psa, limber, limbo, unprotect, chew, footer, rune, boister, belliger, impregn, sane, gadget, auditorium, lectur, rang, rover, chalmer, mozzarella, dub, backpag, bitchess, penitentiari, jitt, yelln, downlow, volum, kuz, lawd, failur, spaghetti, biti, boolin, bleedin, fuckkkkkkkkkkkkk, grrrr, tot, lobster, sanduski, shidd, script, icecream, gucci, wingstop, dichter, gebeuren, racistisch, drek, nagenoeg, alleen, hoek, wheeler, outfit, coin, jaxon1114, dubz, stoplivingafuckingli, hatredisincreas, temper, harrrrd, highh, thatch, cottag, hand- stand, podcast, 13th, ruffl, agitprop, diz, princess, slumpin, bonnet, heaach, hotshot, huntin, floridaprimari, tonit, nahhhh, drawer, flawwssss, stove, remov, hallwai, grub, detail, revisit, hardest, slutin, unsucces, interrupt, givingup, shallow, ammo, kilt, mofo, appetit, lettuc, payment, dutchess, tch, cept, itti, clicc, toothpast, broil, cod, saut, spinach, aichok, lib, newspap, review, rumor, sayfi, 9pm, turnout, primari, out- law, redicul, vilifi, democraci, fukin, xcx, cheater, pumpkin, eater, altern, foreverrrr, younnnnng, flask, chupacabra, fuxk, monstrou, lipstick, ammend, diploma, bougi, headless, danni, glow, madd, highwai, skyscraper, tryina, manziel, jen, nigg, ogd,

slappin, slienc, ceddi, ridah, quan, dollah, luki, toppi, bestroommateev, materialist, ojo, ahora, que, puedo, vivir, ello, ponder, myriad, wettest, repetit, hank, underag, jockin, ka, cupcak, tighter, Obama, tiight, buff, quadripleg, exchang, clapclapclap, barrybond, poa, potti, mustang, fuq, lovehim, eege, platter, teamfluffnevabluff, junk, bootai, fuckkkk, 35am, splurg, led, nosleep, 2a, 8am, tore, platinum, ciroc, 4thof, noo, vite, paai, smelt, felonspleas, fatal, orient, juan, mode, gyp, pissi, diaper, grrrrrr, forgiv, fornic, grumpi, gibson, inconsider, speaker, femin, bruno, mar, debarg, ssm, widow, popcorn, poland, shore, flopper, lockdown, searchin, renam, galor, health, rope, exception, tastiest, chung, mulatta, calzon, bundi, salmon, flourish, filthiest, veggi, ding, counter, floatin, sandal, dingul, violent, caddi, on4s, reso, reclaim, bona, fide, 500k, muthaafuckin, bathrob, verifi, zayn, nicknam, knot, freckl, shoutout, moonlit, whiskei, hum, verbal, aggress, interact, slop, clinic, exempt, kickit, mingl, 3some, astro, widd, deja, justifi, vindict, veng, perm, product, aifici, plash, polish, arrang, intent, nubuck, leather, saliv, tasti, foli, deux, fucktardmobil, geekin, dopest, inlov, kushi, bumpin, zetzu, midterm, jj, mybabyisallgrownup, overdo, sculptur, germani, hornymen, namast, pastor, motor, triton, handbook, frequent, motiv, respector, runoff, teddybear, eccentric, shiver, flawg, hyp, souf, outrag, tens, wae, foodi, mainten, sittn, humili, bunk, consciou, enuff, takendown, overdraft, beatbox, employe, compass, mole, cuzzint, delux, timin, smalltownproblem, neversaiditwasabadth, brooksndunn, canunot, fuckoff, pale, pencil, esco, hustlaz, hittaz, client, crochet, pattern, halloween, steril, entre, tuna, feelliii, cent, tubbi, pompou, wif, regent, medicin, 240s, milkshak, drunkest, everclear, hash, clipper, flappybirdisruiningmylif, rerout, temptat, surfboard, rattlesnak, rattler, parachut, 9ers, linkkofrosess, cg, ceainli, psychologi, instanc, bold, founder, imapython, biege, mimiblargh, birb, 5iiive, hol, lee, 4l, december8th, consequ, 60s, gn, ladybug, trim, hollow, kaboom, succul, swoop, western, repoer, adveis, prize, themoreyouknow, recap, temperatur, archiv, pea, ibuprofen, primo, opp, huggin, idgafmod, honeybun, ayyyyyyyy, fleeto, h456d, yaw, pm, rebuild, curfew, laker, mula, analysi, scholar, produc, vast, wnba, brake, daark, wrist, prelud, liquid, oxycontin, oxymoron, flake, kickn, privaci, wiper, rubbin, secretari, maaan, lapdanc, mistress, usin, intro, overpaid, ae, dropkickkkk, skier, joselin, juco, thurl, secundari, grimi, ambit, eww, crazyi, fumni, superhero, nigggga, hust, quak, intens, analyz, creek, bleed, ambul, tapatio, shampoo, derecho, thunderstorm, earl, lord, meani, turntup, webad, wepretti, gayvega, wwc, thoo, sandiego, uu, lisp, bouncin, pussayyi, vanilla, ketchup, lurkin, happiest, fruitsnack, cracka, niagra, undignifi, sprint, transfer, dawdl, slackin, hazelnut, rinki, ickblah, bloati, 2hr, whineytweet, kenfolk, limousin, pour, jeezi, comedian, apam, downtown, spilt, swimmin, warn, graphic, lnyhbt, tgdn, pjnet, bellicheck, quicc, macklemoor, ferri, kreenen, gather, ahahahha, otherwis, accus, adulteri, holidai, brew, danei, ari, thegoodlif, 18th, weavetrip, sail, kimorablac, craziest, resurrect, thincc, purchas, grandfath, grave, weirdtweet, rei, coool, anxieti, hickey, wiggi, handi, plenti, mass, kaep, attach, dontouch, checcin, 11wd, vag, goingtogethuagain, bratti, jason, triflin, patient, capri, manti, cruiz, openli, collab, naira, booyyyyyi, breez, postin, gmula, sniffei, poo, laptop, mw3, theater, process, sweeter, gushin, kimora, boobi, unlock, pokemon, dicc, tab, collar, lookingformor, dial, stir, hospit, foxandfriend, accompani, bong, coooooool, thenna, dissin, sessi, shaggi, elast, mah, kidknap, breezi, gaggin, laggin, krenshaw, prayin, strait, adress, fai, hau, poki, endors, dwade, ee, sheep, penn, banjo, hoodiest, dere, satisfi, gamma, soak, cougar, kimono, yeen, thevref, dre, itun, meeeeeee, youuu, vastli, egregi, nsme, redskind, deemef, therefor, footin, 3k, mich, bestf, umpir, carin, enterin, enter, comprehens, poccet, striker, physic, ferkin, fiberglass, outa, noddin, packag, gif, eitha, lbv, sopris, 21st, centuri, viewer, dominican, feisti, firebird, seein, fufu, yg, 2more, uss, bittin, llab, cencu, loan, hummu, broccoli, chirpin, stash, makeshitup, stuntin, nutella, wildnigga, karli, freaksandgeek, niether, imik, walkout, sweater, weiner, drugz, confess, boof, getatm, fuckmongo, naynayismongo, buttttttt, sworn, twitta, darker, frame, clich, quid, otha, frenemi, lac, taki,

yeent, luvv, trenttruc, patricko, glorifi, shoobi, doo, manual, myth, cowardli, fling,
 savin, spoke, runner, erybodi, thrown, unread, donat, crumb, flamboy, ton, swung,
 budget, bitchhhh, rhineston, indirectli, revalut, expandin, utterli, cee, fink, afta, pacc,
 waaaaai, receptacl, limb, centaur, ughhhh, staci, lattisaw, lux, presenc, replai, fuckedd,
 ya3ne, thickkkkkk, gassss, gwop, gaug, gratata, michan, seater, vogu, paranoid,
 rollin, hoover, measli, fleec, cocaina, mervin, rhythm, asl, issssss, cwork, gooooo,
 headlock, streetz, randomli, crown, slurp, fuuuuuck, yoooouuu, request, mouthwork,
 rappin, wheresshitgo, thanx, parlai, dr, froyo, boldest, pasta, unnecessari, wishi,
 washi, baldheadass, theyr, junior, bitchnigga, complim, nshit, rim, rightou, allei, rac-
 coon, gatorad, blink, throne, hopehegetskil, assign, stoppin, teddi, settll, unswol,
 cope, destin, tweef, ctfuu, cai, nansemond, perspect, bytche, hideou, parad, blood-
 boil, goodd, lube, tunechi, moneyi, whr, correspond, hamburg, oper, slippin, e350,
 amg, coup, felecia, sme, drizzi, looong, bibliographi, froze, hadnt, erm, digest, up-
 sid, cornbread, catfishin, hustlelinaa, seeeeen, faceeee, wayyyi, l8v3, kombatt, learnt,
 stunna, beamer, impo, herbal, bacc, silki, slightli, toinight, wearabl, kit, fal, tunchei,
 myboi, tilt, doggi, fli, redonkulu, obnox, warp, yayyyyi, gaaaaaaaaaaaaai, fuckyou,
 acoust, dear, invest, groceri, luh, sicc, catalog, spite, toot, whilin, prenupti, crosshair,
 cheeki, playersmi, larri, casket, sleepi, research, usaa, fritag, odd, tae, junki, ag-
 oni, multi, bob, thought, spawn, stupidspec, lat, theyself, truu, ont, girli, map, cliff,
 comet, baggin, cologn, richest, boni, launcher, roadrag, jelli, cooti, herp, notint,
 manli, panomera, trotin, thotin, wankin, cume, soooooooooooooon, scurl, duunkk, fire-
 work, launch, dmv, californiadmv, 4s, rubberband, kappa, creak, util, loonei, doinv,
 gremlin, jade, romant, godamn, pride, chaser, followback, cornrow, rib, rural, room-
 mat, chipmunk, heh, steam, dinosaur, uuuuhhuuhhhhhp, thier, tld, bri, usag, crept,
 trembl, revolv, carpool, wadi, barrel, 30s, 40s, uncomfo, tomboi, barbi, angl, decatur,
 mead, floss, string, pheonix, mustash, batteri, dess, wept, weep, idgt, smoker, gestur,
 hookah, sketchbal, 5grand, button, hoein, wnna, ihop, eeeen, utter, becam, where-
 aretheynow, bipolar, frown, cradl, goodi, badgui, noos, ambiti, gladli, felon, 200lbs,
 dunkin, muffin, cani, whack, layer, instant, nooki, girllll, conveni, clerk, gry, boppin,
 header, ioeno, homophobia, jog, saab1, squish, perfum, mentor, sitcom, 3d, defiantli,
 eyelash, dracula, ax, amari, hump, bussin, irrat, bachelor, stoop, hahha, fantasi, el-
 dman, truefriendsarebasictogeth, murk, phonic, coolatta, flier, canari, trippp, wildin,
 pattyfuckingbog, rowdi, brasso, mattwho, bowleg, nanosecond, getyamindright, slur,
 nuttz, paicularli, brightest, razor, drove, hungov, seventeen, frai, mushi, disappear,
 becr, majest, gotonelessproblemwithoutya, subject, shitee, superb, unansw, kesha,
 inni, julisa, mma, saltin, tbtweet, dentist, gum, reced, hurrurr, overlord, jaw, rosebud,
 hahahahahaha, 3pm, illog, casino, dn, censorship, censor, wholesal, perus, twerkin,
 frisbe, unwrap, rio, committ, cite, shotti, bridg, rolly, diesel, strand, backpack, heck,
 painkil, choosin, gaf, crai, runna, nigca, puzzi, straighten, hem, anger, atom, trinititi,
 fakest, sandwich, blowi, growth, yanke, redsox, pie, forest, ect, invent, twittah, had-
 ddd, bellybutton, yappin, poli, hazard, perman, viagra, treater, preppi, overgrown,
 sodapop, pucker, collagen, muhfuckin, nobl, royalti, arent, malnourish, burgular,
 tuat, wintersmith, barber, overal, nair, newborn, 24k, rillo, lickin, pubeless, runt,
 puddl, buster, graveyard, default, louisvil, directli, yassssssssss, nosi, nina, boogi,
 20mins, suburban, niggaaaaa, elat, creativ, miguel, tono, cube, grinch, jame, hunch,
 wrk, prolyi, gamedai, rick, conceit, unboth, threatenwho, expung, funcci, acr, drank,
 resolv, feedm, tyler, perri, tetherbal, letsber, gratitud, eyelid, spasm, mascara, puls,
 sunshin, poppadom, livinthedream, unresolv, tourist, meadow, gasp, enforc, disrupt,
 malwar, enforcem, insist, smthng, evid, dodo, candid, bung, vend, cigar, addit, napk,
 nunn, nuffin, linc, faculti, staff, blowback, southsid, pissr, indianapoli, applic, wif-
 ingsquad2014, onlyattheducksgam, sandpap, wineprozb, smitten, ratio, ounce, recess,
 boner, heabreak, swaggot, tenden, allergi, iguana, monda, twenti, ayyyyyy, babb-
 byyi, titanium, pear, interchang, bezel, disingenu, properli, maximum, stolenbas,
 20pics, gaggler, toqu, blur, fifti, stucc, lotteri, ken, winteim, gorg, june, marathon,

nvr, happin, ecosystem, uno, salt, popslei, 83ar, lolololol, linguist, deriv, ironi, vibrat, jumbo, theeees, lag, behead, struck, bounti, ploi, publish, pilot, iran, unpleas, behavior, paicip, identifi, ccot, hallucin, coalit, helicopt, prattl, taunt, paranoia, enhanc, neverforget, comment, 55th, loll, beatin, fk, gah, admir, wuteva, attorney, fingernail, spectin, flowciti, chic, coldest, casual, fking, 200x2, bumpi, feud, trenta, grl, yeaaaah, tryhard, gallop, mmkai, unfathom, hilar, journo, dissent, elix, drill, makerr, probat, biscuit, bloem, gekkigheid, simpel, oploss, tegen, maken, besliss, jac, checkin, theeeee, squier, reckless, outcha, sluttish, squid, orgasm, troubleman, conductor, couesi, yooooou, ipem, vez, japones, crearon, una, quina, atrapaba, ladron, whitehous, fl, meme, badder, strippin, suaw, bouncer, dopppz, julli, gemen, trollen, durven, mene, twijfel, nemen, zegj, kuch, cooch, uti, stiletto, yank, ovaaaaaa, ycg, stencil, traumat, infrastructur, bitchen, calc, whohu, accolad, gulp, sumpin, commenc, caller, heavili, yrd, vaniti, coupon, cocktail, unrepo, meeeeee, revolut, legislatur, icecub, nwa, mayn, unfair, doper, necess, cruel, refund, socialist, rivalri, authent, tep, ajai, montea, keke, lex, plzing, backup, rogu, xmen, thesi, secondlin, brooklyn, riri, layin, seasid, whaaat, andbeat, 9am, seagul, bumbl, 80s, ber, wallah, raff, kor, wett, bender, intellig, maaad, downgrad, jayin, 10am, whiteprivileg, gtfoh, custi, sidechick, sloth, trinidad, charcoal, aunti, relationshipgo, hahhaha, atm, christin, wholesom, bogu, reform, growup, groupi, stagger, lawwwddd, wizdom, ginyu, lattim, nyyce, lmbo, usher, kaffir, hairdo, alllll, biker, federalboobieinspector, forward, breadstick, reppin, antigun, cellar, ghou, douchi, azgov, azvot, graviti, 2nite, tif, seeeeexaaaaai, crank, gearin, lbcc, shiiid, sumptin, pun, perez, hilton, gonab, grandest, instafrontin, forver, wackest, heifer, intoxic, heaburn, cuhh, uma, applebe, outgo, familiar, within, carryon, petunia, baddddddd, destini, schleeeeeeeeepppppppp, hydro, achiev, trickin, ngeli, polosi, nifo, bedtim, caress, 3hrs, chunk, hott, somedai, runwai, mari, jane, reluctantli, philosophi, reboot, sang, choir, espa, welp, deer, cobbler, defi, le, ahaaaaa, caldito, estuvo, snuggi, riiikkooo, tidli, spittin, leo, oppon, nine, columbian, prop, derail, interior, homeland, virginnnn, followin, moodi, dadsbeingsilli, dutchi, isni, smackhead, ww, tran, syst, clubinsomnia, vacai, shouldnt, reign, cmon, uppppppp, fabric, 8pm, central, arguem, argur, auto, pmo, faction, bre, hogg, flyer, brite, bagpip, unzip, cheapest, buter, syrup, retro, hetro, nintendo, benzo, fetch, bumper, prim, prescript, refil, mc nab, a1, fleekat, picslip, nikki, masqu, snapback, judgement, shoppin, drugzzz, ummm, nohsid, fuckssss, riri22barbie, georgie, yessssss, siri, dum, dawggg, clueless, whaaaaat, sandl, neic, astigmat, bratwurst, spooki, learnsomethingeverydai, kkeldalegend, porno, porker, mister, meaner, stiffer, pana, 2weeks, stankin, pushi, playlist, reggaeton, bachata, microphon, nogga, popz, pepsi, cola, ty, barefoot, yoo, marijuana, 2yrs, ainnn, turmoil, butta, unoffici, obamacar, congress, compromis, flyover, ign, givng, ji, sshop, youpeopl, chin, mothafuckin, oregon, crw, majesti, crab, maniac, workin, accessor, singin, leech, tint, jolli, rancher, chevron, stripe, charli, glossi, colon, gass, deerin, err, theft, theophyllin, crystallin, compound, gottem, cassidi, backkkk, gentleman, smallest, d1, triccin, pong, instal, preacher, shitttt, rev, gott, boit, frontin, cashin, dehydrat, grudg, fu, dickin, mussel, str888, trace, specul, chasin, skimp, kthxbai, task, insul, empir, outcom, phenomen, fals, fucknigga, unhappi, chitl, dodger, bainbridg, isl, iwanttoplai, christ, neanudda, bomber, undermin, mythologi, prop8, contribut, eurotrash, heir, spookyblack, wink, cardboard, flee, reassess, kite, alledg, butttttt, seper, infuri, unconsci, defenit, bobbl, steroid, busterposei, softer, tourebasebal, missil, vapor, wonderbaarlijk, alweer, aan, stok, nu, gevonden, laziest, noregret, fajita, dickhol, vap, hover, sake, prone, int, contend, grape, od, hairlin, unrecogniz, pho, saimigi, gawdd, awwwwwesomeeeee, fetish, booya, encount, natitud, gobuycomb, trashhhhhhhh, xii, sacc, counteop, factori, murki, edclv, upppp, smoov, chloe, basedgod, spineless, tinker, fing, anorex, delight, xxxtra, anniversari, brainwork, pacemak, contract, pregnanc, invisiblebird, shorelin, parakeet, cici, whitebitch, access, promin, forum, russel, cliqu, proactiv, watcher, instantli, barbecu, hollor, wackkkkk, smurf, noon,

superpow, resign, filet, mignon, amirit, bigot, esteem, mexcian, ummmm, brunch, hamper, reconcili, fatwa, dah, estaban, dando, vuelta, poller, mientra, cocinando, ast, cuando, waxi, soften, flash, whatwashedo, rooftop, rhetor, scampi, squeez, asinin, interfer, deadlin, freebi, badongl, uncivil, tweeter, status, playcal, blinker, moveout-mywai, unkept, fantasysgam, whether, diehard, debacl, tumbl, bleacher, resolut, disconnect, shmedium, drier, socialit, dragrac, dragqueen, glamazon, rupaulsdragrac, barb, wdywt, filter, advis, glue, getyourlif, anarcho, deafreaperventu, wayward, intensifi, holiest, pilgrimag, pooci, chea, metro, flaki, hustler, pyhscopath, bind, jewelri, viciou, yid, nid, milit, notfeed, typefac, font, skillet, spirit, discou, lowwww, discount, lowww, fareal, hollar, oo, preconceiv, preserv, utilti, glorydai, obei, sayi, bxtch, patriot, intrrvent, spice, bulldog, khloe, zaaaammnn, lineup, bedrock, ama, dijo, hoggin, crisper, eras, quintessenti, embodi, feminin, clingi, sneakin, nobod, wi, 131st, stackin, crackin, yaaa, thanggg, muscular, yungin, knwin, circu, 49ers, yyyyy-eellllloooooowwwwww, dbh, bandanna, ladykil, poabl, allllll, peski, wisebrethrenword, celeb, lawmak, legisl, shelv, crr, militia, pregam, weepi, fog, soar, daft, elicit, lava, wiunion, bland, munnaaaa, section, funer, republicano, elegido, gobernador, juheard, razor, pluck, tonnnnniiiiiggggghhht, kalori, suuuuck, fur, feeder, gla, firefli, stealin, profound, liek, sum1, complimentz, gown, select, sincer, wrd, pasa, shunsha, joda, waaa, poetri, daytim, sanctiti, rambo, assault, jordan, livestream, buut, thaata, rise, hackei, sacker, jacker, slapper, riddanc, caon, quibbl, spoken, overdu, scruffi, favourit, financi, stim, htt, caramel, snob, cardigan, drew, discontinu, karmic, answerd, bon, muthaufckin, sorry4thewait, shocut, stri, befriend, competit, jadapos, fashoo, swiftli, choo, nowai, hoethea, mtvhottest, brooo, janki, african, lul, saturdai, plyin, jongen, zich, probe, verdedigen, brief, pesten, yaasss, soulja, eyez, sc, crucifi, glimps, letterman, som, handshak, toothless, fckin, compassion, streeta, graffiti, mural, duo, storag, spacecraft, verdict, web, diagnosi, staircas, foriegn, nonsens, knowingli, seclud, balmi, autumn, irl, data, birdgang, violenc, flyin, discourag, rapeyass, mysterious, vanish, unemploi, proce, staer, pretenti, denomin, unclean, bamma, sharkiesha, codin, quasi, 2gether, suuuck, challeng, thermal, spree, followm, womanlog, thirstin, confid, catcher, bol, beur, abel, ooh, loveoohyi, skyylevelmedia, holipalooza, sympathy, grandbabi, 00am, naaa, madd, diein, yeaa, tiff, cellphon, sweethea, psychic, wyandanch, dana, unlimit, turntttt, hygien, rabbit, turner, scootin, wimmi, shithol, summfest, devot, packet, emotionaaa, critiqu, swole, kink, uppiti, skiseason, trial, rollen, calendar, lobbi, clicquot, dom, bitchhhhhhh, refurbish, journal, buzz, fella, flowin, vitamin, kissther, steve, yeaaaaahhhh, av, dc, youoksi, earnest, slobin, steez, rir, bracelet, underground, encourag, refreshin, atraccion, abandonado, twelv, dynamit, revers, spong, liftin, damp, 3times, fain, fuccin, blacc, schooler, dicki, terribli, trucker, stoprush, tighti, whiti, twitterafterdark, sharia, fundamentalist, oppressor, persecu, cornbal, couldnt, choosi, formula, sublimin, th, zoo, variet, migratori, storm, moooob, bou, uughh, uuuu, dippin, begrudgingli, likeman, softwar, cabl, nest, wildlif, wal, kobeshia, alongsid, cringiest, knowyourplac, babidi, overboard, farewell, underachiev, dez, weeden, offshor, stunner, gin, complac, whammer, animos, awok, andr, chuckl, reveal, cycle, whiff, faint, resum, poem, por, jugar, corazon, ganarl, su, potassium, fux, perch, eager, leotard, anaconda, hou, bluer, denabitch, stroll, flo, skyrim, theme, youda, recogn, buggin, fractur, windshield, clownin, torn, signatur, profus, margin, wcvb, asvab, 11am, prollu, skyler, 17k, retriev, allegi, broom, meaningless, 10xs, herkenbaar, hesj, eigen, jaren, bevreesd, ooit, wer, magnet, darkest, gallon, dolphin, hitler, dens, booz, inadequaci, acquir, looter, risk, urg, mocha, sapiosexu, chainwax, mammal, amphibian, heisman, yeterdai, keg, betcha, ev, greyhound, commend, nerd, thickest, marriott, mansion, hunni, prep, dobett, woozi, fac, wanta, laughter, communist, healthcar, repeatedli, trassshhh, soa, cole, abou, withou, falcant, barbarian, benzino, douc, theit, facad, lyi, semest, alpha, clubmetro, rampag, klutzi, redempt, greadi, uncanni, soooooooooooooooooo, maanden, stel, hoeren, ge, absent, merit, sholl, restrain, shmonei, fuuuck, horrifi, convict, franchis, ston-

naaaaa, keef, ewwwwwwww, carefulli, attir, helot, persona, atop, balconi, hitm, dwig,
snicker, bankrol, everybi, remark, sooooooooooooo, gettn, cuti, pwoosi, pissin, gonor-
rhea, berg, strictli, reli, shiit, thicker, starleasha, gatorn, unattend, feil, setup, ea,
horizon, contoionist, thir, cork, inferior, gpa, shhhh, unheal, wound, ahhi, fresh-
men, nea, barlei, yearbook, twig, chili, apologis, candl, undo, cheesecak, sel, guid,
billion, weaaaak, 2pac, mme1636, blackkingz, adorb, aluminum, zima, outdoorpool-
pai, shutemdown, villain, disr, yeeye, lupe, fiasco, illegitim, shud, jumpin, forgiven,
transgress, needi, escal, tomb, polar, bustin, toughest, coexist, occupi, margarita,
barstool, notif, cle, clevelandfan, clevelandprid, clevelandbrown, clevelandspo, mfz,
jeopardi, yacht, pornstar, holic, hospic, doodi, museum, admiss, gallo, asadita, madu-
rito, amor, chism, therapist, drastic, 11pm, attain, spandex, overst, inconspicu, huck,
patrol, domin, conceiv, dive, diver, hunti, slaaaayi, gent, fanni, olivia, cheeseburg,
byeeee, swirl, diva, girlfight, longhorn, logo, locker, pand, kingtunchi, fuckem, di-
recti, leerkrachten, pest, kunt, voorstellen, groot, pestproblematiek, onder, leerlingen,
tig, istg, jigger, wrench, happybihdaytom, outnumb, thankfulli, dismemb, global,
cal, carl, glenn, maggi, priorit, lan, energet, knowwwwww, yaga, itstoofuckingeasi,
fuckherrightinthepussi, stuft, whe, equat, scrambl, grwn, loven, comma, vinegar,
tal, immedi, mohe, ouuua, siana, spermicid, mold, ml, maaaaaan, alanah, superstar,
lent, lamest, birffdai, truestori, gooder, whiteknight, overpass, ru, vma, ver, gluton,
trappa, lana, unhelp, blatantli, 00pm, preoccupi, thse, soho, scrimmag, flashback,
amici, behalf, canttrustanyon, hatefakepeopl, ilusm, pc, springbreak, 2escape, re-
straint, nimbu, ratha, weakkkkkkkkk, easiest, investig, spous, wunna, tosoon, cluck,
sumtim, asthma, nihha, shoryi, glizzi, bekuz, sting, hippi, abstract, ipod, qb, lather,
wednesdai, tbb, dickmat, gothic, forthick, hop2get, cmchat, esa, odia, whisker, union-
memb, sleigh, louder, persian, appropri, flounder, bonu, groovi, mobil, scam, latt,
swagfag, baltimor, ratchetttttt, stake, simultan, bowebergdahl, lopsid, steakhous, vin-
tag, camo, itni, bahaduri, hamesha, marn, tayyar, reht, emergen, mulligan, cinema,
projectdrug, wcvbpoli, cranberri, hotnigga, motherf, ker, megaldon, len, thew, panel,
linguin, whacker, busk, occas, dough, zrgrizz, wr, sucha, mamma, fuh, fvck, offsea-
son, corps, onto, treatment, paydai, viral, sheeeeeeit, bologna, ooooo, heyyi, guber-
natori, gota, envi, birdhous, crazzzzyyyyyy, maaannnnnn, umma, youresilli, fye, loi,
ian, equip, mcconnel, ooberli, starbuck, uggboot, leggo, algebra, silk, sneaker, black-
board, disc, flagrant, eject, substanc, duel, yd, brawd, poopin, chapter, hulk, hogan,
changethenam, hustla, bruinsfan, unrealist, wemblei, loom, oili, bulbou, shriek, mea,
gambl, enlarg, heckl, annouc, headac, summ, yun, aroundddd, vape, inequ, veer, be-
gan, serenad, ovari, iq, imit, mfer, confin, pt1, tier, cit, msg, cring, ontop, supa, ki,
sewag, fuckn, fang, depth, unreal, comed, gimmmmmmi, mmy, flavio, deuc, gi, faith-
ful, typo, tuesdai, tramp, repodli, dept, nye14, drunkinlov, beyonc, streak, teezi,
eit, birdi, putt, behi, watchu, silent, passerbi, killllllla, dieselst, awf, focal, slopperi,
everyo, m8, crotch, ignit, brawl, embassi, inducte, asset, deadass, whichever, trash-
bucketchalleng, luuuuub, luuuub, shri, horoscop, badger, ethic, mainli, piou, scarlet,
100gram, bett, 4wasting, yaknow, yazz, applewood, kk, barrass, hitin, comeback-
tor, tougher, unn, rail, gentl, tranquil, gender, neutral, tsunami, extramarit, com-
mut, tremper, turnip, tremend, leadership, nomine, fisherman, annual, luncheon,
haili, survivor, calcul, circumfer, parallel, ne, amongst, ana, chai, congressman,
douchetard, butterbal, mega, carrot, hanger, goug, harmless, fetu, napkin, snail,
screennam, trench, fedora, stronger, bihd, accordingli, superfici, endeth, necogn,
fightin, categori, yellin, wh, sombodi, tuleneck, ih, wassuh, foster, uuuup, vulgar,
boxer, bliss, crop, astronaut, igggggi, yoi, chamber, twerkteam, stigma, 6s, wise-
word, knaidel, elv, embrras, enti, curiou, smear, sash, shostop, ac, seven, grounder,
innin, fuckk, waaaaaa, gingerbread, cactu, unattract, fiji, cinammon, sav, dab, ahh-
hhh, defund, kilgor, succsess, huj, ebolian, rapp, pep, tenni, shag, astrologi, mellow,
twitterspher, desi, inviat, mangia, getlostfakebitch, tong, lightest, everybodyyyyyi,
fuckingggggg, septemb, judgmen, gunrun, leaf, crunch, gir, orajel, slept, 50k, kool,

loudest, unbutton, adventur, har, backstab, deceiv, festiv, termin, hurl, mothafuck,
littlest, dumbest, finder, flighti, fuccck, bombass, mythic, foreplai, mask, wheneva,
carrol, tim, photobomb, mewtwo, sharpen, homegrown, waka, bitxh, chru, judgment,
naawww, spankin, noun, perve, airplan, cand, bishop, baffl, upmost, chivalri, duff,
fergi, bypass, reus, soap, dressin, sliden, slippen, propon, lineback, fym, fucksug,
lmaoooooooo, caboos, lanki, endang, prg, conclud, heterochromia, iridum, swinger,
cheerio, flaco, errybodi, observ, brute, knockout, changin, jank, mattress, steampunk,
largest, wealthiest, brad, pitt, trei, chopper, whopper, ness, phonei, skank, pec, brutal,
routin, skur, pinpoint, monger, supremacist, whatcha, gatewai, yoursid, menstrual,
twinkl, wmn, neighbour, veil, juxtaposit, htgawm, 98lb, inhal, veuv, cliquot, marsh-
mallow, mosh, scooter, heeli, glide, ios8, gb, sundi, mj, hose, lmaoooooooo, outfield,
perhap, deepest, 3b, 2b, walkoff, leadoff, storybook, troopthank, billboard, pinstrip,
outlast, homestand, underr, factor, hoelmfao, enlist, whi, italian, casserol, wii, nah-
hhhh, 60th, slidin, chiquito, cucumb, dewd, lyssa, twatch, bubba, chuuv, feenin,
koula, nooooooooo, youv, courag, skitdaddl, iggi, numer, ugg, disqualifi, jerryspring,
truthhu, possum, nikka, naaaaaaaaa, konnnichiwa, belo, fucki, bru, raven, shego, pats-
gonnasubtweet, chappel, cemeteri, melanin, gaggggg, ovehink, gooo, preeeeeeeach,
webo, questionofthedai, epidem, verb, lmaoho, sophist, lice, bxtche, zee, fatter, re-
elect, mainlin, muthafxcka, tyle, upstairs, oss, oral, trev, assassin, waaaaannnnnt,
drunken, flail, incoher, teapot, haiku, mijikai, admin, fund, devilish, 2day, homei,
wildcat, asmsg, erotica, shostori, litet, grad, 15a, drugssss, flawless, peach, evalu,
crossbow, cishetero, darn, prope, statin, 3phone, decemb, retirin, explainafilmplot-
badli, classmat, starin, probl, weari, hahaa, gentrif, tyranni, scien, backless, dressess,
enthusiasm, censu, tempest, 5mil, uglier, forwd, signal, sincerest, cantstandy, bec,
beli, ved, bountyhunters4lyfe, grapevin, lewisvil, shoen, mandat, unconstitut, bab-
byyi, gawd, returnthefavor, cruze2014, bitchpleas, carni, pokeflut, derang, serial, ex-
amin, testicl, painlessli, m4w, sacram, lancast, refight, poten, grime, visibl, sewn,
noheel, gayest, tdf, fse, fuke, gonetofar, cruelty, saveanim, classiest, hooooow, petal,
shiiiiit, rifl, knuckl, fatti, djmemphis10, pigeon, jetter, mayonnais, theperfectansw,
brendon, uri, bac, mak, oven, sshitti, lu, hoo, pigd, cori, latin, scotch, fwu, pub,
rivvv, 10k, 5hrs, bleedgreen, melo, allowin, 2play, unsuspect, girlboo, doggpound,
bask, dreamt, cotto, hims, chula, vista, splash, peppermint, instinct, nov, pedest,
contempt, smoothli, misde, skndndndnd, legroom, ventil, marehood, broni, mlp,
ba, swaggin, max, slingi, salamand, gna, rot, socket, paragraph, tfti, jers, preju-
dic, prov, snowpatricksdai, credibl, killeri, twirl, traprinthion, autograph, scheelp,
lefti, frivol, submarin, eeri, handin, chines, jo, switcharoo, katiedodds15, gd, waldo,
soab, wheelchair, bo, criticis, vermontgirlsbelik, metropol, ro, lamin, emascul, ford,
adept, dopeman, soulmat, thingi, rarest, 60k, dyi, backpagepusi, fe, hen, paridg,
upsaught, fuxin, refere, iter, inki, muthafuckin, hibern, mandatori, gish, sucki, hood-
comedi, flytv, blahblah, dictat, corp, stump, 15m, column, erect, 3hunnad, boycott,
indi, genr, disown, sitter, cleveland, frowni, crisi, atmospher, deser, 2parasites, de-
odor, twofuck, ihoheitssuposetobetonight, bello, emand, veryon, onei, bject, ollect,
edistribut, uppoer, spooi, nooooo, dilli, exclus, unicorn, leisuuuur, fearless, apka,
wais, bhi, khatam, chukka, seeee, sti, squadd, che, boddi, mu, dull, siren, exp, ke,
photogen, scr, chalupa, newwww, likin, koala, kangaroo, prei, emu, randomthought,
randomthot, shitiwouldneverdo, revalu, manur, pharmacist, stillwai, pretttttti, amazi,
sunnyslop, memphi, tenn, hoze, falisha, 10mins, kelli, 4nem, 2many, boutiqu, signed-
tothestreets2, mascot, wouldv, geni, datz, curat, niggg, gerri, talki, sch, bonner,
lookout, mimi, grader, canker, hinder, giantduck, pittsburghduck, wpxi, noflit, bff,
xfactor, shiii, frican, shimmi, uncouth, uncivilis, inmat, benihana, refresh, dhimmi,
mayor, 30k, fridayfav, lmaooooooooooooooooooooo, peppa, barbeeequee, superh,
maggot, sac, gluten, heav, brighten, occasion, hookup, horseman, twink, suplexin,
addin, raci, knife, willi, nilli, incit, classless, baseba, winnnn, lion, 24hrs, justif, an-
noy, buuut, gen, crumbl, chronicbitchfac, sorryimscari, cockiest, belvita, robin, loy-

200

civil, gurlei, retak, sandi, waaai, godfath, maddiston, saggin, masterchefjunior, bish, fraudul, sped, invok, bap, clack, biatch, cankl, sagg, toothbrush, lightbil, enngram, horseradish, 26th, fuckwhatyouheard, 3abde, 2013shit, hornyfuck, instat, blndsundoll4mj, voci, lockthatbitchup, ku, cobain, ruff, punchin, gwap, 2minutes, rippin, redtail, registr, thatshitdoesntlookgood, blare, tailgat, huffi, girlby, overlap, wuzzi, niggg, nastiest, hairstylist, nesha, beeni, reathi, alia, maaco, guareente, Indiana, fucksamattawithy, knick, upk, turf, jayonna, spinelli, thinh, almond, flour, johnel, rubik, aaron, jammer, nerp, villag, fittin, soooooooooooooo, onlyi, submit, beeotch, slapp, workshop, pricklypear, rager, chepa, aghh, tack, linin, ausmu, handler, turn-down, follin, euphor, milwauke, funfetti, branch, sunburnt, michiganst, lv, whateva, apostl, bullshittin, thoroughli, dribbl, vein, rabi, wavei, thr, shakei, stankiest, knotch, joker, gabl, tina, songz, lsd, sawdust, sodium, unsavori, sumbodi, rebound, long-exposur, lightwrit, unfil, mcbitcherson, flossin, ticker, dyk, kissin, lyt, youuuu, f-ton, hawkin, oversteppin, boundir, slump, arrst, assoc, tech, incarn, baptism, pollito, cruzaba, frontera, zorro, tropieza, youngjef, uneaten, snappin, denton, awfi, birdddd, spectat, whippin, f4, primetim, vnd, restor, cast, nld, thunderpunch, curri, awwwww, sheepl, boootyyyyi, neeeeed, heini, nahhhhhh, kimbal, livestock, crc, worldcup2014, puravida, colt, unii, malici, buschi, onlywantonenight, gangstaz, wive, hmmmmm, ceelo, birdman, fitm, lipgloss, dispossess, fluffi, mybabi, prow, jaymohrspo, patio, minu, wildcard, musician, jhud, edm, pshh, snivel, comprehend, enuf, sorceri, mis-plac, brethren, wuh, indycar, hoopin, jambore, tootsi, fukn, chapsnat, pearlbluey, hibben, forf, thankin, dap, audibl, stepper, sarri, workproblem, workflow, byebitch, whyyyyi, hologram, roastin, hotdog, igg, nano, oldhead, carbon, emiss, dioxid, vdai, weknow, curios, righteou, goooo, wobn, wefo, thingspeoplesai, expend, youhave-justbeen, endlesslov, thorough, heroin, womp, 1on1, unpunish, snuggli, richi, telli, surpris, sibl, shitless, olympic, apparel, lilwayn, alexi, assist, gie, getlost, prosecutor, coordin, ticckler, pansi, rebelli, titz, chihuahua, babymama, serg, influenti, yeahhhh-hhh, mumbo, monetari, sixth, enerv, mayo, condim, cuzin, snupe, upward, bgc, acab, pooest, sando, faher, monistat, witchuuuu, yaaaaaa, sidechicc, whataburg, telephon, trustin, homerun, tingli, uni, sorrynotsori, yaz, grouch, acn, fuckfriendzon, waxx, kylie, jenner, suhh, skunk, premier, summn, letr, choosinh, throwbac, boyyi, fireston, scrapehous, bullshittin, gaggl, errbodi, goldfish, ull, arguin, slutttt, spoilt, ohwel, eryth, thief, bess, estupid, sarcophagu, lmfaooo, exercis, findin, confrus, liessss, boyyyyyyyyi, burri, pleasant, slittin, runn, landfil, burden, uptight, ayeeee, muzzl, lung, saditi, capuano, shone, sinf, drunktalk, thingamabob, bradi, ode, thumper, jusi, intrest, jezzi, joystick, theshield, onion, mothafucka, adjust, intercours, inflam, mascato, voz, mando, forestgump, aaahhhhh, christma, drunkenli, winni, pooh, erinblair, gmix, ahahahh, ping, rolex, shutupcrybabi, infam, basicbitch, almightydavehunna, inli, ashlei, holmezz, shiesti, maintain, zeec, flamin, sapl, pogo, juelz, lans, nocturn, toughbreak, ferrari, pleeeeeas, haannnn, arod, ddaaawwgggffaaacce, cccaallddeerooonn, aktin, drizzown, downnnn, hillllll, heaux, xtima, guessin, trail, cinegram, peekin, overwhelm, hmmmm, napa, fewer, injur, sapphir, 18k, detect, brass, polygamist, yooooo, 4lokos, damm, stingi, errrryth, hydrant, boltupdo, ughh, zahra, downspout, denim, halfwai, creme, porkchop, celeri, cayenn, beth, damnnnn, darf, pli, dblite, lmfaooooooooooooo, bachman, slumber, minutesm, adderal, dodgerofzion, trai, assss, draymond, doodoo, egnog, eharmoni, taquito, bunge, eli, emer, comic, whatttt, pregnant, noooooooooo, lurk, reblog, flicke, trinaaa, katrinaaaa, montana, upd, dik, suker, deeeez, geekylesbianscientist, theblairbetch, douglasrichardsonship, kayla, givenchi, glenladen, osu, waiter, teardrop, concret, fuckittt, smokewe, teamloud-pack, sidetrack, greatwhiteprivileg, zucchini, diyyyi, henni, unhing, hagg, receatt, indiegamepickuplin, shawnda, chanel, dandelion, antonio, aftermath, wyome, explos, settin, islamophob, fondl, reassur, specialti, holocaust, jeweleri, shinin, summit, bootyyyyyi, nonstop, subconscious, handmad, handcut, marin, claritin, flea, donta, tissu, phatti, shool, deprec, ftw, emosquad2k10, rlly, eachotha, myi, pp, michae-

langelo, jamaica, dancehal, frog, seafood, disrespect, supervisor, ackin, everrrrrrr, slower, lynch, howler, shittiest, voodoo, yolk, uckin, freebe, hm, gigant, rethink, mexico, obv, umbrella, weeaboo, poppa, lbr, fellaz, jacki, jacob, janet, retrograd, levit, lousivil, jm, joooooook, tailor, mutter, aloud, cussss, doesss, kyle, falcon, steven, wackson, fap, bond, robb, s2g, dorito, collabor, orai, tweaker, asfck, loner, hannnnnn, shite, nhl14, sadden, maddi, karissa, cierra, fuckdimmi, vinnysnotmadon, billgets-bun, nemo, hiv, marchmad, maryjan, omari, mickeyblowsyourmind, b2k, fuxker, menthol, vandal, supper, sicker, creami, rosta, sheriff, nowwww, bangbro, otter, debt, btch, gne, fwher, roxi, wheezi, chronic, pillz, repress, broiler, braxton, regularli, in-suffer, civilis, ofcours, dingbat, ky, centimet, okc, unthaw, mainestatepi, schooldanc, duval, mikepp, granola, sequin, phantom, cardin, illest, teef, constitutionalist, rat-ifi, centerpiec, ouh, jammin, grigio, moscato, fagg, procrastin, ppppoppin, popper, lataa, raaa, pussi, hairlessss, currenttv, slight, afteast, disposit, mileag, sheryl, pullz, specki, lesbo, coolcunt, absolutevil, meat, apt, cudi, snowday2014, elsewhere, orbit, boast, uo, tshi, nisa, unfollw, audac, bola, vee, steph, beleib, sweeti, cannon, arena, iwaited5yearsforfobandiallgotwasthisshittyarena, trustisbroken, satir, stewi, genesi, tna, bittersweet, loudli, netherland, rosa, mexicano, 2ssss, yada, jeff, fisher, seam-stress, googli, rhianna, jant, fragil, mayweath, superweak, stem, alchcohol, poc, svsu, rj, killyouself, zodiac, plaza, thugga, rental, lasagna, thrive, econom, sector, pussya, windoowww, versac, badonkadonk, grizzli, baylor, nino, jiz, lamb, coleslaw, wh-heeet, choker, downi, mimosa, allen, cav, finnegan, ceifi, 13yr, brewer, booshi, vel-cor, wonderad, japanes, wobbuffet, missi, thanksgiv, swur, layout, yaya, manbooti, thursti, boogawolf, muthaf, hymn, he, a, smh, you, can, tell, mexican, re, fuck, gai, hoe, out, for, anywai, i, why, there, s, black, peopl, and, least, m, not, coward, but, at, isn, t, crippl, like, your, hero, lmaoo, new, shoe, that, will, be, releas, by, on, the, dude, wa, yesterdai, stupid, bore, suppos, to, cute, coach, want, me, feel, it, get, more, my, nig, no, doubt, retard, make, grill, chees, won, baddest, bitch, worri, about, nigga, see, da, fuckin, yo, go, look, video, of, man, found, girl, in, what, kill, cracker, babi, did, just, hear, grandma, us, call, porch, monkei, all, time, think, she, refer, broken, bottl, thought, face, hate, yall, stand, up, sai, turn, world, into, ghetto, sour, appl, bitter, wit, em, we, kkk, ral, here, our, butt, callin, okai, beyond, don, futur, son, walk, down, street, hold, hand, an, ain, gunna, do, shit, ol, mouth, ass, even, real, close, ll, tripl, six, pussi, hater, suck, dick, die, quick, comment, d, good, friend, wai, name, poor, lot, rain, too, bad, wasn, enough, wash, awai, teabagg, trash, state, teapai, full, who, move, from, becaus, ar, allow, live, outsid, gt, him, if, u, talkin, or, smash, homi, lab, natur, someth, wan, na, tweet, drink, pineappl, soda, dai, asian, drunk, how, plai, deez, n, dat, thug, job, thei, toler, long, tcot, celebr, cancer, ca, month, watch, porn, amp, beat, off, text, show, hi, fucc, nicca, yu, pose, said, got, ta, chill, with, thi, pretti, challeng, foolish, y, 1st, gon, around, burn, place, them, de, project, student, awkward, wonder, awesom, tank, ask, everi, bi, agre, those, home, heaven, fo, color, bag, need, shave, without, athlet, purpos, af, afraid, two, love, song, dope, done, last, final, walkin, own, annoi, weed, pot, same, thing, hype, bread, chick, rapper, win, game, dure, regular, season, when, playoff, lol, kid, favorit, their, pet, school, shut, work, anoth, ring, damn, wifey, back, share, shoi, phone, charg, aint, special, ppl, take, pic, hatin, find, niggaz, let, b, ima, famou, these, count, somethin, thank, reward, graduat, fact, oomf, her, lt, manner, greet, insult, fleek, o, unfollow, so, dm, rude, cunt, lmao, affect, also, left, alon, issu, ok, cool, mean, wcw, sleep, ma, niggah, ugli, whatev, deserv, kick, form, goe, garden, fridai, shop, typ, other, person, pretend, ankl, sock, gener, bro, begin, ever, aren, roll, ey, wohless, beer, old, outchea, have, talk, men, pick, truck, scream, nerv, mad, miss, free, throw, some, bet, pop, basic, background, music, should, year, ago, wouldn, problem, now, wait, fight, ur, choic, happen, wrong, alwai, total, correct, livin, round, dem, folk, hood, valu, gui, public, fed, well, internet, ap, broke, nice, answer, snapchat, butthu, liter, eat, asshol, actual, seem, littl, confus, hit, someon, late, yell, def, room, send, where,

belong, jack, line, slai, piec, poop, pleas, lmfaao, bed, pass, yea, made, loser, leav,
 till, ride, never, follow, ignor, nasti, whore, bullshit, wow, comin, post, bright, keep,
 give, ran, over, enteain, prove, were, piss, ref, stop, true, bum, claim, hall, fame,
 legend, tx, question, disrespect, hei, hous, grand, rest, case, outta, put, self, stai, de-
 fend, boyfriend, while, accept, both, stfu, dumb, chase, gone, nigguh, speak, blond,
 hair, hypocrit, cuz, then, themself, pathet, know, brother, sta, fun, admit, boi, slut,
 jk, dog, befor, fish, suppo, lesbian, differ, better, rn, high, punk, tongu, usual, head,
 bullet, interest, thru, purpl, pink, protect, polic, instead, wu, bean, lb, weapon, leg,
 ad, learn, mani, trend, topic, fan, movi, matter, sound, idea, word, spread, commi,
 sure, countri, redneck, attitud, fake, bdai, screenshot, ju, hope, thirsti, fugli, omg,
 ratchet, understand, life, right, spo, bra, sho, wear, ye, twitter, lame, negro, haha-
 haha, wigger, am, surviv, silli, boo, attack, bunch, dii, prai, care, band, onli, would,
 bui, album, dress, whine, haha, calm, block, try, ha, clear, schedul, rage, much, tryna,
 pre, still, noth, low, info, dumbass, vote, corpor, idiot, believ, dummi, god, wat,
 prolli, seen, ya, page, cant, offend, than, im, shoot, herself, sick, tan, happi, woke,
 sentenc, joke, acknowledg, fat, preciou, lookin, big, fix, blunt, spell, check, meant,
 liber, carri, breh, afford, date, roast, hang, common, wast, r, read, bacon, middl, fin-
 ger, twat, yourself, cage, nothin, cousin, touch, listen, hick, alcohol, cock, describ,
 twist, funni, rememb, cry, quit, such, grow, pair, huh, yeah, bihdai, assum, guess, po,
 sit, sweet, comeback, dnt, soccer, id, swallow, red, sox, took, nearli, respond, tho,
 hop, across, tri, ag, nahh, spook, dont, child, di, week, pull, illiter, might, safe, idk,
 daddi, offer, women, set, apa, mix, thousand, mom, come, everyth, compani, troll,
 prepar, seriou, fuc, swear, todai, peac, woh, sorri, shoulda, bc, cold, wont, blowin,
 aunt, traitor, clean, deal, episod, ball, tit, rep, term, meet, mother, blew, base, worst,
 bruh, ly, chang, number, dollar, account, neck, fellow, children, gang, member, wors,
 dare, order, anim, fighter, soft, act, tough, sidelin, sack, juss, drug, dealer, arm, re-
 spons, youtub, channel, proud, famili, horribl, oh, woulda, coulda, bout, ban, catch,
 phase, box, brain, whoop, front, guarante, few, ve, been, anywher, pig, slave, un-
 lik, devil, end, luv, convinc, fly, garbag, scum, peni, danger, g, hypocrisi, statem,
 tire, commun, biggest, anyth, bye, ugh, wish, due, tranni, less, bird, rate, father, run,
 success, hug, gettin, busi, gun, doesn, respect, drop, stank, lick, caus, entir, band-
 wagon, studi, drive, stick, jerk, diseas, side, fair, ill, insecur, wreck, corni, pai, told,
 onc, against, gtf, aw, drake, corner, rider, tast, pictur, team, ani, attent, hell, naw,
 serv, forgot, thang, nope, stuck, help, pit, morn, draft, delet, cloth, ei, jump, vet,
 luck, capit, f, welcom, pill, magic, j, first, cut, w, monei, hat, stalk, draw, forehead,
 nah, e, park, queen, bear, rule, thumb, blame, had, whigger, anti, under, most, truth,
 mind, els, taco, el, everywher, half, mail, teach, aka, tbh, shitti, feather, fist, though,
 cigarett, lil, hoodrat, sad, mai, compar, fashion, makeup, tip, car, accid, type, hill-
 billi, beauti, hard, prob, repeat, myself, couldn, honki, sinc, equal, oppoun, past,
 boot, camp, daili, turd, mention, peckerwood, sister, root, slow, hr, hip, lebron, quot,
 forget, nappi, marri, mostli, eachoth, clearli, wtf, dad, rais, didn, scari, grade, wise,
 simpl, spit, smack, heard, speech, shove, throat, parent, after, born, reveng, actin,
 shi, flip, cash, hu, probabl, dei, plz, none, steal, togeth, pimp, weren, bike, save,
 expect, trap, knee, foot, blue, wheel, nippl, offici, gross, aid, infect, fucker, glad,
 hopefulli, next, smoke, sir, embarrass, tax, knew, bruise, bring, finna, pack, could,
 hook, plant, citi, surpris, slit, reg, murder, hairi, prude, decent, star, club, rich, best,
 except, gave, blind, genuin, jimmi, thin, sayin, town, sent, prison, crack, talmbout,
 tomorrow, lunch, fire, lit, email, slice, c, ballin, titl, kei, small, askin, nobodi, bald,
 gate, yellow, eh, definit, top, makin, anymor, weav, came, soon, vine, ugliest, nd,
 cop, laugh, lock, leagu, everybodi, ho, through, jean, file, sexual, harass, co, worker,
 atleast, secret, imagin, creat, feed, humbl, again, almost, water, stage, media, becom,
 presid, trophi, chicken, yet, wake, whole, hello, kitti, list, mental, charact, broad,
 tag, si, dome, thinkin, lose, crib, smfh, slant, woman, loyal, wassup, scale, funki,
 duck, pro, either, bottom, melt, shot, veri, fit, doe, didnt, until, strike, redskin, ex-

actli, dese, doin, weak, freak, wack, cheat, scienc, treat, fanc, sin, ahh, invit, receiv, muthafucka, caught, guard, push, armi, ladykimora, sell, nut, tear, cocain, moron, colleg, sum, design, frm, boss, death, threat, goat, horror, hide, behind, smile, finish, confront, ridin, hustl, emoji, haven, reason, already, tat, everydai, blow, bubbl, wife, flow, mo, den, shape, eah, industri, build, daughter, tattoo, mf, punch, loud, playin, ofai, scare, recent, chat, prefer, upset, dark, skin, snap, protest, rack, doubl, sight, apolog, anyon, truli, mr, decid, um, shock, amaz, joi, champagn, weird, arrog, add, defens, aliv, foreign, pa, x, continu, trifi, swag, fb, stud, moon, forc, mood, upon, declar, stink, must, test, level, shadi, girlfriend, mock, refus, appear, which, nude, sooooo, bitchin, bar, somebodi, scene, zero, west, along, fine, spot, surgeri, wing, replac, light, necessari, night, sandwich, fam, boutta, break, chain, smell, motherfuckin, express, dish, open, pickl, dime, soo, goin, dice, liar, dead, k, south, automat, mob, split, cu, pipe, shake, sub, footbal, advic, doctor, tonight, miser, manag, neighbor, ctfu, stori, jungl, bunni, p, cancel, wig, field, pure, niggle, trust, went, frustrat, abl, offens, fave, via, cours, faith, basebal, goddamn, paid, ti, terror, offic, retweet, disappoint, stuff, class, professor, minut, crush, site, sometim, enjoi, douch, veget, felt, hot, ic, sauc, crazi, wild, wen, young, cat, ticket, perfect, exampl, wet, insta, h, neighborhood, lane, squad, jesu, upper, legal, tackl, corn, runnin, suckin, fri, purs, leak, http, clip, holi, unless, yr, rock, captain, constantli, karma, longer, polit, group, known, later, paint, pt, pant, often, trashy, lmfao, whip, coffe, loos, govern, between, trick, mayb, homeless, militari, crowd, easili, commit, suicid, address, knock, door, hea, neg, v, honor, suppoer, albino, voic, rather, urban, area, sign, connect, eyebrow, mustach, freedom, paper, freshman, suffer, cover, cough, system, strong, pregnant, camel, power, suggest, each, notic, chose, obama, doesnt, azz, sucka, darkskin, stole, seat, bust, wide, hour, food, ruin, demon, thot, tha, cotton, naked, judg, bought, mine, sore, terribl, ashame, singl, stretch, mark, racism, alien, crime, write, letter, lmaoooo, saw, great, summer, consid, dike, ground, ht, fulli, sex, injuri, inner, imaginari, mess, messi, teacher, abus, posit, sexi, cultur, teen, golf, jail, bloodi, bigger, coupl, basketbal, bank, engag, flop, social, suspend, divorc, driven, ideologi, angri, book, immatur, ladi, point, crow, realest, straight, chanc, shame, fallin, main, digit, camera, selfi, femal, three, four, press, confer, joe, tv, priceless, soldier, execut, watermelon, childish, sens, tale, propaganda, sourc, excus, anchor, dam, elect, knowledg, walma, smokin, log, bail, visit, ay, selfish, choke, mash, potato, tool, rant, mini, van, restaur, custom, relev, card, slutti, shade, hunt, war, gear, complain, bodi, obviou, spend, discuss, lip, cooki, unit, gorilla, nan, enemi, mommi, cross, danc, ing, mall, weather, bu, driver, taken, organ, solo, q, law, cha, alright, road, counti, cuffin, er, l, ow, ion, pl, salti, bone, chocol, spoil, plan, fail, blood, ah, opinion, involv, bathroom, rice, argum, rai, nose, sensit, medic, himself, bf, onlin, sue, match, goodnight, sale, clutch, gram, style, tf, nip, pierc, repli, wall, buddi, min, bill, prevent, omfg, wop, sugar, anonym, union, dumber, reserv, ching, chong, jerri, cater, stabl, vegasqueen, gotcha, liver, crawl, justsayin, feminist, ebola, accord, brainwash, mikei, jew, darki, monogam, forg, wag, mugshot, hopper, shill, lifestyl, wld, mfka, molest, buffet, starvin, rehab, squeal, wedg, strategi, yam, 6pm, dozen, soulless, hut, thinner, fry

D.3 Post-PB-STTD

D.3.1 DS1: Suicidal Ideation

1. *T* set:

fuke, larri, shipper, option, choos, suffer, student, exam, lmao, fun, drone, clearli, dark, blue, avid, nearli, bro, saintsfc, probe, alleg, thnx, won, tonsil, argh, neglect, epidem, earli, noooo, straighten, ooh, photo, luv, ballin, playin, calv, yhink, expkod,

ky, gui, pl, confus, methodologi, kaci, spend, album, synonym, black, tbh, temp, un-
 bench, claim, easi, 3yrs, despair, procrastin, wrap, duvet, burrito, possibli, measur,
 shitti, faux, met, intestin, kev, josh, daniel, laura, dom, jayani, fleur, leann, wont,
 sometim, id, tbfh, zayn, hot, safe, fuckin, past, li, easier, physic, drink, numb, emot,
 stupidest, puddl, ovehink, scare, memori, stair, horror, par, cacahu, te, drown, crumb,
 deep, fuckidna, yoloa, vote5sos, popular, infam, hungarian, badli, food, wish, re-
 vamp, itself, grow, michael, jackson, beyond, belief, urghhhh, mi, mam, eveh, averag,
 30mins, barrier, cloud, paus, calm, press, squad, far, bed, absolut, happier, stronger,
 pill, leo, charli, both, bam4xmas, suck, bing, solut, sooooooth, tho, pardew, button,
 cross, lit, perhap, feed, updat, idk, depriv, fed, burn, wrist, itch, toward, complain,
 goodbye, sir, couldn, mock, scream, honestli, quickli, aargh, massiv, atm, hate, never,
 wake, up, so, much, fuck, give, pain, end, here, rn, actual, na, onli, also, result, done,
 p, y, low, break, ye, total, drive, lol, befor, readi, cant, shop, asleep, super, less, self-
 harm, month, disrupt, felt, taken, affect, breath, myself, want, life, sleep, fan, there,
 aliv, dont, were, instead, poor, hair, side, write, stupid, few, centr, snapchat, best,
 inspir, again, be, think, other, kid, tonight, mind, gon, retweet, leav, thing, dead, rate,
 monei, internet, fail, group, now, do

2. $B(T, O)$ set:

kill, joshiesanud, it, i, wa, you, made, die, could, the, equival, about, ain, t, face,
 doesn, to, all, should, like, in, dai, make, seem, just, down, note, back, had, listen,
 bitch, not, an, depress, ian, 2counter, upgrad, intelligen, world, bang, can, timetotalk,
 and, plai, my, person, leg, last, night, anymor, over, man, that, oh, don, s, take, dw,
 threw, stereo, loud, everdai, but, bullshit, thei, re, tire, feud, feel, m, how, everyth,
 lock, muffin, tee, swoop, already, heal, recoveri, eat, him, accomplish, unemplo,
 hu, harm, stop, cara, tipo, eu, ou, lbum, bmth, uma, veze, por, dia, ahauhauhaua,
 post, knew, someth, go, ill, self, probabl, bye, nerd, watch, cultur, need, founder,
 bui, when, moshingx, l0st, insecur3, angel, chip, depressionhu, yea, fckn, im, ve,
 silver, better, violet, see, galatasari, couldnt, brand, chav, would, loool, too, lazi,
 smoke, cigarett, even, geographi, crayon, declin, col, movi, cry, babi, song, sorri,
 singl, feat, linger, shade, keep, longest, straight, includ, legit, wan, na, clinic, definit,
 technologi, pair, lucki, tumblr, mockeri, classi, lover, 11s, schizophrenia, slightli,
 refer, why, 1pm, debt, talkhealth, shoe, count, urself, mondai, nd, wednesdai, fall,
 wasn, aviat, engin, aboard, earlier, wk, whistleblow, omg, whyi, am, cutteerr, york-
 town, lakeland, heroin, westchest, newyork, air, max, unchalleng, spo, draft, hour,
 rout, ff, isn, xxxantastic3, abl, dine, tabl, qualifi, masseus, master, massag, stub, toe,
 nail, jumaat, ni, balik, perak, lari, pecut, kelil, rumah, sebab, eksit, threat, lightli, gon,
 surviv, kinda, creepi, iron, quaalud, extinct, propos, state, approv, took, right, milkid,
 lesson, 5s, vine, pillow, liter, westcoast, onl, sttech, grossli, offens, comment, wrist-
 band, park, rumour, rapper, tokyo, xfile, noth, forc, try, arm, funni, edg, cyberstalk,
 inde, numer, dementia, revis, harder, hannah, bond, didnt, spot, bunch, att, roadkil,
 fox, 7up, ghana, anyon, misspel, cutest, wifi, thank, crawl, hole, white, supremacist,
 twilight, netflix, busi, satisfactori, tyrone, fiz, maria, storylin, corri, savethemal, ugh,
 hau5, god, laughter, burst, coverag, 15yr, glass, hasn, pick, promis, cal, volunt, cen-
 ter, check, waist, hip, hoorai, fender, guitar, ticket, contin, wale, singer, hangi, alon,
 ing, suppos, hang, awk, traumat, psychologist, decid, scale, crack, sensit, subject,
 shit, idea, fairli, isra, present, demand, rail, renationalis, elector, small, venu, ac-
 cord, assisteddi, purg, anxieti, child, brigad, israel, inner, calf, exact, cramp, muscl,
 gunna, stretch, prior, em, karo, gi, mo, sadder, fulli, arson, shift, guzzl, boot, mini,
 ski, sneaki, destroi, patsi, gran, pougues, repoedli, legend, els, spotlight, psychoana-
 lyst, fill, airwav, clue, seen, comfo, longer, robinwillam, locat, bit, neither, saddest,
 tribut, museum, heed, incredibli, legendari, rememb, tabloid, stock, reckless, displai,
 larg, reader, liber, ideologi, 3hr, programm, direct, honor, mention, bbcaq, experien,
 schiz, trait, greater, moi, aussi, je, vou, ai, pardon, mutil, j, fai, tent, tourist, opt, obin,

ash, scatter, 8pm, 3pm, peacock, lilahi, rajioon, compar, ramp, ifiwaswhit, violent, pro, provis, discharg, express, savet, process, got, ta, grab, granola, bar, dog, outspoken, advoc, joanriv, tune, judiciari, hors, disclaim, lad, mode, activ, wspd, connected, sweden, suicidepr, awesom, million, globe, balconi, dollar, cocain, inconvenienc, v, hihc, checkpoint, blast, target, smh, came, haram, bet, emascul, ruim, q, agora, mina, faz, rabisco, corpo, ja, se, acha, fia, com, ess, poe, vai, dar, trabalhar, chile, slowli, mufukka, friendship, doorstep, appt, credibl, dozen, justic, eng, shire, 18th, analysi, wax, harass, uniqu, plead, howev, shun, surg, yknow, miseri, therapist, kei, control, porn, cringiest, vile, classic, marginalis, interf, corps, core, longgrass, tast, ahead, lfc, eventu, endur, clich, 1in4, toi, fab, playlist, lool, smell, basic, peasant, twat, uniform, empti, nestl, iguala, golddust, marri, owner, devastat, 6ft, sun, abov, melt, session, huh, weasel, stolen, stick, counsel, dunno, tbf, slip, interven, ptx, sever, difficulti, bridg, appeal, unhappi, emhlabeni, kanti, kwenzakalani, decis, 56m, contribut, neo, af, monstros, four, prayer, innoc, scarier, unfinish, bio, christma, bcoz, hunger, heabreak, heighten, advocaci, pmdd, hormon, mimic, symptom, gunnu, sto, constant, slaughter, beach, firearm, access, treasur, railwai, regim, starvat, loyal, knock, int, shi, mail, cobain, becca, replac, intellectu, qui, writer, controversi, camp, tomhardi, wage, legitim, gender, workshop, quiero, una, relacion, seria, dominik, room, pero, acuerdo, que, personaj, pasa, award, novelist

3. *O set:*

lack, holidai, joke, disord, who, struggl, 9th, quot, somewher, due, ignor, these, sign, week, by, them, men, help, continu, attempt, hotlin, save, while, wait, list, psycholog, new, bomber, terribl, social, ever, ugly, anywher, wan, emotion, o, name, unless, your, rather, cuz, committin, more, woke, next, order, cherish, moment, etern, worker, reveal, their, mother, turn, brother, sweet, young, boi, into, beauti, jump, land, car, she, h, mum, xxxx, transgend, year, old, famili, explain, reason, wrong, fell, shower, thumb, off, compass, mentalhealth, problem, trinit, win, murder, tip, been, livedexp, suicideprevent, themself, got, some, alwai, answer, disappear, notic, gone, work, either, we, teach, prof, upset, school, massacr, rape, victim, e, asham, call, us, silen, tell, chill, impact, bulli, lead, cop, woman, shoot, her, poltw, uni, prob, friend, unconfid, esteem, insecur, quiet, littl, rat, soldier, return, combat, becaus, discuss, among, benefit, mani, attend, op, metal, mental, doe, blame, band, promot, health, awar, media, repo, prompt, debat, allow, said, nate, prevent, spread, youcannotbereplac, follow, campaign, kick, reasonsforliv, trailer, find, 29th, class, c, est, un, well, excus, shoddi, servic, provid, accid, shot, himself, head, bullet, cure, he, becam, colleg, disgust, own, reevalu, cheerlead, term, web, nurs, former, sought, onlin, encourag, th, at, detent, guard, rang, bell, ta, verdict, risk, flee, countri, argu, prosecut, bail, unwant, panicattack, pathet, todai, late, 20am, consid, drove, disabl, son, live, good, stuff, vote, care, fund, veteran, trial, athlet, read, cou, outlet, shouldn, ignoredadvic, nash, urg, high, confirm, daili, number, such, colour, fade, lighter, taught, http, mai, villain, later, skip, load, protein, workout, illogicalbrilli, terrifi, door, first, rich, let, starv, ridicul, sanction, chang, episod, broadcast, sinc, tweet, bad, spent, regardless, sex, ag, race, wealth, everybodybusi, worldsuicidepreventionndai, meant, co, mine, commut, celebr, ll, 3rd, youth, significantli, higher, non, must, rais, phone, babe, open, concern, 10am, 10pm, 5pm, weekend, sa, judgment, compat, law, assist, human, parent, whose, daughter, hea, hear, stori, teen, petti, through, nose, mainstori, sound, headlin, grabber, big, didn, rise, despit, recess, fig, htt, loan, differ, degre, pai, econom, fuher, blight, r, countrysid, wildlif, govt, prove, anti, env, paper, yet, b, becom, straig, staff, multi, profession, train, appli, found, suspect, l, treat, polic, frustrat, roof, aftr, tree, beat, weird, impoant, chariti, exist, male, statist, gr, enter, pact, crock, pot, full, spici, sausag, queso, stigma, speak, postnat, opinion, sure, twitter, platform, phrase, ask, fm, which, taux, de, foi, plu, lev, chez, le, jeun, journeemondial, believ, di, tragic, loss, comedi, geniu, plot, detail, sho,

time, notim, hug, free, flight, accom, plz, assess, ninth, floor, structur, amaz, rescu, reject, sick, gai, dream, wear, floweri, celeb, mayv, hero, launch, improv, comicnew, front, deceas, charg, fee, stat, known, seek, offici, cast, onc, fr, gun, lap, sat, around, via, tend, look, our, resourc, remain, under, saveyoungl, women, societi, masculin, ideal, expect, paradox, incap, simpl, might, poll, project, near, wipeout, elect, untaint, progress, tattoo, send, meet, wenger, spectacular, stai, doctor, sent, survei, complet, turnout, skynew, helplin, increas, creat, safer, commun, join, chose, jihadist, recruit, children, mission, veri, nohshield, somebodi, hospit, whole, apologi, unfollow, thru, trauma, seiz, hope, asmsg, grief, grim, insight, against, local, print, pic, ladi, top, bu, crash, seriou, point, mhsm, youngster, macaroon, firstworldprozbz, recommend, contagion, bungl, attack, common, wha, sack, tottenham, heav, titl, studi, prick, dure, uncontrol, poorli, design, experi, 14th, repair, pitchmark, chanc, messag, sextoion, awai, nightmar, everi, repeat, lawyer, lose, maial, wit, intimid, anoth, achiev, brag, dinner, forev, wife, alaska, secret, ginger, crush, pass, hell, question, final, act, al, tomorrow, petit, site, ironi, place, ashton, pretti, sniper, six, fighter, set, vest, surpass, war, militari, troop, grate, flat, network, identifi, broke, proof, case, webinar, collabor, approach, individu, hit, ic, jeffyaldden, tttt, teensuicid, pool, consist, cyber, armour, arrest, sell, weapon, crimin, cell, walk, middl, ya, aw, cat, felin, fecal, parasit, royal, toxic, embrac, scari, ride, prepar, forgot, indirect, extrem, scariest, experienc, la, yanno, pretend, attent, those, squeez, ass, actor, brought, blow, herself, citi, injur, two, offic, aswel, host, interview, contact, difficult, fals, economi, recur, ripe, qual, coward, onto, drug, come, across, safeti, requir, w, polit, activist, grip, socialmedia, date, three, lifetim, succeed, hard, loos, miss, happi, realis, challeng, xma, light, kind, idiot, ptv, sourc, insid, respons, almost, cost, champ, leagu, surpris, potenti, mix, correct, luck, min, warn, mourn, tour, soul, tragedi, overdos, scum, eah, sympathi, ok, pre, ven, member, star, asphyxia, tradit, cyberbulli, lot, vultur, repli, girl, acquaint, threaten, avail, wren, properli, pictur, insta, lost, ripheath, pa, 5sosfam, hold, bard, memoir, slow, sheep, cliff, poem, for, someon, u, suicid, if, a, of, commit, have, hi, or, ha, get, peopl, cut, no, on, thi, ar, caus, talk, death, what, video, sai, word, than, d, second, love, out, from, after, will, wai, complex, recognis, ol, dichotom, livestream, masarap, gawin, kapag, pinagsabai, ang, aral, trabaho, superwoman, fatigu, 11th, hospi, player, level, braveri, ars, pigeon, flew, window, fallen, fire, escap, barrel, laugh, curiou, led, ani, overse, driven, cri, row, librari, book, librarian, cours, sirfeel, mid, bodi, unknown, ahaha, nah, bigger, tit, aicl, power, advic, txt, email, pat, sexual, violenc, conflict, 4rm, wallet, teacher, afterlif, highlight, investig, career, horribl, cunt, issu, tricyclic, acut, smai, patientsaftei, great, matter, miracl, rule, run, inform, sheet, bereav, left, behind, cope, trusti, van, action, wed, disrespect, effect, mate, reach, app, boat, warship, esco, ongo, ckv, exp, treatment, comedian, home, coron, thrash, add, misinform, view, associ, market, pull, detect, appear, protect, intervent, blood, test, predict, research, chemic, alter, g, share, line, public, understand, commerci, checklist, speakout, realtalk, gear, capit, emploi, fisher, hire, drag, argum, chief, earphon, sunb, gym, woh, vet, involv, desper, where, cancer, posit, crime, wrote, 2x2, math, map, illumin, homicid, constantli, torn, between, everyon, five, least, previou, abit, scientist, chin, morn, studentparamed, bbc, smash, fa, cup, itv, illeg, punish, account, timelin, inhal, subwai, sub, wash, hr, ago, shini, rap, recent, endors, initi, reduc, distress, duti, until, percent, intent, injuri, openli, anorexia, biggiesmal, sing, fashion, west, headbang, silenc, whoo, hei, endit, strongest, polici, suggest, till, imho, hidden, financi, crisi, con, lib, price, relat, inpati, fouh, relationship, unemploy, brain, paicularli, temperament, suscept, fav, xx, warmth, soft, charact, build, street, download, ti, elder, ad, sudoku, seppuku, pregnanc, blogger, pregnant, blogboost, bc, friendli, disclosur, factor, eatingdisord, taboo, embarrass, inspector, fb, poetic, peotic, releas, globalmentalhealth, mentalhealthawar, swell, mom, told, screen, wonder, 1in, pple, within, 5yrs, histori, over10000, povei, complic, avonrock, blakes7, diseas, push, closer, suddenli, annual, confer, ppl, global,

respect, standardis, loui, hand, choic, tank, romantic, topic, chat, bruh, aint, ur, digniti, stripp, 10k, weet, cam, commissair, yr, rattl, bring, forefront, socia, grand, et, fil, corp, enlac, ont, heel, bastard, invent, vulner, 4suic, skin, weep, joint, pun, jerseyshor, jersei, attemp, bleak, record, influenc, husband, stab, haunt, hous, haven, slept, nhschangedai, pledg, mentalil, therapi, fam, goe, kamikaz, job, um, fly, invulner, earlywhat, schedul, rude, drop, toll, climb, bomb, border, film, produc, tough, squirrel, ledg, anyth, lyric, dy, without, ma, bein, size, mean, conform, warp, perfect, ideat, syndrome, publish, aboion, penalti, summer, tri, booklet, practic, guidanc, bollock, highest, 10yr, abus, junk, quick, sugar, energi, alcohol, equal, did, horrend, eastern, provinc, femal, most, with, sad, know, appar, faith, compani, net, grant, sleeeep, connect, hungri, visit, quit, same, afterward, mosqu, capita, enough, profil, behaviour, yesterdai, dump, latest, review, shem, k, presid, frenzi, ptsd, backlog, fact, gethelp, okai, doesnt, pissi, mood, om, ab, afraid, rebuild, sister, x848, proce, catch, evil, pedo, comet, deathsent, 4th, grade, unbrow, stitch, piec, show, espec, journo, guid, espec, footbal, gambl, addict, brink, wors, infidel, interest, profeminist, jealous, evolv, ov, folk, defend, matern, reaction, shame, favourit, card, hatebeingsoppi, its-goodtotalk, weak, page, adolesc, tripl, third, teenag, crisiscontrol, x, obsess, rl, ball, patient, sma, areuther, depressionquot, broken, preach, nine, pound, minut, compil, favorit, guilti, speed, suicidium, sui, caeder, oneself, intention, though, link, chant, cbb, seri, radio, nobodi, futur, serious, contempl, pennsalt, killin, cassandra, intern, music, occur, guidelin, letter, genuin, klaxon, gossip, kudunew, indigenousealth, close, yeah, bandmat, shake, gener, town, pra, popul, inmat, empathi, anchor, expos, industri, dii, guess, 5sos, devotedtothedemonsinsid, sh, blog, similiar, ey, sit, mouth, team, howardleagu, prison, happen, nice, burger, oper, saw, sociologi, lie, migrain, ink, looooooooool, hotel, breakdown, shark, text, dad, tomorrowspaperstodai, dare, manipul, responsabil, usual, shaken, peupl, demandera, compt, pour, chaque, ch, meur, sesp, pouss, au, replai, cool, steal, nicer, doubt, prosecutor, accus, pow, confid, lowest, fightstigma, mentalh, yourself, forward, whatev, soon, leap, hurdl, youi, someonewhen, father, comit, sicken, brb, reloc, premis, 10th, impoanc, tailor, tempt, critic, yearbook, aist, audienc, ca, easili, erect, peni, nunchuk, swear, written, askbbfc, disguis, donor, nab, lynch, kanawa, suicideawar, deal, stress, yall, bandwagon, blew, cousin, type, spite, proud, pleas, put, real, n, coupl, attract, wo, cricket, zombi, roach, tale, annoi, cheer, hahah, dramat, rage, anger, vehic, anybodi, piss, ex, boyfriend, breakup, ht, captain, overcom, battl, hover, tada, scandal, cover, wouldn, describ, fergi, attitud, demeanour, moodi, worri, explicitli, graphic, etc, f, 4prevention, 35s, aid, stayal, neg, feminin, extent, exception, discrimin, passpo, vind, een, leuk, tran, fighti, fli, insult, fat, assumpt, notyo, suiciden, breakfast, 11am, 9pm, volcano, copi, tape, overpass, ft, primari, directli, season, glorifi, psychopath, touch, typ, fifa, st, pack, usa, mass, largest, instanc, each, upon, twist, intens, psych, billion, dislik, step, nna, enjoi, credit, shown, announc, somon, imperson, wow, rock, diarrhea, mone, terror, ub, address, stigmat, modern, devast, finish, wtf, bookruin, ouch, dm, aha, nervou, ep, game, throne, bore, deliv, lectur, killmenow, justice4ku, cobaincas, block, semest, 30pm, alo, internfil, abstain, attitudin, lone, anorex, stem, rare, whate, watchdog, true, univers, delai, blind, widow, incapac, hound, repoer, secur, rainbow, nl, minist, haywardsheath, fix, plank, hazwalk, mile, counti, uk, consol, kalori, plate, emegerd, sweettooth, sugarcrush, 2day, x989, survivor, evid, responsibili, possibl, brussel, sprout, hahaha, resili, storytel, perform, hitler, circumst, outcom, homeless, stopthehu, pilot, airlin, plane, reveng, aim, user, fight, killer, incas, kobani, barfin, carri, reso, receiv, donat, float, sea, ayi, helpfu, pbuh, condemn, ant, terrorist, justifi, me, suppo, dear, needfriend, dyinginsid, heaach, nohop, receipt, tear, selfish, crude, tool, flag, dress, wen, gona, wasnt, ova, talkin, ki, stand, togeth, pree, linquni, weather, avoid, excess, method, bout, autist, wide, bless, thousand, fresh, dose, anyl, stage, scene, poison, figur, road, alloc, team999, shutup, milkshak, ship, island, drunk, accept, erad, incr, onset, doit, fair, objet, suivi, dan, strat, gie, national, sant,

zone, long, hopefulli, main, abt, gcse, loooooooooooooooooool, develop, mmia, admit, biggest, gave, bih, caesarean, section, bitterli, crazi, situat, ward, bag, bucket, hat, childlin, danisnotonfir, iv, gotten, older, search, repeal, variou, factori, condit, shock, heard, worldwid, rel, author, newsfe, skinni, 2much, pig, apologis, newspap, column, omfg, statu, pupil, imper, adult, paner, 13yrs, grind, physician, worst, patch, tombston, begin, underli, lil, fake, 1000s, whilst, harri, taliban, inc, deni, fear, judgem, optic, sglovexxx, websit, refus, function, ly, stare, ceil, freak, event, upcom, matti, heali, wall, virgin, still, homophob, tryna, remov, brilliant, role, model, 43am, notjustcrim, compel, sadli, icon, fame, robinwilliam, patronis, pedantri, untiltheend, neighbor, regard, couesi, move, suici, prayforheidi, ego, civil, servant, chelseapo, olofofounit, captur, caught, background, coffe, downward, spiral, rifl, struggle2get, system, glad, went, learn, bowl, cream, undercook, frozen, pizza, superbul, yolo, everydai, 2b, priorit, whether, wellb, unstabl, swing, frequent, spoke, determin, voic, blacktwitt, spiritu, shout, dropout, juri, ei, imag, emphas, len, themsel, singersongwrit, agent, assault, surrend, immigr, tait, histor, du, stomach, bloodi, product, sixth, form, cold, per, bipolar, edit, psychiatric, neck, tail, bone, driver, jail, intercept, en, bee, unsuccessful, exhaust, trace, remind, journalist, repoingsuicid, 21st, 1st, benno, hashtag, hoopspleasedo, explos, outsid, conc, hall, insan, profit, psychiatrist, myth, behavior, sens, obv, pressur, overhaul, tackl, thought, sta, then

D.3.2 DS2: Misogyny

1. *T* set:

pierc, judgment, licens, ic, talent, ejecul, sperm, idubbz, dm, ss, imma, aight, dope, sterolin, edit, olli, bye, equailti, charli, wjahjaaj, darl, lick, moe, steak, rice, corn, cuf, shook, twerk, barricad, sweati, mo, threw, shi, sparkl, bootyhol, baekyeol, holler, coldest, took, brought, chloe, mediocr, involv, coverup, loyal, jenni, dragon, lucki, envi, unblend, shadow, unlin, lip, foundat, powder, weinstein, walletdrain, paypig, manag, moma, teas, cher, hypocrit, top, kayleigh, corbett, yah, resid, halavyaahhh, altogeth, trynna, indirect, gif, crush, belong, class, frat, malici, demi, flop, ariana, rid, squaw, lyric, tf, dare, ma, blackfac, appl, amber, pedo, motherfuckin, mothbal, seungkwan, visual, fuk, da, backseat, letter, antichrist, warlock, oil, paicip, 21st, drag, major, snoer, quaer, fucktard, groupi, boob, upsid, citi, studi, sky, mario, smd, cell, moview, hairi, drill, stiff, descend, upon, shoi, utter, shite, pure, fuckkk, explan, yea, space, driver, ral, invent, yeast, irrit, loop, lax, lazi, flexin, champagn, rm, airpo, string, attach, decen, bdai, lunch, sayin, toi, tracker, postin, bath, droppin, lookin, smurf, sloppi, bib, flight, slippin, peiod, womenareevil, evilwomen, mermaid, stink, womencantmakeburrito, sheforgotthehuacamol, badburri, chemo, unleash, glove, total, retard, twice, smaer, womenaredumb, constituiion, shutthehellupwomen, subwai, ihatefemal, strip, workplac, ilovefood, homecookedm, rode, belt, cott, 3rd, flopper, jug, suppos, fucki, supris, haloween, karen, bottom, incred, determin, sole, shoe, odin, perman, imprint, fist, plate, cookout, saint, rider, polio, instanc, perpetu, race, depend, minseok, dii, biddi, keyshia, ka, bird, gucci, shoulda, gotti, eah, awhil, blah, rania, deactiv, brainless, empow, scienc, mathemat, engin, medicin, jihaad, hijab, blond, babymomma, meetoo, underhand, dyke, nvm, omega, okada, slutbag, rubbign, juici, selfish, tori, pest, lower, snake, belli, vermin, marr, somlalia, twinkl, bum, findom, jayceejuic, granni, fame, jail, unfoun, wed, masochist, frost, limo, red, carpet, housewif, bringin, concubin, capac, embed, jizz, packag, strateg, bloodi, semen, tackl, lb, stain, ins, capabl, slutti, event, sharia, dig, tie, forward, stair, hitam, bogu, agenda, field, hockei, lesbian, didyouknow, larger, suffrag, temporarili, inact, lightbulb, machin, pencil, creat, translat, mini, ski, rock, alik, skip, flat, permiss, viewer, unabl, join, jk, menstruafact, restaur, weiner, privileg, behav, cooki, presenc, sweatin, snotti, brat, throat, sunglass, ador, rib, appropri, height, weight, zone, salti,

prei, upcom, brunett, roster, ginger, immor, slam, custom, finna, hospit, panni, becuz,
 orgi, pari, glitter, cyberbulli, freeli, mmm, request, band, ahshshsj, wave, recycl, re-
 rock, window, hug, lmaoo, limit, stretch, curiou, wank, immedi, enter, groan, aloud,
 multipl, crude, sock, donthecon, breath, ada, rubber, donni, happili, cracker, down-
 grad, googli, ey, prolli, nun, drove, naw, spite, encourag, funer, hypothet, cuddl, fr,
 thottiessssss, mnet, underag, stched, theyll, stepson, flavor, dildo, stalk, dump, exit,
 wassup, wing, nohwest, cuckold, episod, waaai, profession, lane, iv, seth, chuckl,
 rack, h20, thick, neighbour, tour, gum, youtub, okeyo, laptop, bonu, moon, rough,
 handjob, rebel, matriarchi, boner, dressin, trashy, princess, percentag, wise, passiv,
 betwn, stank, ravag, begin, desk, sendin, sundress, water, board, therapist, eyebrow,
 fallin, regardless, wasteheime2016, fetal, syndrome, umm, doggi, vers, tat, lover,
 fighter, saga, hmp, fanboi, fianc, nurs, assist, dumber, cent, eatin, raw, niec, con-
 ceiv, gahdam, jobless, jongin, sehun, forehead, deadass, tipto, wack, rebound, jesd,
 elimin, iron, clad, bop, wna, model, bottl, sheet, nose, nippl, weedthought, arm-
 sesh420, betta, stilllllll, loner, eyein, older, knowledg, log, nak, melalak, sorang,
 kelli, jr, anytim, gear, liar, cross, fwu, buis, plu, cu, violet, momma, nauseou, vomit,
 tag, bother, assur, symmetra, turret, getalif, stopspreadingli, twitch, stoop, wombl,
 alud, reciev, univers, peep, congrat, yare, despis, secretli, havin, niqqa, buh, hav,
 goin, dat, trap, showin, transgend, rawin, burnin, chicago, preserv, uhh, sweedish,
 explicitli, flex, bob, overwatch, english, assign, subtleti, cold, conniv, soa, reign, un-
 grat, bought, inde, agta, nicki, pussc, pamper, abandon, amateur, wealth, criteria,
 goofi, violent, hmmm, wylin, ship, fricken, bitchin, ju, wana, fvcking, proper, spazz,
 narcolept, trai, shuttl, condescend, barbz, butch, drown, geek, frontal, stylist, scam,
 mf, scrap, sunt, quot, ting, vacuou, greed, standoffish, confer, workin, shawti, homi,
 rl, ku, pageant, ogl, mexican, hoein, lmaaaaaoooo, britch, woop, length, fur, coat,
 pleasur, mixtap, knuckl, sixth, bummi, filthhyi, surviv, stepmom, blown, hopefulli,
 nxt, thismorn, hahahahahahaha, sexiest, twatch, classi, tranni, domthi, ref, lymph,
 node, swollen, spreadshit, fren, sour, fling, waffl, slipperi, slow, racism, giant, fash-
 ion, mess, catfish, sucker, tampon, strive, ambit, snowmen, snowwomen, hollow, sex-
 workersagainstfemin, laxi, matriarch, western, fuckfemin, beggin, testicl, psychotic,
 retail, button, grandfath, coz, fuckboi, squi, puttin, coconut, vag, blockin, curv, trip,
 slept, hip, prime, accur, devil, choker, electr, toothbrush, swim, blatantli, putrid,
 younger, tramp, stamp, twenti, threesom, refrain, steadi, bleed, willingli, initi, chalo,
 koi, bhaw, rahi, pyramid, scheme, color, fuckk, nearli, liner, cherri, picker, lame,
 woke, boot, surreal, rear, cautionari, damag, womankind, network, perform, conspir-
 aci, vibrat, fi, wae, mong, sh, tangl, reinforc, trope, apologist, commerci, myth, un,
 chuckwoolery, weaselli, mon, inter, frenzi, corollari, claw, torso, dramat, cringemuch,
 panick, deliveri, cl, wacko, poth, bundl, cradl, thelastpost, honk, workout, behaviour,
 amount, grope, bouje, grandpa, stood, requir, boundari, feminazi, effo, patriarchi,
 urg, subservi, skill, hire, hatesmen, micki, fuckyou, milleni, blogger, laundri, laun-
 dryqueen, ilovemymom, fuckwom, settin, fuckbitch, bitchesstink, havent, waist, nag,
 minuscul, unbalanc, schizo, unattend, waiv, pom, untal, guitar, chord, gamerg, cosbi,
 herself, card, duhh, spandex, sack, lucr, gig, gynocentr, dampen, tbf, sun, consis-
 ten, plenti, sloot, lovin, indecis, correctli, gasolin, singular, impoanc, olympic, beefi,
 dike, colleg, ditch, cake, retweetthison, offspr, imag, wiener, tug, intern, overli, relax,
 vagin, 4th, clock, friendship, ethanol, super, kidney, menstruat, subtweet, upset, hurri-
 can, snow, shovel, reach, meat, turmoil, shark, becuas, lawn, wipe, broadcast, home-
 com, flower, trampstamp, urself, bikini, seabiscuit, irk, happier, stud, chug, muscu-
 lar, compress, hazard, yoga, bull, comfi, royalti, glass, hipster, soo, creatur, dedic,
 bride, facebook, eleph, salon, therefor, intent, signific, floss, often, sink, dumpster,
 shove, kat, boat, eh, depoat, disgrac, misspel, flip, yard, xanax, brick, carri, bairn,
 elbow, tripl, chin, ont, fellow, woma, dogshit, link, foreign, funder, stage, twatdom,
 host, span, mirror, endddd, pleaseeee, gonnaaaaa, roll, wifei, domest, proffer, bait,
 fucc, dawgg, member, tweeter, rasa, putu, tunang, ke, hook, bitchi, shitshow, anger,

derogatori, edat, mate, onto, mansplain, prob, obv, warden, miser, th, lawsuit, hun, in-box, blablah, spooki, product, lisa, jisoo, bla, emergen, deprav, pile, maggot, chelsea, amost, 1st, potu, troubl, buck, irrelev, granddad, mik, vampir, porn, shoplift, witti, tank, illiter, wherev, peach, unexpect, forese, feeder, warn, sewage, spew, triff, vibe, bussin, sight, nightttttttttttttt, caller, makemeasandwich, rope, glorifi, systemic, legitimatli, zootopia, kike, convinc, bike, cormac, squeez, blackhead, hashtag, atypic, tailor, lightskin, sea, bonnet, pretenti, cream, disord, allei, leader, pmlive, highli, code, augment, floppi, sup, fuxk, ful, petsma, kik, mishalcoor, beer, greek, chaturb, dickhead, smilei, lolol, swallow, facetun, chest, lmaodjdh, fw, thou, gtfoh, goto, to-war, detach, distress, mode, interact, kriss, tract, stake, smug, braid, settl, treatment, surround, lick, diarrhea, spook, coon, faggoti, leo, kin, catcal, shypakiwif, makn, dak, homewreakn, jami, cheatn, deffo, biiiitch, doofu, shower, bopper, butttt, pseudo, analyst, bark, clear, subject, lowkei, mutual, shag, en, mi, burnt, promiscu, uncomf, pedest, neatli, madonna, categori, tenden, solv, cypher, feet, boil, lynch, heaven, passpo, ungreat, willfulli, somnabulist, punk, recov, sarah, exept, conveyor, mail, punt, bonni, sneaki, laurel, former, democrat, wanker, femalesss, mamona, puta, toda, ili, pineapplec, dogwhoreown, clueless, dri, hollywood, psychotrop, asteroid, actress, slober, nob, address, ra, sloth, inbr, dumbest, afterword, abt, displeas, smaest, kink, ummmm, avenu, seven, agnost, lauren, der, tumblr, spin, cod, reveng, dicthead, frank, ahahah, cho, emo, rin, shinji, incestu, decad, bargain, feen, constitu, blud, anali, incit, swarm, rampant, handsom, admonish, thatfatesbitch, echo, fate, outrag, poop, epitom, wicked, inhuman, e, spider, otherwis, permit, hardli, migrant, groom, weasel, sprout, fkn, dyno, pal, oot, wee, sly, convo, flyer, eunuch, knee, silenc, bewar, automat, skin, peppersprai, smth, soooo, ie, purpos, pissi, america, starlet, eesh, up4, difficult, knowwww, starbuck, cashier, johani, hoehin, fmu, wha, screenshot, een, harm, jet, foo, sessi, hahaha, regular, 9months, health, finsta, tequila, fridai, scroll, babe, napkin, whatchu, ion, trill, diiiiickkkk, iknow, ian, nastyyi, consequ, digger, ughhh, tweetin, ck, allat, interfer, suttin, dan, stab, cam, gtfo, peacock, bunni, kitti, mice, yu, dollar, record, labe, bobbi, shmrua, traphous, doubl, exact, nothin, trippin, eric, gentleman, abomin, parent, cash, leaf, whale, rick, alota, squash, winner, saddi, buss, yuh, troglodyt, cap, juic, mg, satan, horn, spiritu, persist, weaaak, swerv, basem, fabric, vibin, rainbow, wretch, joi, disappear, mile, dej, loaf, polish, pastur, slu, master, cuisn, crednhil, hooker, clare, sapphir, shithol, boipussi, mak, insta, fucken, cummi, carniv, relentless, perve, illuminati, abroad, sket, dnt, fe, gloriou, nuff, fox, ass, getter, stupidli, program, damsel, distress, up-piti, golddigg, notion, approach, chic, bea, rai, dork, higher, bracket, tenni, hadn, regist, forreal, blackbal, spectacularli, egocentr, pursuit, elev, compet, crown, rabid, penc, hood, spit, dickrid, faker, tool, monkei, hustler, grifter, facelift, admir, tiger, leak, topless, stabl, intim, soak, apam, loan, fraud, tax, shenanigan, tcot, enforc, entiti, multi, champion, stripper, humphrei, constant, immigr, pork, mute, prize, skunk, expos, philand, hero, holli, 2day, statist, discourag, prosecut, nois, puke, cow, balconi, xoxoxo, heat, btch, whaaat, barbi, damm, morh, amus, quaerback, swept, yeen, hag, bend, strech, ghost, counteract, nace, bien, jock, jeopardi, protestor, dolli, cn, beneath, acumen, mental, empti, publicli, crave, contest, trashass, til, outlaw, risk, appropo, descript, aggressor, merci, candidaci, mitch, gossip, obtus, derp, fund, ourself, janel, ran, tattl, ari, lister, internet, nugget, repress, afghanistan, gma, miniski, 70s, iran, destabil, vilifi, american, disrupt, adult, hyster, nb, ik, clutch, pearl, pour, slutwhor, zero, hysteria, wander, disconnect, uteru, chase, mirag, haath, angoor, similar, katelyn, spine, wo, bitterli, terrifi, 40yr, um, hahahaha, competit, thousand, petul, 2understand, refuge, childr, eminem, reviv, commi, task, realtalk, blather, plitud, persona, recipi, brah, gomez, addam, pum, goodnight, tl, confidenti, floodgat, qanon, gate, aspir, sparr, vy, harpi, arrest, whini, devour, prioriti, contempt, nomin, deplor, hind, crib, east, gargl, mouthwash, therapisti, alo, darlin, candid, album, hatin, cross-dress, femboi, mtf, futanari, engrav, trophi, convent, 20s, talm, complic, toddler, per,

wearethestorm, barii, baasto, infront, blahe, flack, parrot, courag, resist, congress,
 dipshit, fd, pollywog, groomsman, recept, bridesmaid, insist, rudest, cliff, recess,
 sustain, procliv, deliber, histrion, bread, cue, ceainli, heaectomi, hothead, runnin,
 thief, guild, mission, sword, slinger, parapet, stanc, wage, angela, hideou, thrill, af-
 ford, wireless, headphon, rotten, instantli, dishwash, cheatin, credibl, ugliest, fatter,
 5x, librari, backpack, wth, hubbi, dusti, musti, speed, safeti, surgeri, slope, arbitrari,
 backb, uniform, nearest, perimet, 380k, broken, repres, republican, samantha, wou,
 wood, incompet, void, stack, deck, civil, bribe, monopol, conspirat, brainwash, cult,
 decept, cretin, stem, blowback, greed, rent, scank, hystericalnow, mustard, sand, im-
 press, cowardic, coyot, niggaz, yal, abo, symptom, grasp, stupud, meltdown, bcse,
 trendi, ton, mami, elit, clair, reaction, tall, groundbreak, materi, gravel, pine, needl,
 unconsoci, weirdo, oracl, ancient, greec, mediev, freakout, plane, crypt, esm, supervi-
 sor, brief, helpless, exhaust, neglect, piti, taxi, ard, backand, garden, stiletto, omgggg,
 beeeennnn, foreverrrrrr, sitcom, sissi, bot, toasterno, poll, melt, opposit, handmaid, ca,
 nuur, conquer, infant, lookinthemirror, soooooo, fucktwaddl, embarrass, icebox, oc-
 cas, evolv, doit, beetch, bald, pornstair, bouta, yt, else2, real3, cunt4, boii, batshit,
 household, island, grift, administr, imprison, osteopath, prescrib, chamber, maid,
 aval, 1900s, skil, aunt, nohwestern, twear, present, fohright, answ, humili, bbcbreak-
 fast, remot, strut, thang, 50s, redefin, basi, bitch, she, fuck, shut, u, babi, ugly, suck,
 ur, ass, these, im, skinni, draft, her, hoe, yo, becaus, n, attent, whore, feminist, hard,
 push, let, dont, saw, big, kiss, scream, ain, dumb, befor, stupid, beat, everi, children,
 x, sign, k, energi, annoi, black, mad, fake, fight, hit, mouth, l, wtf, pai, fat, queen, lil,
 car, sing, somethin, loud, boo, aint, reason, monei, girlfriend, save, disgust, perfect,
 dure, cuz, deal, femal, both, vagina, tryin, wife, corner, bet, worri, check, each, pro-
 fil, silent, longer, freak, whose, full, equal, fucker, cum, wit, filthi, broke, c, differ,
 caught, bastard, amaz, tv, skank, hat, butt, moral, low, job, singl, shock, wash, whine,
 femin, ball, mom, loos, open, ring, outta, tip, ground, two, harder, unless, wish, jump,
 futur, horni, attract, nasti, b, nerv, blow, gone, anal, lie, three, dead, simpli, ladi, pant,
 innoc, proof, standard, educ, lone, room, douch, paid, sens, outsid, gross, liar, ba-
 sic, sell, fa, terribl, regard, pound, crawl, along, f, themselv, mama, maker, protest,
 isnt, award, wouldnt, summer, understood, balanc, nan, picki, inferior, middl, frac-
 tion, road, calm, airplan, benefit, planet, ho, snap, stori, market, origin, lit, decis,
 theme, tran, prison, mutha, pot, shine, ex, absolut, beyond, feed, sacr, conserv, man-
 ner, sugar, bruh, refus, player, minut, special, steal, seem, ow, practic, nor, justic,
 militari, cours, pocket, aswel, sudden, fan, acc, polic, shot, decent, defend, inter-
 rupt, count, imagin, concentr, embarrass, rub, muslim, myself, candi, ga, charact,
 match, buddi, yr, dodger, spoke, felt, moron, front, profit, homophob, thier, uncl, ap-
 pal, alleg, hormon, ky, bibl, snapchat, cocksuck, spot, yourself, town, humor, prais,
 wat, lowlif, grandmoth, gun, rob, sacrific, focu, eras, paper, 6th, economi, develop,
 box, panti, puss, faggot, share, stroke, virgin, screw, lmaooooo, pig, al, hop, demon,
 woh, bathroom, goal, moan, commun, infect, answer, filter, emoji, cave, touch, win,
 wohless, curs, shotgun, toxic, actin, beater, breed, symbol, access, pineappl, add,
 gym, headass, suckin, half, strike, dry, tellin, insan, fav, sodom, trade, oomf, lawyer,
 fulli, chew, rip, clit, properli, thinkin, reflex, struggl, wast, welcom, consensu, un-
 block, idk, diss, anon, naked, vile, relev, drunken, propos, wen, vapid, jealousy, beast,
 season, reso, cherish, stress, kidnap, makeup, express, desper, normal, radic, fix,
 sidewai, given, perfectli, viciou, booger, vocabulari, faster, smear, vid, west, cat, re-
 lat, statu, assum, bug, idgaf, promin, five, vulner, whistl, chat, responsibli, dawg,
 bullet, comin, bedroom, wide, pie, river, numer, odd, seller, site, ratio, corrupt, wer-
 ent, cheap, drama, research, border, recogn, wasnt, asid, bone, spoil, whack, camera,
 anywher, blowjob, hundr, displai, flame, extrem, tough, depress, scari, flap, dodg,
 pole, povei, brilliant, content, sheep, politician, elitist, barefoot, harri, around, girl,
 down, deep, liber, already, keep, bui, plai, crazi, ignor, evil, ly, mine, mother, tast,
 sexi, catch, throw, met, abl, obvious, drive, scare, might, past, gener, dumbass, con-

trol, nude, tit, grow, far, prefer, serv, move, wors, aggress, dark, posit, clearli, none, photo, trump, ima, becom, high, violat, etc, stone, physic, appear, lead, de, threaten, confirm, tire, mass, traitor, lust, medic, collect, screen, rapist, experienc, sir, thru, extra, groceri

2. $B(T, O)$ **set:**

it, s, to, rais, cancer, not, for, you, i, love, my, brother, and, but, a, ve, won, t, have, then, cock, interest, understand, if, want, go, that, rabbit, hole, thei, rape, how, long, ar, ride, shit, men, sexual, assault, of, ani, so, accept, in, societi, those, who, act, die, don, know, about, inn, bare, ap, bh, cricket, we, kick, your, off, the, live, rat, mean, kill, garbag, hope, rot, son, onli, thing, worship, do, park, lol, blame, victim, thi, make, just, or, look, had, great, show, everyon, re, cunt, on, up, more, kid, eat, better, meal, than, ll, ever, life, see, peopl, can, separ, from, real, world, ugh, sta, should, be, tri, murder, asshol, fear, right, where, harass, me, dai, gag, hot, entir, bag, serious, seen, him, an, ask, rare, fish, with, like, left, dude, such, inspir, all, fam, lemm, get, pimp, sai, line, account, come, suppo, enabl, sick, hate, matur, case, sad, teach, child, am, sure, hair, sound, take, care, bad, goodby, podcast, actor, man, women, accus, old, religion, valu, demand, chang, law, after, rule, sex, ag, smoke, r, y, cousin, doesn, gender, reveal, also, been, year, awesom, context, did, believ, joke, horrend, ear, last, person, d, too, month, will, stand, dismantl, hi, abus, free, thank, nah, everyth, their, continu, promot, project, here, damn, got, ta, ya, stole, someth, think, when, put, first, hold, caus, lmao, gui, rememb, someon, twitter, call, wasn, them, ok, by, need, fool, bro, out, wai, ha, walk, home, still, claim, outlier, doubt, human, watch, nigga, problem, help, becam, busi, alwai, good, veri, irrat, over, woman, whole, matter, drop, wan, na, stai, there, forev, vote, instagram, admit, m, against, boi, face, sweeti, oh, god, todai, everybodi, stop, cuff, style, at, read, other, mislead, coerc, forc, yourself, guess, what, pink, white, into, night, yell, exp, most, us, wa, said, disrespect, term, knew, w, speak, place, our, advoc, much, remind, wonder, he, anyth, retweet, back, tbh, hour, sue, uk, crack, run, enjoi, comment, write, block, mysogenist, feel, self, side, final, gave, investig, give, bodi, dub, forgot, attack, tryna, mind, text, messag, weekend, yummi, some, sauc, game, compar, million, everydai, which, repo, dog, wear, sho, drunk, doe, never, worker, angri, suspend, promis, monster, preach, bed, knock, mani, ad, asset, prop, mostli, mod, 16gb, enough, lifetim, enteain, allow, app, onc, suggest, lamer, laugh, els, fun, gon, idea, deliv, slag, gya, kya, instead, main, angel, plot, point, awai, sorri, mai, perceiv, impercept, same, tweet, okai, guid, marriag, engag, power, wait, food, listen, learn, bomb, bout, print, eventprof, silli, either, lose, object, insult, brain, hous, amp, hemlock, finish, school, anyon, whilst, decid, produc, pretend, choic, liter, aren, meet, while, ahead, husband, doesnt, everytim, smut, sit, kno, bore, wet, sleep, tell, could, fall, bar, piss, least, own, even, though, convict, weak, phone, ye, correct, protect, return, tree, friend, con, disagre, prevent, death, excit, stream, find, issu, lesigh, chip, 6h, common, organis, respond, shitti, price, cultur, end, within, distract, fact, quit, expect, were, follow, book, close, door, went, treat, toward, sake, gaw, post, stock, chop, yer, ranger, maw, hahahaha, canin, bih, canal, puppi, size, grown, insid, without, second, invit, spend, himself, uneduc, chicken, hawk, pa, swamp, heard, capit, charg, file, gold, fill, shame, again, twat, danc, li, sexualabus, war, mood, well, load, milkei, seed, boyfriend, poor, potenti, next, rest, true, assail, littl, hu, drink, respect, drug, integr, perpetr, polit, hea, ali, activist, exclusionari, van, chile, plant, jst, lyk, easi, choos, nd, battl, quran, arw, terrorist, everywher, burn, donkei, togeth, 3am, outag, cover, v, funni, net, social, media, made, through, 10cm, cut, lai, morn, foul, ridicul, calcul, foot, relationship, cry, sadli, late, haha, pokei, wrong, dummi, yellow, via, best, smell, booti, marri, rudig, bench, behead, wrath, utterli, bill, econom, submit, yet, pass, area, ars, af, shout, couldn, possibli, advent, calendar, throughout, fals, peopel, needi, daughter, spent, week, anxieti, bite, tinder, bio, poetic, state, local, em,

slap, huge, miss, concern, public, noth, tho, video, nigger, oooooohh, date, isn, some-
tim, peac, march, nobodi, sinc, experi, new, explain, kinda, beta, male, ppl, ago, luv,
lv, lot, sever, team, bang, between, athlet, greatli, dress, diff, born, presid, upman-
ship, idiot, usual, o, elect, near, delici, pleas, truth, crore, tape, target, clown, affair,
earlier, impoant, templ, folk, kunt, peel, banana, less, thirst, pathet, blew, reseat,
train, seat, bit, although, 13yr, amidst, employ, industri, actual, yoi, div, wankstain,
legit, set, insensit, shoot, pregnant, advic, graphic, loser, degre, strong, wayyyyi,
forget, suddenli, later, headmast, starv, pop, club, aliv, wealthi, design, page, sur-
pris, pump, hei, obviou, switch, po, opinion, asham, destroi, xx, freakin, fli, jame,
radio, alot, break, grim, counter, proud, hurri, across, prego, hahahahaha, creepi,
comedi, whatev, quick, bigger, favorit, suppoer, excel, maledomin, brochur, solid,
worst, came, ongo, yesallmen, obj, leg, meninist, almost, fine, spo, titl, crap, built,
teen, cancel, armi, menrdec, bb16, mensright, misandryisr, typic, sexist, must, role,
comrad, group, enemi, fair, leav, trust, goddamn, safe, outfit, sext, plan, movi, theater,
cop, moo, kind, doctor, mumbl, domin, anti, thought, goe, vacat, daddi, homeless,
choke, figur, father, convers, wi, bff, shake, facial, fit, condom, pack, fallen, waitress,
offer, smile, alcohol, shave, titti, weird, song, complet, shithead, flush, shameless,
truli, apa, talkin, unfollow, level, cute, anywai, compani, sent, textp, sandwich, boss,
slide, tabl, thrive, whether, swap, blunt, rap, chill, flag, livin, edg, light, govern, num-
ber, cool, petti, ctfu, bust, cuffin, known, order, h, fucka, neighborhood, chick, bless,
coke, pictur, applic, looooooooooooooooool, sweethea, test, deeper, stronger, until, famou,
random, weren, stuck, slip, seriou, grai, stick, 5am, confus, childish, wine, argum,
earn, arrog, complim, prove, attitud, drier, dese, honest, aboion, greater, masturb,
defens, protein, dumbfuck, orgasm, fault, hangov, laid, herp, leagu, option, situat,
alon, doin, loss, gain, sma, brutal, rotat, revolv, store, warm, bruise, kept, sorrrri,
innuendo, ruin, viva, inner, stuf, signatur, lock, cri, di, headlin, itself, spank, yeah,
crash, psychic, surgeon, sum, desir, kei, spirit, crackhead, bj, roast, beef, copi, list,
babygirl, sip, indec, exposur, magnific, trend, cloth, sensit, fleekin, slid, lemonad,
reconfigur, psycho, necessari, stroll, sail, natur, favor, spout, deni, solut, purpose-
fulli, indign, microwav, troll, wild, twist, scum, hnr, serial, fuccin, brawl, promptli,
influenc, loool, quiet, land, tp, ummm, incorpor, q, ancestor, payment, coward, bunt,
dunt, eunt, funt, gunt, iunt, junt, lunt, munt, nunt, ou, mum, bitter, theori, grade, seek,
type, definit, homo, cishet, clean, tale, roulett, exactli, lack, offend, mayb, creep,
beca, topic, lik, vic, yooh, auspol, judg, sa, adject, feminin, macho, effect, misog-
ynist, equat, lightn, bf, repli, pain, behoov, narciss, uh, tone, harsh, phrase, stfu,
btw, braggin, narr, predat, distinct, contradict, crafti, variat, king, label, chaqu, fetch,
clip, thirsti, nastiest, costum, cost, horribl, roc, brei, regga, judgem, alright, cant,
np, premium, meant, honei, taqiyya, underestim, punish, hysteric, exagger, crisi, lan-
guag, suspect, conf, ah, root, loon, rodeo, valid, legal, denial, bent, aw, recent, rage,
blind, church, capitul, perhap, mock, stigmat, disregard, diagnost, unbeliev, frankli,
doll, hilari, se, immatur, smh, mention, withhold, cougar, rang, pussiest, handl, chub,
drinkin, disguis, sampl, lurk, reclaim, buffoon, arm, crutch, johnfkelli, golden, callk,
hatr, greeneyjon, gape, guarante, phase, exampl, rn, unheard, mommi, coin, intens,
meeeeeee, evid, swear, irl, identifi, cork, insecur, weav, prophet, argu, wahhhh, guilti,
bash, jerk, degrad, cook, 16th, yat, mcm, problemat, nail, instablock, quickli, forgiv,
unwant, advanc, fugli, fuckhead, meth, pen, tube, foil, lad, halloween, omg, feminis-
miscanc, biggest, reprehens, ind, rude, kennedi, treason, base, bulli, wolf, pregnanc,
boutta, declin, smeon, gf, easili, si, snitch, juggl, orang, scumpig, brainwa, 2grow,
throb, knot, wow, sean, split, meanwhil, divid, ol, pr, lineup, pro, injuri, contradictori,
imo, tooth, hoodi, pizzag, owl, slither, intellectu, horsei, releas, wannab, pin, averag,
grandma, non, streamer, anybodi, shrill, sentenc, gamut, shouldn, beach, warrant,
asylum, crimin, critic, footbal, duck, cack, bafaf, wang, flout, hbox, dadd, peg, trim,
neck, motherfuck, tight, despici, trick, beg, castig, sat, kitchen, runner, diet, grave,
theyr, abov, growth, backlash, draw, cori, foam, obli, fantas, fig, norm, assumpt, bak-

eri, yall, clout, everrrr, soul, perp, donor, warp, fathom, meantim, griev, alt, shouldnt, recreat, infanticid, adjust, whisper, withdraw, sm, jyp, yg, magnitud, redneck, maga, maial, putang, ina, lentek, lang, naririnig, ko, dute, smack, establish, fuher, illeg, emphat, enorm, lectur, colleagu, plantat, statutori, 2t2, preclos, whatsoever, teeth, smash, stfukthxbai, sarcasm, sold, slave, 25th, villag, corps, arrang, afraid, cooker, corrien, injust, harras, recognis, emploi, journal, previou, version, embrac, passag, blurri, kitten, rocki, typo, shoer, jojo, siwa, ultim, comfo, nank, jap, odwyer, supposedli, wisdom, acknowledg, charm, youll, impun, manipul, angl, toe, teammat, playlist, background, divers, quota, imposs, remix, bold, snowflak, jesu, meaningless, mindless, drone, core, sui, addit, puffin, chaeyoung, growl, ohohohoh, sin, career, trigger, gameag, platoon, foreskin, ligma, pelt, programm, salad, conscienc, harrass, neonazi, mark, sang, venu, theindiggn, harv, 250kdonation, foundation990, 450million, coupl, rose, chef, teenag, jew, greatest, smelli, youporn, sdm, pickup, lindsei, mypickupgirl, upski, streetpickupstub, brutalpickup, trail, deciev, fornic, adulteri, due, 44m, truest, reward, regularli, dammit, gimp, lem

3. *O set:*

forbid, speci, friendli, evolut, platform, fantast, denigr, jailhous, funn, perjury, 1950s, shown, molest, refriger, organ, fruit, veget, individu, fearless, dom, form, unmotiv, script, era, plain, note, commonli, dive, rantin, patienc, viue, motto, luuuuhh, joint, crew, donat, lac, mix, pool, toilet, journalist, prai, view, thought, solostan, appar, bestfriend, tha, prosecutor, 11yr, paicular, undermin, apologis, biologi, easier, offici, mall, overreact, four, brew, frustrat, char, previous, skale, gutter, ticket, 11am, weed, receiv, beyon, movem, butterfly, complicit, replac, sourc, nine, seeker, dentist, laughter, brand, ambassador, jai, hill, stat, paner, swat, center, trauma, asleep, cumslut, fuckm, naughti, cumtribut, jailbait, submiss, direct, tim, lemon, mask, egirl, cumhold, elli, clingi, touchi, feeli, bubbl, stare, blood, possibl, mp, hasnt, primari, eastward, muslin, coffe, inappropri, complex, pedal, illus, somehow, embodi, honor, monthli, action, padr, bitcoin, stranger, funniest, patriarch, woodi, hiiiiiii, keyboard, rly, ci, petteist, becau, egg, aicl, bagel, tasti, goodli, moogli, kooki, hors, scammer, spa, sub, sigh, beaten, bratti, su, fuckeri, pe, spill, voic, compel, notallwomen, saveri, constituen, cuss, photoshop, graphicdesign, rhyme, adveis, copyright, wax, mutil, belief, insur, violenc, unawar, billion, liabl, foh, belat, condol, rise, backward, saibaba, lord, krishna, plz, suicid, allin, scandal, parcel, gotten, fast, staer, pressuris, cabin, indoor, sabotag, crook, propei, senseless, rant, maasai, wako, aid, lavish, lifestyl, bedbug, pointless, lure, film, derail, traumat, ten, missionari, fetu, youngest, pizza, louis, ab, six, impuni, shop, invad, satisfi, taylor, build, memori, stolen, grad, ident, ti, floor, allerg, latex, process, psychopath, taken, bunker, alfa, chopper, hick, ironi, tastebud, knight, closet, phat, slappin, greeneri, poppin, nahh, myasu, jack, paicul, factor, verifi, casa, clarifi, misun, superb, esp, divorc, brave, y7fdhch, inshallah, confid, espec, wk, regret, beco, reciproc, chi, hater, stalker, skrew, womentakeovewitt, ceain, clue, nibbl, gobbl, accu, histori, faint, sacrific, tent, modest, unattract, reduc, audac, flow, widow, grate, girli, discredit, owner, rold, immodestli, fau, wrote, porno, shift, disembodi, raven, m8, pee, rankl, holi, current, constitut, mere, bolt, mire, debat, testifi, privaci, cardio, slimi, grid, fo, wah, android, character, discuss, purg, disqualifi, citizenship, chain, migrat, spell, nomeansno, empath, charat, condon, junior, weapon, ohy, stanot, roaster, arent, knetz, gn, assad, retir, tumor, libtard, cra, freshm, thankfulli, lmfaa, fasho, alredai, thu, kamela, highlight, shrewcultur, subv, hump, stillllll, hyuna, edawn, pentagon, farmer, baender, expans, habit, launch, crybabi, tirad, rival, stealin, massiv, stephapprov, fuker, leat, complaint, menopaus, hotflashtump, stir, socialist, union, duh, gc, acquit, feeble, onlin, dislik, spelt, deficien, healthcar, mandir, silver, shape, insight, uncov, justifi, daft, recollect, unfail, paranoid, voicemail, third, pigeon, cmon, secret, signal, j, forcefulli, broom, impo, rate, grimi, supremacist, oblig, apologi, thow, caution, besti,

goddammit, claimin, ejacul, ham, chees, depo, vicari, equalright, rockin, monki, anchovi, eater, slaughter, goat, renam, bulk, cpu, ssd, contact, psa, binari, frame, prude, analogi, cliqu, polici, kai, societ, predominantli, strongli, theyv, taught, boycott, woe, scorn, hardest, 2gether, awak, blackout, implic, pale, swine, flu, bin, breakingnew, tech, digit, paradis, thug, arena, prior, reject, richardspenceruf, usnavi, timemagazin, bieber, cpc, butthead, unlov, moth, egotist, monger, passion, firm, connect, towa, prejudic, hall, combin, priest, barber, serrat, knife, tgt, rapper, nelli, analysi, sincer, includ, pill, whoop, delusio, cramp, extens, plaintiv, wistfulli, pre, empt, shini, ipad, stingrai, democraci, concept, unfamiliar, strang, gettin, jar, some1, penetr, businessman, extern, liquor, toughest, heappen, abit, bass, hunter, adul, arang, 30yo, oppress, shrimp, toad, luck, fuckwit, coach, ensur, youv, reclus, noooo, chillin, paradigm, paicularli, paycheck, squad, inquiri, logic, openli, distraught, chair, snack, women-vot, fwhim, nowher, resembl, comatos, cure, iloveparanormalrom, jobsrepo, notori, er, timelin, staff, rig, ejemplo, reput, rapi, heafelt, cupcak, respek, belittl, pride, induc, sandwichmak, applianc, bi, fail, irresist, cognit, disson, cha, modestli, mysoginist, alter, islam, acid, behavior, colour, y0ur, crime, credit, posssbl, gawd, fightin, remain, threat, lib, knell, kingdom, comfoabl, inch, offic, civili, cok, tidi, green, inuendo, homosexu, imaginari, slit, muff, gash, rmpire, impal, everybodyd, shah, soulmat, nonetheless, coalit, slightest, heav, huf, puf, volum, inabl, dichotomi, learnt, foll, genuin, whatabout, keynot, plagu, waiter, dess, temp, idc, godless, heathen, neuter, hung, squ, tear, audienc, pix, novel, patriot, troop, yadayada, activ, duti, reatrd, hint, rightw, russian, announc, ofc, acct, gift, bound, dialogu, eboni, midget, tini, sympathi, system, daydream, dox, handcuff, applaud, cough, spice, defec, miseri, suppress, religi, intoler, minor, tea, occupi, redund, eyerol, pornifi, fantasi, pple, provo, distast, relief, cked, flabbi, skinsuit, slangin, impact, couldnt, yank, chanccla, goddess, allll, mut, mustn, fuss, historian, badli, recognit, chast, slang, associ, twiddl, 400k, nomine, transparen, docum, gotchu, jean, wond, cowork, sketchi, 2k, belov, underneath, held, captiv, thrown, humbl, gaya, milega, development, disabl, cou, nicest, innov, demean, cigaret, suke, seri, chapter, walahi, mna, lsa, basm3ha, m3rfsh, wala, sudfa, uninform, poorli, pillow, nicer, memo, sec, embassi, underwai, campu, snivel, sore, attir, nightmar, holidai, abbrevi, gimm, hack, repoedli, hotel, golf, berat, quiz, incessantli, knowin, specif, shahjahan, grip, systemat, section, cautiou, depth, corn-gat, subtl, eaten, delight, seper, beanbag, panel, skaterboi, lmaooooooo, selfi, mobo, slot, featur, hungov, versatil, kpop, any1, pussyishi, brim, fishi, ing, awkward, glamouris, verdict, lala, press, classic, wink, attempt, atheist, whorehous, engross, ego, ena, furiou, cage, righteous, sprai, petrol, cumbutt, gaymanfetish, nohoslut, bigot, misandri, harress, heabreak, dysphoria, compat, strung, render, accid, infidel, perspective, assault, below, demonstr, grandstand, drama, mamma, avail, stun, grammar, fanc, daytim, sooner, pair, ban, idi, fridg, magnet, sale, metal, serioi, astound, predict, jinx, 8th, discours, uplift, holder, templat, 5th, contin, emul, versu, mighti, warrior, carefre, unprotect, rubiu, collus, font, crowbar, endear, bromanc, squier, guidelin, reactiv, dosent, mulla, nate, pogo, ponder, culpabl, docil, rea, driven, fascin, servo, hm, mysteri, stomach, morrissei, braver, revolut, hing, senior, blank, falsiti, 4raping, 4showing, wom, mete, racial, popul, underli, defam, strap, shoota, destruct, walker, raggi, chose, miaow, bae, generos, altern, fungu, fragil, stan, bow, bred, relaxther, humbleclearli, taco, eomma, hee, heel, allegedli, fever, iknowwhatkindofniggasaregonnafindthistweet, butter, icecream, sexualharass, nazi, fascist, backup, resign, accident, brush, technologi, cinema, star, inform, fiction, stung, ensu, jackandjack-doingitright, douchebag, dyson, steep, rapistsinuniform, arnt, turkei, bacon, hog, romanc, inordin, rye, apolog, yearss, rightnow, curbsarenotmyfriend, keeper, infuri, scissor, bouncer, cocktail, modern, increas, healthi, flatter, interview, cupboard, evad, presum, premis, residu, masculin, borrow, brigad, haras, firstoftheyear, firstofmani, mickeyhaslowt, shy, protector, greet, autocorrect, anklet, denounc, porcupin, crab, student, renov, jurgenaut, som, vet, factori, raevin, frog, brag, kindli, unplug, min-

imum, devic, isol, resolut, panda, luxurycar, luxuri, supercar, butcher, seemingli, harmless, sumn, fella, paint, vocifer, pillag, haircut, bloke, dwarf, ree, ev, slate, holla, ty, charizard, marshadow, manufactur, slob, horrifi, abysmal, jogger, derbi, detail, dcfcfan, perv, renew, vow, waitin, mr, instil, russia, slick, password, satisfact, pointedli, fatten, dou, govt, mob, conven, conferenc, grill, contour, alien, yogi, captur, comprehend, lessoni, takin, xp, clench, jaw, grind, pleasant, spidei, merienda, siopao, elyu, fascism, x4, oreo, z2, updat, assassin, lee, everret, survivor, suffer, awar, tonight, ram, blog, savag, meme, appoint, scumbag, moment, delet, notallmen, refer, behind, neg, describ, appli, music, commit, dinner, dismiss, haven, nap, bunch, stove, prostitut, magic, pretti, dick, word, now, gon, dem, work, aist, racist, hear, would, fuckin, slut, told, deserv, except, pussi, turn, hell, blue, suit, remov, stereotyp, celebr, degener, grab, why, agre, pic, name, finger, dad, wouldn, countri, send, mistak, cheat, bullshit, unlik, huh, happi, complain, peni, trash, glad, wallet, emot, period, punch, under, lost, wall, entitl, street, young, done, statem, didn, straight, addict, servic, honestli, wrap, ill, success, whoever, dream, bring, wont, exist, karma, offens, wive, wan, sweet, cup, thot, yesterdai, air, hasn, bitc, rather, intellig, tongu, earli, avoid, speech, anoth, small, scene, advantag, fag, repeat, bean, g, anymor, gangster, step, poison, ay, sister, mistress, sweat, pull, aka, camp, saniti, ankl, privat, repossess, repair, crowd, blackest, ordinari, almighti, construct, amend, bachelorett, react, jeremykyl, antarctica, impeach, obstruct, brunch, coflict, couch, constantli, fifth, ycot, pjnet, essai, legend, leftist, winter, peer, neutral, tribe, generalis, gifset, pali, beastli, system2nd, motherless, blast, verg, mindset, sooki, unwil, liver, mustach, pose, republ, dictatorship, censor, pitcher, intention, bat, basebal, absurd, conclus, default, highest, frequen, faith, anniversari, ea, fook, breakfast, visit, pupil, jo, cube, overcom, righteou, sew, lowest, info, beefin, blacklist, approv, tlot, wail, flew, flowi, com, carb, toast, checkin, janitor, materialist, narcissist, leisur, geniu, legitim, whitest, mentor, peri, financ, soap, prettiest, wingman, bun, fend, kenyan, variet, yoke, qualifi, conduct, simpl, shall, tina, amen, fck, everwher, lo, verbal, cruelty, wm, lid, centr, fly, handicap, execut, digest, breakup, transit, path, pram, traffic, badass, expel, graduat, grabber, stuff, tsunami, funnyshit, fandom, chauvinist, enrag, booth, breez, shield, decor, thunder, limmi, search, comic, refund, comicbook, satir, author, reserv, admiss, gangbang, horribli, philosoph, absente, grand, anatom, bulki, tower, besid, monologu, bud, adam, timid, peo, dy, flea, websit, insinu, repai, betray, ht, psychologist, gaslight, weekdai, tow, thin, shoulder, milag, grief, anyt, condemn, unfunni, spinster, dismi, delusion, hotdog, repeatedli, combo, goodgirl-withbadthought, yuo, fckin, tide, mountain, killer, outdo, rahim, campaign, acca, id, 2k19, tm, thanet, occur, faher, proclaim, pinki, abid, jim, hopper, selfless, buri, cremat, highwai, ch, impuls, grei, gentlement, eheh, swing, accordingli, pursu, circl, inse, written, wh, oppos, dean, namjoon, accent, drivin, briefli, curfew, danger, gut, juri, tribut, hve, bigx, digniti, dickkkkkkk, hr, 2cthey, use2gain, bid, filth, hypnotiz, synthesiz, incl, jok, unicorn, broad, daylight, achiev, euro, schlong, sooth, rome, asher, upstair, signag, crongreg, tend, egomaniac, twit, watermark, 16k, upgrad, revers, 1k, punchlin, curl, mhm, persu, quietli, duduk, diam, nigha, whacko, repent, ri, romancein2016, appeal, corpor, heritag, pinch, bridg, fold, unapologet, len, chant, thestressninja, lifecoach, baffl, pi, spastic, channel, encount, hesit, disingenu, sexualis, comedian, gorgeou, silo, tunnel, structur, sudd, strict, gasp, emotion, roach, semant, straw, cringei, progress, goooooo, repostapp, cycle, grabag, disappoint, alr, hv, prolaps, trailer, bama, aveng, twank, twink, stalkin, raggedi, stinki, marco, hannah, montana, thinf, huntermour, la, oppressor, motherhood, unequ, dickhol, useless, categor, shitload, objectifi, creeper, riverbank, trial, equivalen, lacross, tune, tap, rag, megaphon, homeboi, sc, flaw, hoop, hentai, assault, blam, cdg, powerhous, gosh, nk, wifi, began, chronolog, gin, purs, blatant, session, thx, affirm, misogynistsdraw-likeshit, mutt, demur, shrew, sultana, kickupafuss, refut, centuri, unfair, slur, headbutt, shoutout, whenev, consent, sneak, metoo, misogyni, anim, tomorrow, daili, par-

odi, equival, piec, respons, talk, chanc, time, got, no, hand, rich, till, bank, gai, hide, bihdai, famili, hungri, probabl, co, histor, try, whom, head, obsess, beauti, appreci, consid, bc, p, few, hobbi, lesson, wake, question, pick, didnt, gang, bu, hang, found, notic, happen, witch, hunt, sexism, wore, round, soon, somebody, tattoo, thread, excus, readi, fire, popular, spread, pl, nice, soldier, email, dear, nut

D.3.3 DS3: Hate Speech

1. *T* set:

gaywad, alsarabsss, blacklist, hero, glitter, lassen, cc, youll, blondeproblem, evaaaa, shitmybosssai, knife, some1, smmfh, mongerl, slum, sour, spic, kkk, ral, hut, jig-gaboo, marriag, trout, ayo, handicap, hater, azflood, farmer, smash, genet, engin, clone, rome, pineappl, sprinkler, naacp, divers, scientif, indic, uniqu, indiviu, fire-fight, milesthompson, goauch, banner, pose, agg, 1st, goon, recruit, buku, warehous, gaywrit, highlight, illeg, breaking11, dammn, pothead, loaf, activ, backward, weirdo, famou, reward, pal, retweeettt, 1000x, manner, greet, fleek, vocabulari, dm, affect, pharrel, form, privileg, oliv, typ, bazinga, aaaaaaaaand, begin, wohless, ponk, hi-jack, presser, dealt, munch, homo, causung, mischief, among, bringin, properi, valu, 2have, minor, fed, snapchat, butthu, teammat, yap, poop, greedy, citizen, maria, hypebeast, sand, enteain, knockdown, ultim, robe, hall, legend, wld, intvw, itwa, uncl, hesgai, styl, fuckboi, chase, faaaaggggottttt, blond, mikei, shrek, goddam, suppo, lesbian, 100x, butthol, alik, placem, interest, scope, wu, tang, clan, enrag, lb, lethal, hatr, fuel, arsen, search, trend, bia, object, jumper, nw, becuz, dream, hurrican, soca, sundai, bball, youza, heyyyyyyyyyyi, religi, crybabi, calm, schedul, roid, rage, vaca, meh, gank, imo, vote, shill, idiot, dummi, niggerfood, niggerperson, shaft, lizard, slang, h8, monki, ship, coher, acknowledg, preciou, barnyard, fatherless, wallet, filth, randi, ovenjew, encrust, dictionari, wannab, niger, paial, fairli, dan, pair, madonna, blasphem, raghead, comeback, dnt, wax, sox, nearli, wuz, pitbul, islamo-fascist, cow, reto, idioci, nahh, whse, mgr, girlboi, spon, illiter, dispers, mouthi, wel-far, bend, flatter, nigeria, laff, terrorist, delusion, aklv, radar, geta, shabbat, prepar, witcho, balless, wont, blowin, swaagg, aunt, swept, kike, cocksuck, depo, savag, dryer, york, inspect, elem, gang, member, pecker, tourer, sidelin, whooooo, juss, dealer, youtub, channel, faze, trailer, fazeisgai, coulda, phase, calld, usen, rel, christian, slave, picka, nanni, liver, extend, medal, chosen, hypocrisi, commun, railroad, friggin, constitu, jap, jerkin, hentai, ofmin, due, infatu, fite, satan, wedlock, rate, success, sperm, rescu, skidmark, fucktard, okiecop, crimin, bandwagon, jerk, lolli, diseas, fair, wreck, premium, gtf, corner, rider, stuckup, zak, degener, escap, fergusonriot, ei, wad, vet, capit, owner, magic, hav, wayan, foxx, threat2, apost, kufar, cld, sword, islam, squeal, ud, lolz, cub, overrun, mongrel, perish, webb, fuggin, forehead, resid, codeword, zionist, antisemit, whilst, outlook, reverend, el, minstrel, mail, sewer, teach, jigaboo, homewreck, fist, nevermind, cigarett, bundl, hoodrat, compar, fashion, makeup, sassi, usernam, tusk, breed, prob, daili, turd, beetl, paicular, stereotyp, root, banwagon, toois, overus, hr, nappi, mostli, eachoth, wise, retar, oppress, shove, lifestyl, mcdonald, hustlin, reveng, sissi, magazin, chromeasom, kindergarden, nebraska, gayer, witch, bossi, nigggress, starvin, weren, inclin, lover, limp, isol, hamster, wheel, nippl, congratul, obes, ginger, aid, sir, cement, douchebag, bruise, plant, tn, moham, punish, spaz, amigo, ballsack, decent, lego, emo, goldbar, obvious, rout, eric, holder, american, genuin, 5eva, america, peyton, weve, slice, deed, wher, imperfect, standn, kevin, mideast, combin, indentur, servant, tomato, soup, hayse, yaselv, towel, barg, kickin, durag, worker, shook, atleast, secret, skater, gazel, humbl, nowher, panic, gotcha, trophi, popey, gger, fry, goodbye, hairstyl, caoon, si, dome, psychotic, noisi, bulldoz, exact, machin, funki, pundit, duck, molest, pro, homophob, darl, lotto, publicli, radic, batshit, scienc, procreat, breeder, fanc, sin, invit,

dumbi, yt, receiv, shrug, muthafucka, guard, push, michael, sidewai, dini, laugh-
abl, transformthursdai, vegasqueen, vegasshowgirl, ponytail, stubborn, schitt, cocaine,
buckciti, design, frm, gtta, racismsaliveandwellbro, conduct, horror, chainsaw, kai,
confront, thnk, ridin, fenc, wishywash, drinkin, whistl, forsak, templ, subhuman,
arkansa, build, infant, clearer, sonic, righttt, ninja, niga, shittin, likea, goos, chu,
prefer, sidekick, anon, protest, rack, michigan, backped, apolog, trigonometr, no-
tion, joi, champagn, arriv, migrat, libei, rd, meek, arrog, parenthet, explan, defens,
cultist, yer, contrarian, trifl, yolo, soooooo, bisexu, moon, mood, oblig, upon, declar,
tomyfacebro, honda, barbershop, leftist, unbeliev, oki, everycunt, naaaaa, smashin,
bitchin, scene, thii, west, spot, wing, replac, toosoon, crusad, hoomi, justic, boutta,
latina, motherfuckin, region, dime, clout, dice, liar, automat, manhood, mob, juri,
gga, lid, pipe, defenc, sheboon, tradit, sub, heterosexu, bot, limelight, beiber, nurs,
manag, ctfu, bunni, wacthh, nahhhhaahahahaha, sleepin, mauri, wig, psychiatri, im-
mor, pure, depam, gypsi, niggle, pi, therapi, sympathiz, establish, superior, frustrat,
abl, fave, urself, dramat, teenag, terror, fuckri, hindi, moslem, disappoint, stuff, ah-
hhahahaha, site, veget, peasant, unwash, roleplayinggam, mosquito, soulless, gutter,
absolv, suburb, crisco, alla, idfk, baiter, ticket, trashiest, insta, badg, h, perceiv, in-
justic, asphalt, chava, lane, gyro, infest, ching, chong, upper, ed, legal, tackl, cob,
suckin, leak, ou, tittyi, loooooool, rol, teabag, captain, phillip, carpet, oscar, reject,
beta, deem, group, known, democr, pt, 3yrs, nigha, restau, pigfuck, rambl, trashy,
tipsi, lawless, lust, gassin, muslim, bromanc, ant, galaxi, whomp, militari, honour,
whatsoev, unarm, crowd, suicid, ov, sharpi, furrybah, rancho, urban, imperson, ni,
legitim, devianc, tragedi, pedestrian, freshman, snipe, sniper, suffer, fkn, sneez, im-
mun, liesaboutvinsculli, each, notic, michel, obama, seek, azz, condon, darkskin,
aight, knowwww, deze, ceil, coo, kamikaz, uhhh, whitepow, wo, suspici, sore, ter-
ribl, printer, librari, racism, alien, letter, lmaoooo, chimpout, metlif, hesit, faggit, hd,
bearfac, yusa, wedg, fulli, mildli, inner, imaginari, yam, knowin, disciplin, scum-
bag, mugshot, straggot, golf, bloodi, honcho, spur, unselfish, flop, stalkin, suspend,
fuuck, jalen, dicklick, happili, fudg, driven, ideologi, forg, union, bankrupt, cater,
parasit, kenni, angri, ble, reptil, heal, tun, zipperhead, gettingr, lamar, whitest, four,
knooooooooow, biden, hitch, tick, hound, flinch, priceless, soldier, plantat, nuur, an-
thoni, davi, overbreed, swill, anchor, sexist, teabaggerswho, antic, knowledg, fix-
itjesu, smokin, log, downsiz, bail, couldv, nooooooooo, selfish, airlin, huff, thinner,
nativ, humplayproblem, lucricu, dagger, restaur, relev, cousintouch, slutti, clash, mid-
west, hunt, arrow, homosexu, infiltr, priesthood, histor, beverli, hill, mid, monogam,
anonym, transmitt, obviou, jerri, incom, 3mins, payin, bigga, imposs, smaer, recept,
endur, unit, gorilla, sycksyllabl, stoopid, enemi, reconnaiss, gahdamn, ivi, cross,
peckin, axin, august, aslina, ing, driver, chariti, midlan, solo, q, mudda, doughnut,
cha, alright, holler, counti, wifebeat, er, pl, salti, flesh, crawl, session, blown, fuck-
head, spoil, carv, blood, involv, ahah, sista, heeeei, vomit, tutor, sensit, waahh, harm,
medic, gezu, houston, nbomb, rando, hopper, inb4, unfunni, boyyyyyyi, subordin,
sue, goodnight, mariachi, fendi, clutch, harri, pierc, poot, wall, hjhdyhdhlgjdftilh,
crip, stinki, receptionist, lmaooooooooooooo, prevent, omfg, kraut, towelhead, diabet,
rush, queer, beaner, peopl, nigger, least, fag, faggot, kill, cracker, race, our, die,
whitei, racist, white, state, full, non, thug, wetback, without, dyke, coon, hipster,
hous, chink, block, yourself, ag, hire, children, gook, run, against, nate, cut, hill-
billi, dark, darki, between, bitch, doesnt, sucka, scale, wait, world, wcw, stand, felt,
someth, made, coffe, hip, corni, presid, himself, doctor, breh, oppoun, chose, beer,
ring, dam, six, quot, jockei, zero, stick, basketbal, woulda, soon, charact, thinkin,
realest, sicken, shame, melt, 100k, nose, sometim, stretch, intern, noooo, hei, broad,
retweet, shoulder, grill, grandma, toler, celebr, pullin, lbum, foto, bi, walkin, hatin,
newest, garden, shop, music, true, fame, grand, themself, screenshot, ew, bra, ha-
hahaha, legit, pre, corpor, herself, tan, snoop, herb, safe, compani, tough, guarante,
devil, luv, convinc, studi, f, offici, gross, knob, gobbl, wage, reg, hairi, except, thin,

email, makin, harass, hasn, ahh, ladykimora, hustl, ofai, shock, continu, stud, stink, refus, along, surgeri, nem, picki, pickl, soo, split, religion, advic, neighbor, goddamn, jesu, horrif, lmfaoo, govern, homeless, commit, honor, area, camel, cotton, picker, crime, injuri, abus, cultur, butch, propaganda, rant, stabl, zoe, grindr, sale, smh, gai, yall, those, ur, broke, nasti, whore, bullshit, piss, human, muzzi, seriou, wors, proud, store, mai, clearli, born, knew, pussi, bring, first, jack, high, mind, walk, fact, line, sweet, welcom, rule, insecur, wop, whine, door, home, elit, refer, natur, slai, bright, tongu, usual, roast, typic, thousand, base, thumb, accid, repeat, prude, eh, strike, tat, daughter, decid, dish, neighborhood, longer, paint, address, neg, stole, judg, write, ht, bigger, social, mommi, rai, buddi, sugar, street, goe, liter, fake, huh, order, consid, wish, her, win, big, purpos, next, jean, drug, differ, prolli, peni, onc, spit, speech, bike, infect, often, paper, immatur, confer, possibli, custom, repli, round, thirsti, happi, befor, eat, childish, nothin, strong, roll, ride, prove, clear, smfh, ol, two, shut, funni, anyth, els, forget, turn, swear, wan, everydai, awai, soda, kick, aren, add, un-less, book, joe, enough, expect, open, lmaoo, insult, scream, protect, team, shape, tv, babi, hear, tri, shot, already, sure, blow, been, less, simpl, own, fat, cute, haha, sta, nice, everi, spell, ask, red, either, ta, long, hell, hand, count, care, help, nd, parent, ya, yeah, em, probabl, bar, cover, beat, text, brother, ye, break, anoth, men, send, lil, miss, leav, pic

2. $B(T, O)$ set:

a, woman, you, t, about, clean, up, your, amp, man, should, alwai, take, the, trash, out, boi, cold, bad, for, cuffin, hoe, in, place, ever, fuck, and, she, to, cry, be, confus, shit, look, like, tranni, me, might, or, it, than, who, just, so, faith, down, but, still, with, i, can, not, sit, on, got, too, much, go, caus, m, tire, of, come, u, girl, get, back, that, fight, lol, into, thi, smoke, ar, loser, yea, onli, thing, off, nigga, plz, whatev, do, love, b, black, bottl, cant, tell, noth, cancel, these, chang, no, dont, even, suck, dick, video, bout, tip, my, what, hit, gave, pill, need, spend, monei, how, want, busi, old, new, d, sai, im, would, if, aint, re, ain, bitter, there, meet, son, now, he, ass, lame, over, tear, said, we, cat, doghous, most, hate, favorit, make, real, bodi, south, pimp, voic, post, pictur, power, quick, piec, drive, by, here, some, worst, thei, gui, talk, trust, all, never, have, bullet, thank, young, twitter, couldn, act, ima, steal, hi, n, s, gone, took, movi, wan, na, wouldn, didn, deal, teacher, think, date, doe, hot, other, side, where, know, friend, at, mayb, better, niggah, could, pleas, us, sentenc, emoji, lmao, seh, then, cuain, ahmesehwet, becaus, life, monkei, bathtim, damn, wa, wai, gt, chanc, ghetto, hood, grow, had, funnnnnnn, tattoo, buttcheek, rather, work, tweet, after, k, wasn, kidnap, yo, bihdai, nig, when, ugly, bald, head, stop, weav, loot, more, year, retard, doesn, show, tinder, anymor, chill, propl, g, coupl, page, jail, don, trick, again, shake, an, excus, bc, wayyyyi, lick, 12th, fan, happen, vixen, ran, foothil, okai, pat, wow, p, which, season, stupid, dead, night, sound, dai, fairi, tale, aw, from, plai, soccer, cheat, wear, same, o, finna, ta, cousin, move, ainna, wit, treat, nah, bandit, bag, mom, right, came, ey, watch, shoulda, nobodi, hacki, sack, throw, pass, outta, bunch, dumb, mad, fuckin, isn, wife, cuz, why, forc, singl, drunk, blunt, dude, pai, set, oomf, ha, lot, save, leg, bet, dress, basic, gtfo, scare, choke, dure, women, bed, well, iguess, bro, theyll, ho, fix, final, rewind, tf, vine, naw, up-com, dii, foot, yellow, amaz, time, actin, stai, aliv, special, wonder, keep, soft, mani, blame, drop, month, wat, daddi, issu, find, holograph, respect, wtf, good, ma, snake, everywher, will, week, bum, field, best, past, while, w, fam, feel, hick, actual, di, af, shi, everybodi, grandkid, beauti, r, purpl, playin, sum, seen, mine, let, meant, mix, asian, everyth, sleep, weird, mention, weak, anim, pop, doubl, vision, hide, both, retweetin, naked, toni, laugh, follow, annoi, worri, share, ionn, problem, oh, coach, quit, also, idk, suur, crazi, gon, fine, drink, c, through, front, test, anywai, tast, live, traphousseeee, sad, death, stark, fighter, togeth, mewhi, exactli, bye, dope, ay, bot-tom, advantag, everyjuan, till, fridai, cinco, fucc, niggaye, rich, homi, nicca, last,

punch, face, stank, left, butt, boss, hold, lock, colleg, stori, ratchet, were, name, idea, phone, marri, haven, sophomor, posit, god, chain, roller, thot, across, bu, put, gimp, wack, millon, dollar, violet, blue, sill, fly, entir, media, stfu, kiki, angeliqu, patron, airpo, weed, public, cop, watermelon, rapper, loud, tomorrow, pretend, um, give, ah, heaven, baldhead, spook, neck, sorri, press, dese, shoot, color, blinder, smack, sister, perfect, pretti, easili, behind, nip, sourc, rn, someone, hu, thang, mx, gear, fucker, saw, ajumma, listen, shiiii, free, whole, chees, water, huggi, newli, job, becom, accessori, albino, taco, lunch, polit, word, cunt, co, ve, few, ap, imperialist, believ, meeee, song, cripl, box, bear, wigger, stab, hea, account, omg, great, draft, folk, war, shoe, negro, dog, tamar, found, shitallysai, queen, halibut, ladi, heard, hope, sell, suppos, myself, went, dike, phrase, woke, hard, slit, throat, honkei, yell, robot, middl, wast, main, chocol, appl, sick, yet, pick, shoi, room, around, straight, dad, accept, blind, late, tag, hunter, creat, correct, e, until, kirk, 5am, admit, sinc, yr, meanwhil, kendrick, whip, club, comment, necessari, redneck, smile, aka, summer, organ, footbal, yuppi, finger, borderlin, student, callin, pickin, band, road, j, lookin, low, regular, squad, evil, burn, question, hahahahaha, cevich, cooki, smell, end, respons, light, toco, morn, todai, scro, tard, total, redskin, concuss, joke, slut, cash, star, freak, erri, judgem, majjinn, headbutt, raver, venn, diagram, veri, intersect, cu, id, tyson, uppercut, apa, bibl, leviticu, wag, tryna, crib, skin, assum, boomin, disput, later, ilysm, mini, twat, rain, campu, fun, wet, embarrass, caucu, fish, coverag, onlin, under, sodomi, agre, uphold, detest, truth, heavenli, feed, valuabl, bean, uou, lose, self, crest, child, fire, scari, sens, thought, teapai, teabagg, eah, attent, mo, traphouseeeeeee, callou, buf-falo, mess, cider, vegan, slider, warrior, instead, ruin, card, spo, grade, didnt, commi, snoin, liber, offer, cleanin, meter, dash, finish, though, knock, teen, case, carri, bladder, half, dem, sovereignti, border, point, fit, blackout, douch, hitter, rest, three, any- wer, weather, horribl, jesuschrist, peac, honestyhour, codi, zeller, ill, anyon, shitbag, famili, hang, honki, righti, commiss, waveslid, waterwalk, notkook, jazz, niggaz, cud, pa, creampi, tit, asshol, cumshot, closeup, wild, facial, loos, hidden, korean, cock, stepdad, truck, graduat, jimmi, minimum, law, scab, sweatshop, throwback, tikiti, ashtrai, truefriendtuesdai, tweetlikelexi, beautifulli, wrongfilmquot, refriger, xfactorau, rock, visit, torch, fuckkkkk, ittt, crow, seat, bokoo, tom, mark, tche, thinkn, shitti, marbl, hop, seminar, trap, ugh, peic, sho, rude, woh, bore, cours, maaaaannnn, sayin, l, shadi, nope, silli, bui, snap, chat, shade, draw, haahaa, everrrrrr, nerv, citi, glad, delet, wake, quench, wht, miser, boyfriend, min, mall, answer, delgado, de, tcot, unfollow, paid, jk, unk, hook, bubbl, system, dumber, minut, mtlhockei, madea, ion, enjoi, fail, alcohol, rais, church, lezzzbeonest, rice, blasphem, boneless, symp- tom, overli, fo, wash, messi, bonei, ok, danc, pant, seem, helloooo, hat, forgot, park, weapon, goin, afraid, wassup, noyvou, linkiden, skinedddd, wc, tool, whoop, scro- tum, opinion, ight, nigguh, futur, offend, reduct, definit, omgggg, mother, learn, nut, common, sign, thru, sweg, convo, elbow, ly, backatown, small, disrespect, term, yu, arm, deserv, somethin, bling, truuuuuu, amanda, geddit, dare, measur, troll, ugli- est, surviv, bust, deez, express, gun, den, dilemma, ago, pot, wifei, sooooo, seat- belt, beep, almost, discuss, town, trav, offic, knee, brain, shuuutt, iittt, turkei, re- group, none, crush, scoreless, speak, ic, wodeh, ignor, smokei, potato, shave, bayou, 4got, check, hour, sphere, charg, sent, griiind, luuuuuuv, fb, nicer, chicken, sur- pris, anti, sydney, fucn, level, movem, dumbass, elf, awesom, fandomapologi, 5sos, match, baddest, brian, purs, tx, digit, matter, divorc, shutupandplai, selfi, album, any- wher, statem, spread, offens, dine, indirect, subbin, boot, biggest, nooo, optim, ie, respond, chan, wen, saddest, tbh, hahahahahah, raid, closet, bestadvic, bread, scari- est, hug, feloni, bathroom, bitchiest, byyyyyyrrrrrrrrrrrr, taken, comeout, talkin, kei, chucki, stage, badli, ayyyyyi, bill, tax, happend, bone, rape, edc, lovei, guilt, febrez, rachet, scriptur, moaaaaanin, caught, hitta, whipppppppen, swag, mental, ow, murder, muhhfuckin, grammar, proton, profil, doin, nevvvvva, askin, digger, mf, ad, yesterdai, runnin, x, gottttta, maddddd, maddddddd, hostel, iii, attack, titl, nametag,

pronoun, backflip, mw2, argum, touch, squak, defianc, thatd, motel, punk, grace, dampen, fallout, elect, countri, bussi, semi, valid, mango, 100s, 50s, 20s, scrap, prison, murderin, noe, bloomington, btown, 2fine4cheapwine, understand, dei, increas, serv, hopefulli, crazycat, fugli, thnx, 5thharmony, heheheheh, gener, radiat, 3xx, truli, filthi, choic, peddl, cometh, ground, fuc, mawbar, foolish, gran, ruthless, alphabet, freed, loophol, gaga, grous, franklin, gunsens, 6am, untru, internet, 12pck, lool, slow, karma, pig, coward, overpow, 30th, 1am, saiddd, peckerwood, disabl, doubt, luck, armi, jungl, slaughter, bord, fuckjng, mann, acct, profici, memor, folei, boyi, gladbagflow, disgrac, volcano, holi, zealou, paayyyi, eldorato, therfor, conserv, fri, mash, gravi, corn, hype, similar, 2accounts, inbr, angela, acid, sight, outchea, describ, wtfiswrongwithnebraska, van, gunna, suppoer, haul, info, engag, hello, eyebrow, idunno, volg, zij, vandaan, zal, preci, uitleggen, plan, coincid, dancerproublem, niglet, allus, belong, goat, snd, askim5, plaquemin, insomnia, colei, whammm, swerve, leagu, threat, twist, bitin, style, erhan, der, roadrunnin, hypocrit, integr, pogu, wam, yoke, quirk, phallic, wibbler, drake, sensibl, chemic, azodicarbonamid, depa, juggl, amcon, yassss, hallon, foreign, affair, project, freedom, sauc, feather, english, defend, outstand, gobbledi, polic, lmsoooo, sexual, finessin, ffffffffuck, rebellion, comin, sharkeisha, boo, semen, 2x, bacon, brooooo, thristi, pathet, sandwich, porch, kou, fend, manpow, goh, heeft, pauz, steed, hoofdstuk, haal, prog, releg, reid, crack, sal, hilli, creepi, beefin, flow, wooden, challeng, toilet, pet, circular, bought, ratchetest, opul, refrain, rind, jar, anyhow, unknow, consent, somewhat, collag, jewel, anx-iou, moron, sukka, prick, allow, theorem, assumpt, interject, traitor, moldi, wobbli, father, freelikeabird, maxi, dweeb, piker, spai, mace, toein, kass, girlllaaaa, livin, blk, puctur, spear, chucker, quiz, toughen, 11th, hectic, koiya, underwear, nada, draggn, tgere, cancer, yute, darg, overpr, cape, cyber, poor, uk, pleasee, scuf, frail, speckl, midsol, mojo, ft, eeeeeeeee, danger, jump, tegenwoordig, weet, vlee, eet, aap, play-off, thx, ayyi, stuck, stalk, reserv, lbe, mfn, imagin, sheez, trae, poser, v, gbe, samba, equal, congreg, mhm, shhh, blackish, doublestandard, wayyyee, kindli, upset, bastard, beyond, countryass, supposedli, messier, unfriendli, spout, flip, craycrai, commando, charlott, chr, stadium, ban, visual, suggest, chomper, candyass, dj, wiki, situp, flaw, jammi, purnt, shouldv, honesti, reviv, booni, dwarf, infin, bargain, pirelli, whit, bowbow, wade, camp, flute, lit, selen, ca, bam, robberi, slaveri, mr, proofread, treatin, nonexist, pink, whatnot, halp, neon, lebron, shiddd, photoshop, brazen, unabash, latino, uncal, impost, envious, slant, mmmm, pack, groom, thedumbestteabagg, prai, ted, meathead, guidelin, camera, shamu, seaword, temp, harvei, valverd, parch, unlik, gladiola, truuuu, sociopath, cuntfac, background, tha, error, fuher, ado, fock, thinkingofy, diylov, sexxi, booooooooo, steeler, mywife, talkier, recognit, uggo, rink, budden, gate, muthafukin, vain, asham, soyvic, creanandcrimson, revenu, clappmeat, treason, def, quavo, offset, spiller, ivori, chocolatei, yummi, puto, heavyweight, saniti, orig, godli, infer, africa, spun, accord, garbag, dipshit, lov, badmon, girrrrl, crazzzzzi, trappin, fuckd, demon, talmbout, dickhead, cumin, reciev, tutu, somth, orr, versi, influenc, theeepp, globe, dork, ballin, coolio, speechless, immacul, hath, fanfar, yooo, keiffer, wizzkid, cage, scum, scanger, ltao, ashi, whamm, tierd, raptor, 70k, qualif, biotch, hellhol, fellow, compens, nois, salwar, thestrugl, youz, topic, kitti, babel, gemini, director, spazzin, scarc, donald, sterl, dyslexia, bumcia, tripl, xp, havti, heheh, disgust, numb, betwn, duggi, raincoat, contrast, pace, defect, wantttt, dmx, wheelin, ricketi, wander, induc, pouch, ily2, recyclabl, emili, reprint, imustbestupid, tickl, disparag, slash, turbo, heather, cushion, tournei, schmang, wun, uv, saterlyt, shoz, bayg, ul, clever, basebal, massag, muffi, 1800s, frankenstein, kikh, spi, bulb, wide, forbid, afford, reagan, suprem, releas, racial, academ, bai, ayi, balla, pajama, gram, foam, floppi, pacsun, 6pack, pit, oak, haunt, diplomat, stooooon, constantli, recent, list, bruv, welcum, niggur, skini, ruga, nephew, blod, skrong, lamo, mfka, restricton, revok, slid, comeov, natti, nutjob, hmm, textith, weigh, arc, diaphragm, grove, unleash, cough, gardner, cheetah, hiphop, pumprul, bravo, gamoot,

nicetri, muk, ceasar, hackin, bich, mum, protocol, chewi, pager, flotat, assur, ro-
tari, piccolo, ell, viswa, mouli, whoooo, unexplain, plasticass, harrass, tlk, mch,
gull, adawg, bdai, hangov, narcissist, getfre, senc, brandi, 15k, ranch, fussi, rocki,
rhapsodi, lab, wuss, maxima, susi, schlump, squaaaaaad, ancestor, freestyler, lookng,
4getaboutit, ankl, egotist, krunkchip, brokeass, dealership, exampl, cricket, threaten,
zactli, reggi, appear, swallow, imi, businessoppoun, cher, vitriol, carniv, madden,
viva, theatr, spiral, downward, antvil, unpredict, knodel, vandyk, diggin, askd, xbone,
muni, disguis, broken, tittielift, wagon, mormon, rafter, smdh, profeten, leeftijden,
opeen, zelf, mn, oud, shelf, mc, bf, scold, tradition, maid, durin, shockingly, devour,
chola, cackl, brolic, boyswhotakepicsinsuit, lightskin, yob, donefeedup, racistaf, fan-
cili, bugoutsss, ref, ti, nuttin, loveee, itttt, witti, charm, regist, southwest, 32ft,
greatwhit, okaysomaybeimli, butiwasfish, dollywood, interrog, omen, trojan, menac,
dwammm, fallin, 145lbs, nobodyknowshisrac, onslaught, camelto, demograph, mis-
spel, phalarop, resembl, sandpip, schwa, chao, dori, athlet, downei, swab, motorobo,
alsina, wiener, slurpe, reactionari, drudgi, libearitard, raaain, vacant, aquafina, chalk,
coffin, crazyyi, brussel, cheddar, chive, rangatang, brownshi, chant, wrath, embrac,
pervers, multicultur, backbon, clip, koozi, trill, toooooo, 5spmg, gett, tcha, twee-
gram, squaw, insidejok, greenmil, anarchi, eri, froooooontin, menu, deadli, limber,
limbo, footer, rune, boister, belliger, auditorium, chalmer, mozzarella, dub, yelln,
downlow, fuckkkkkkkkkkkkk, sanduski, icecream, gucci, dubz, stoplivingafuckingli,
hatredisincreas, harrrrd, highh, handstand, podcast, hotshot, flawwssss, grub, slutin,
unsucccess, givingup, tch, cept, episod, clicc, broil, cod, saut, spinach, aichok, news-
pap, xcx, chupacabra, fuxk, glow, hank, walma, Obama, tiight, buff, quadripleg, ex-
chang, poa, potti, mustang, fuckkkk, 35am, led, nosleep, 4thof, fatal, fornic, pro-
fessor, lockdown, searchin, rope, chung, mulatta, filthiest, dingul, on4s, tru, 500k,
zayn, moonlit, whiskei, clinic, exempt, mingl, astro, deja, vindict, plash, polish,
nubuck, foli, deux, kushi, zetz, propei, sculptur, germani, hornymen, extinct, na-
mast, pastor, mustach, teddybear, souf, foodi, expir, mainten, sittn, humili, bunk,
bank, overdraft, steril, entre, feelliii, drunkest, everclear, clipper, flappybirdruin-
ingmylif, rerout, temptat, 9ers, linkkofrosess, ceainli, imapython, biege, 4l, lady-
bug, succul, archiv, primo, idgafmod, rebuild, mula, analysi, mexican, produc, vast,
daark, oxycontin, oxymoron, kickn, rubbin, maaan, intro, overpaid, dropkickkk, po,
fumni, nigggga, hust, quak, tapatio, derecho, thunderstorm, ink, tank, wwc, uu, pus-
sayyi, fruitsnack, niagra, rinki, kenfolk, limousin, jeezi, comedian, spilt, swimmin,
industri, kreenen, danei, ari, 18th, weavetrip, sail, resurrect, file, coool, wiggi, handi,
checcin, jason, triflin, manti, rapist, collab, naira, booyyyyyi, breez, postin, mw3,
theater, sweeter, gushin, stir, foxandfriend, accompani, bong, sessi, adress, fai, hau,
youuu, vastli, mich, carin, enterin, striker, 2more, uss, cencu, makeshitup, freak-
sandgeek, walkout, getatm, fuckmongo, naynayismongo, buttttttt, sworn, sock, fren-
emi, lac, taki, yeent, flamboy, revalut, expandin, cee, centaur, ughhh, staci, lattisaw,
connect, thickkkkkk, hoover, cocaina, streetz, thanx, execut, baldheadass, nshit, set-
tll, unswol, tweef, parad, bloodboil, goood, tunechi, correspond, sme, drizzi, rep,
catfishin, herbal, wearabl, obnoxi, buffet, stupidspec, theyself, truu, cliff, comet,
richest, notint, trotin, thotin, cume, sooooooooooon, creak, util, followback, corn-
row, rib, heh, steam, dinosaur, uuuuhhuuhhhhhp, thier, tld, usag, wadi, floss, batteri,
dess, sketchbal, bipolar, frown, cradl, ambiti, 200lbs, conveni, ioeno, hahha, rowdi,
brasso, nuttz, brightest, hungov, frai, mushi, julisa, hurrerr, casino, unwrap, rio, rolly,
diesel, fakest, sandwich, blowi, growth, twittah, viagra, overgrown, pucker, colla-
gen, muhfuckin, malnourish, burgular, newborn, whigger, graveyard, yassssssssss,
nosi, niggaaaaa, wrk, gamedai, threatenwho, expung, resolv, tyler, letsber, gratitud,
eyelid, spasm, mascara, tourist, meadow, gasp, insist, smthng, evid, vend, nunn,
linc, faculti, awkward, southsid, indianapoli, onlyattheducksgam, sandpap, smitten,
ratio, swaggot, interchang, bezel, toqu, blur, ecosystem, popslei, 83ar, lolololol,
theeess, allah, ploi, publish, iran, rehab, circul, prattl, neverforget, 55th, gah, ad-

mir, wuteva, fingernail, flowciti, 200x2, trenta, wut, unfathom, hilar, journo, elix,
 bloem, gekkigheid, simpel, oploss, tegen, maken, besliss, theeeee, sluttish, orgasm,
 conductor, vez, japones, crearon, una, quina, atrapaba, ladron, whitehous, fl, suaw,
 dopppz, cooch, uti, stiletto, whohu, coupon, unrepo, legislatur, doper, socialist, tep,
 keke, rogu, xmen, brooklyn, 80s, ber, wett, bender, intellig, maaad, downgrad, jayin,
 whiteprivileg, sidechick, trinidad, hahhaha, christin, wholesom, bogu, reform, white-
 trash, kaffir, hairdo, reppin, ghou, douchi, azgov, azvot, gearin, perez, hilton, go-
 nab, instafrontin, heifer, petunia, 3hrs, philosophi, reboot, gusta, welp, deer, cob-
 bler, ahaaaaa, followin, moodi, dadsbeingsilli, reign, fabric, pmo, bummer, mc nab,
 judgement, drugzzz, ummm, fuckssss, georgie, yessssss, siri, clueless, whaaaaat,
 sandl, astigmat, spooki, learnsomethingeverydai, reggaeton, bachata, nogga, bare-
 foot, yoo, obamacar, givng, oregon, majesti, crab, singin, prosper, leech, tint, jolli,
 strategi, colon, gottem, backkkk, preacher, shitttt, rev, dickin, kthxbai, task, fuck-
 nigga, chitl, justsayin, kite, seper, infuri, unconsci, steroid, busterposei, missil, va-
 por, wonderbaarlijk, alweer, aan, stok, nu, gevonden, vap, hover, sake, int, con-
 tend, od, pho, saimigi, natitud, gobuycomb, trashhhhhhhhh, xii, counteop, murki,
 edclv, chloe, cutest, delight, pregnanc, shorelin, parakeet, whitebitch, promin, fo-
 rum, instantli, barbecu, hollor, wackkkkk, resign, hamper, fatwa, estaban, dando,
 vuelta, poller, mientra, cocinando, ast, cuando, waxi, soften, asinin, playcal, un-
 kept, diehard, debacl, tumbl, bleacher, scalp, getyourlif, deafreaperventu, wayward,
 intensifi, viciou, hollar, glorydai, bxtch, intrrvent, hoggin, http, sneakin, nobod,
 yaaa, muscular, bandanna, wisebrethrenword, lawmak, crr, militia, elicit, republi-
 cano, elegido, gobernador, tonnnnniiiiiggghhhht, fur, feeder, gla, firefli, profound,
 liek, suml, complimentz, sincer, poetri, sanctiti, rambo, buut, tha, caon, overdu, fi-
 nanci, caramel, discontinu, karmic, mcm, lul, saturdai, plyin, jongen, probe, verdedi-
 gen, pesten, eyez, sc, glimps, compassion, storag, spacecraft, irl, birdgang, flyin,
 proce, bamma, sharkiesha, quasi, 2gether, suuuck, challeng, thermal, followm, wom-
 anlog, givin, loveoohyi, skyylevelmedia, holipalooza, naaa, madd, diein, cellphon,
 wyandanch, hygien, emotionaaa, rollen, fox, av, dc, youoksi, slobin, steez, rir, under-
 ground, atraccion, abandonado, dynamit, schooler, dicki, terribli, stoprush, twitteraf-
 terdark, sharia, fundamentalist, oppressor, persecu, cornbal, couldnt, variet, migra-
 tori, uughh, uuuu, begrudgingli, likeman, babidi, overboard, underachiev, stunner,
 animos, andr, chuckl, por, jugar, corazon, ganarl, potassium, perch, eager, leotard,
 blew, skyrim, theme, buggin, fractur, windshield, signatur, profus, llam, mean-
 ingless, 10xs, darkest, booz, inadequaci, feminist, sapiosexu, chainwax, heisman,
 yeterdai, keg, greyhound, wanta, laughter, healthcar, barbarian, environ, theit, al-
 pha, klutzi, redempt, greadi, uncanni, sooooooooooooooooo, shmonei, fuuuck, keef,
 ewwwwwww, attir, atop, hitm, cuti, shiit, starleasha, ea, contoionist, thir, shhhh,
 unheal, wound, yearbook, twig, candl, undo, outdoorpoolpai, villain, disr, jumpin,
 bustin, margarita, barstool, mfz, jeopardi, pornstar, gallo, asadita, madurito, amor,
 drastic, 11pm, spandex, overst, hunti, slaaaayi, diva, girlfight, longhorn, locker,
 pand, fuckem, tig, istg, happybihdaytom, cal, lan, scrambl, grwn, loven, vinegar,
 tal, mohe, mold, ml, alanah, lamest, birffdai, truestori, vma, lana, thse, flashback,
 amici, behalf, pc, springbreak, nimbu, weakkkkkkkkk, spous, wanna, tosoon, nihha,
 shoryi, hippi, abstract, lather, unionmemb, louder, persian, scam, cinema, project-
 drug, motherf, ker, panel, whacker, zrgrizz, viral, maaannnnn, youresilli, fye, loi, mc-
 connel, ooberli, starbuck, uggbboot, eject, substanc, chapter, hulk, hogan, changeth-
 enam, wemblei, yun, aroundddd, vape, imit, confin, msg, ontop, ki, sewage, fang,
 depth, faithful, birdi, putt, awf, slopperi, inducte, luuuuub, luuuub, 100gram, kk,
 rail, ebola, gender, neutral, tremper, tremend, leadership, nomine, annual, luncheon,
 haili, parallel, mega, napkin, snail, stronger, superfici, necogn, wh, ih, wassuh, fos-
 ter, uuuup, astronaut, stigma, 6s, knaidel, enti, sash, seven, grounder, innin, fuckk,
 cactu, sav, defund, huj, tenni, shag, astrologi, 6pm, lightest, everybodyyyyyi, fuck-
 ingggggg, septemb, judgmen, slept, 50k, har, backstab, deceiv, mothafuck, finder,

flighti, bombass, mythic, wheneva, photobomb, mewtwo, chru, judgment, naawww,
 bishop, chivalri, duff, fergi, bypass, sliden, slippen, flaco, errybodi, brute, knock-
 out, changin, jank, chopper, ness, brutal, skur, gatewai, menstrual, htgawm, scooter,
 heeli, glide, ios8, gb, outfield, perhap, deepest, leadoff, outlast, homestand, hoelm-
 fao, nahhhhhh, dewd, lyssa, numer, disqualifi, jerryspring, truthhu, naaaaaaaa, belo,
 shego, patsgonnasubtweet, chappel, gooo, preeeeeeeach, questionofthedai, sophist,
 oral, wildcat, asmsg, erotica, shostori, prope, statin, explainafilmplotbadli, starin,
 yoself, backless, dressess, censu, tempest, 5mil, cantstandy, derang, serial, examin,
 testicl, painlessli, lancast, noheel, fse, fuke, gonetofar, cruelty, saveanim, classi-
 est, rifl, knuckl, djmemphis10, jetter, theperfectansw, dozen, melo, allowin, 2play,
 girlboo, doggpound, bask, cotto, chula, vista, nov, misde, legroom, ventil, socket,
 prov, snowpatricksdai, twirl, katiedodds15, wheelchair, vermontgirlsbelik, dopeman,
 rarest, 60k, dyi, upsaught, stump, erect, 3hunnad, frowni, deser, 2parasites, de-
 odor, ihopeitssuposetobetonight, emand, veryon, onei, bject, collect, edistribut, up-
 poer, dilli, exclus, seeee, boddi, mu, dull, chalupa, likin, randomthought, randomthot,
 shitiwouldneverdo, manur, sunnyslop, memphi, tenn, 10mins, kelli, 4nem, boutiqu,
 curat, talki, sch, grader, giantduck, pittsburghduck, wpxi, noflit, inmat, refresh, mayor,
 30k, dhimmi, lmaooooooooooooooooooooo, occasion, segment, hookup, horseman,
 addin, raci, willi, nilli, classless, baseba, justif, buuut, brainwash, lmfaoooooo, ma-
 hanain, sci, fi, checkout, curriculum, chimp, twe, cockroach, abu, thebooti, ohgawd,
 bronem, boutcha, clarifi, mongoloid, reinforc, uneduc, liquor, sickipedia, patent,
 sanitari, discreet, gradeschool, unforgiv, ceram, boiz, fukd, yuuuuuuuuuuuuuuuuuu,
 comfi, southernshi, postseason, 3x, stale, lohanthoni, highkei, bucketlist, wordso-
 fadvic, ethnic, dgafffff, fwy, 6ft, sett, fuccccccck, 29th, braggin, harvest14, aerosol,
 keel, furnitur, paperbal, fiance, difficult, honeymoon, berzerk, sheen, ludacri, de-
 spit, heimlich, maneuv, disgu, outbreak, hearin, tuff, fuccd, nacho, conform, peed,
 professorav, dresser, thinkpiec, barackobama, decoi, ut, perpetr, uck, karaok, token,
 calf, kamm, ry, quietli, straightup, jetpack, buncha, shii, humpin, hom, drippn, jas-
 min, friendship, cdfuuu, freakshow, mesquito, pope, slater, rusti, ash, rake, illumi-
 nati, tunnel, flashi, tedgibson, abund, paycheck, infio, mighta, toodl, hisself, ap-
 proxim, oval, drumlin, trickn, hangn, griffin, unbecom, temporarili, perfectionist,
 reevalu, cpr, ceific, breakkkk, sweaterweath, booty4ever, dvd, plow, taxpay, outttta,
 pimpinnn, gushi, bankruptci, ferguson, tpot, moustach, pburg, mogag, brokanes,
 handjob, mineeee, tre, testicoli, allllllll, shld, hypnotiz, 631k, hollerin, cranki, ly-
 ingggggg, qualitest, memoriesofidot, chillllll, ouutttt, composur, crawfish, lassi, gregg,
 frenzi, breaker, sweati, pinchbach, idt, restructur, narr, outlin, inferno, warfar, chest-
 nut, welcomehom, strung, bengal, yeast, mac, fowl, homiez, hoppi, ritual, pilgrim,
 awfulli, geometri, crazier, impecc, willow, deprec, earlob, grandmama, taz, chariot,
 beeeitch, wk, consisten, dropper, epp, drawin, monthli, aquat, havnt, 2chainz, un-
 healthi, stickin, movin, idgf, huf, sangin, prematur, chruch, babygirl, quiccer, busto,
 clumsy, invad, retak, bish, invok, enngram, 26th, fuckwhatyouheard, 2013shit, horny-
 fuck, voci, lockthatbitchup, ku, cobain, ruff, huffi, girlby, overlap, wuzzi, niggg,
 nastiest, alia, maaco, guareente, 1ndiana, fucksamattawithy, nerp, slapp, workshop,
 rager, tack, linin, handler, whatever, thoroughli, wavei, thr, shakei, stankiest, sawdust,
 sodium, unsavori, sumbodi, rebound, ticker, hawkin, arrst, pollito, cruzaba, fron-
 tera, zorro, tropieza, denton, birdddd, spectat, f4, primetim, vnd, restor, boootyyyyi,
 neeeeed, heini, kimbal, crc, worldcup2014, puravida, colt, unii, malici, hmmmmm,
 ceelo, birdman, fitm, lipgloss, prowl, patio, jhud, comprehend, enuf, jambore, tootsi,
 chapsnat, pearlbluey, sarri, whyyyyi, hologram, igg, righteou, goooo, expend, end-
 lesslov, womp, telli, supris, alexi, assist, ticckler, chihuahua, serg, monetari, sixth,
 monistat, witchuuuu, sidechicc, trustin, homerun, tingli, uni, yaz, grouch, waxx,
 kylie, jenner, premier, boyyi, scrapehous, bullshitin, errbodi, goldfish, ull, spoilt,
 ohwel, findin, confrus, boyyyyyyyyi, burri, slittin, runn, landfil, uptight, ayeeee, muzzl,
 saditi, shone, thingamabob, bradi, thumper, jezzi, joystick, theshield, onion, voz,

mando, forestgump, winni, pooh, gmix, ahahahh, ping, basicbitch, zeec, flamin, nocturn, toughbreak, drizzown, guessin, napa, fewer, injur, detect, brass, 4lokos, hydrant, downspout, halfwai, creme, beth, damnnnn, darf, pli, dblite, draymond, emer, whatttt, lurk, flicke, trinaaa, katrinaaaa, geekylesbianscientist, theblairbetch, douglasrichardsonship, kayla, glenladen, osu, concret, fuckittt, chanel, explos, holo-caust, subscious, handmad, handcut, marin, flea, tissu, shool, emosquad2k10, ea-chotha, myi, pp, michaelangelo, jamaica, dancehal, frog, supervisor, howler, yolk, uckin, freebe, hm, gigant, obv, poppa, lbr, fellaz, jacki, levit, lousivil, jm, tailor, mutter, aloud, cussss, doesss, s2g, dorito, loner, nhl14, maddi, karissa, cierra, mary-jan, fuxker, rosta, sheriff, nowwww, bangbro, btch, gne, fwher, pillz, centimet, gr-nola, fagg, procrastin, ppppoppin, popper, raaa, mileag, sheryl, pullz, specki, lesbo, coolcunt, absolutevil, apt, cudi, elsewher, orbit, tshi, nisa, audac, bola, vee, arena, iwaited5yearsforfobandiallgotwasthisshittyarena, trustisbroken, stewi, genesi, tna, loudli, netherland, rosa, mexicano, jew, seamstress, rhianna, alchcohol, poc, svsu, rj, killyouself, zodiac, plaza, pussya, versac, baylor, nino, jiz, lamb, choker, boogawolf, muthaf, hymn

3. *O set:*

lag, southern, chubbi, koala, kangaroo, prei, emu, metal, gangbang, lai, relax, reso, inconsider, touchdown, doeeee, understood, percentag, lower, penn, banjo, bleach, stain, bake, hydrogen, peroxid, washer, homework, sma, unzip, super, size, huge, canyon, updat, controllin, leas, breath, idgt, trippin, droolin, boutchu, poni, tail, nail, luh, transform, tampon, irrelev, craziest, relat, fuss, gaf, record, aha, fool, kickit, older, oml, ab, li, bess, crown, bleed, ambul, closest, appli, nap, fall, etc, rethink, skinni, alot, thick, ver, superbowl, cleaner, jacket, ga, jinki, lost, glass, velma, scoobi, doo, contact, outnumb, thankfulli, dismemb, spongebob, ador, cowork, freaki, hoser, ten, limit, inbox, badder, discov, irri, cuh, lickin, fro, goooooooooooooood, mexcian, serious, rang, damag, forev, hustler, mari, hibben, lift, tryin, lox, mook, lmaooo, mistress, fold, pressur, gshit, blitz, tinker, bell, roster, sausag, clit, eva, pussai, rent, babe, exercis, spam, drippen, vanillaaaaa, killaaaa, gott, stiffer, tougher, cook, peach, cream, appar, rose, virgin, lifetim, fell, badd, hahaha, gonn, bent, graphic, napk, request, bio, refurbish, iphon, complet, submit, gayboyproblem, walkoff, kiss, playa, player, preconceiv, awar, major, interact, lib, preserv, basi, everyon, fever, camo, wierd, mornin, surround, wrap, alarm, brown, beef, impoant, queef, vagin, wind, foh, kind, math, motherfuck, jaceyjanett, extra, brave, squirrel, panti, babymama, sprai, str8, coolest, omw, bug, 4th, divis, unprotect, microwav, lava, smite, fruiti, quaf, shaggi, remark, yd, slick, subtweet, nahhhhhh, anotha, 2k, fade, browni, figur, impress, brewer, clown, x3, meijer, trip, dose, rite, scan, hittin, nowadai, gossip, circl, cycle, blare, incredibli, societi, zebra, troubl, locat, draya, window, ikea, treati, uniform, author, trunk, 2many, cliqu, boppin, anthem, calam, unpunish, beani, forest, upload, comput, abov, purchas, grandfath, grave, weirdtweet, takin, gino, marlei, flew, planet, bull, sextap, chile, fa, dhem, cleat, focal, audienc, allei, raccoon, dumpster, doc, dreamcast, default, broadcast, cam, theft, leftov, taught, mama, wussup, dry, mass, terrifi, ala, backpag, kno, yardi, killin, mammi, brought, boosi, blockhead, bother, pie, lone, view, calzon, casket, tree, rot, seed, porker, readi, bounc, summit, godddddd, lead, 9th, almightyavehunna, photo, caption, uncomfo, freez, wallah, thuge, version, homemad, egg, garlic, present, jersei, remind, adult, skull, epic, storybook, glizzi, medellin, spring, pan, promis, bullpen, senior, funfetti, paccag, deliv, dawg, ayyyyyyyyyyyy, unattend, feil, anybodi, lmmfao, rip, faint, resum, salut, latt, swagfag, abo, traffic, wid, candi, lotta, specul, rave, couch, board, tie, dye, edit, silver, bucket, consciou, enuff, takendown, biker, privati, sympathi, situat, plano, success, jealou, cand, program, fasho, lmfaooooo, flower, economi, pee, oft, csitali, seventeen, needa, unblock, avoid, scarri, wrestl, foreal, target, hole, bingo, prejudic, sagg, bandz, slap, ego, govt, beg, utilti, twenti, stress, jj, mane, birkin, nosei, yah, uh,

rosecran, housewif, cheesi, puddi, bowebergdahl, trade, lopsid, gorgeou, dy, moral,
 standard, bittersweet, battl, nvm, pregam, dogg, jess, droppin, mixtap, kept, excit,
 legaci, label, emoji, ina, meati, edg, diploma, yuhhhh, cake, sike, ny, yanke, mir-
 ror, deep, muthaufckin, lie, avi, rap, clap, clapclapclap, coal, atom, bomb, 20pics,
 dmv, californiadm, toung, smelli, tule, bae, laundri, mat, denna, gym, philhugh, nyi,
 goal, ish, mohawk, shovel, snow, scrub, screen, poke, facebook, curb, twerk, wh-
 heet, poison, exist, cap, pound, mutt, prostitut, clam, dunc, rub, dj, stranger, reliev,
 shy, slop, b2k, yal, friendzon, daaaaaaam, random, attend, univers, scootin, sing,
 action, trippi, hidei, air, convers, male, deni, gap, handl, booti, broom, creatur, cos-
 tum, turntup, webad, wepretti, gayvega, rupaulsdragrac, barb, minaj, fuckedd, snack,
 bud, concentr, pride, lazi, prone, ayyyyyyyy, approv, messag, mufucka, yooooou, tea,
 barrel, raw, resolut, cure, strip, z, unfoun, chronicbitchfac, sorryimscari, depend,
 chasin, flat, server, op, nite, feat, radio, babbbyyyi, homecom, king, lucki, heat,
 coloni, injun, celeb, squid, killa, jig, eattin, bid, dreami, whisker, kink, friendli,
 howev, reunion, maker, trynna, languag, wasteoftim, poker, yourself, cum, pom,
 bih, girll, kany, shout, green, squash, zucchini, cucumb, gaggl, cuf, gif, lemm, autist,
 hermaphrodit, stack, ex, yoga, muscl, watchu, foe, desir, ewww, yuck, ooh, iight,
 hmmm, idc, douc, reach, fill, hoein, hurri, servic, requir, noh, handshak, poppin,
 headstand, til, earlier, replai, mission, whini, micdrop, crap, charger, raider, boltupdo,
 vulgar, threesom, juic, hella, burner, fab, dayd, coz, perk, sink, mint, weaaak, print,
 funniest, moment, humor, step, kinda, crisi, oppos, halloween, timelin, bluer, den-
 abitch, overr, third, keyboard, doee, pusxi, elementari, sharpen, curl, frost, reduc,
 shrink, echo, garag, tread, carefulli, chuassup, gota, dee, equip, docket, undeni,
 breakherdown, avail, colour, vinyl, weekend, experi, earn, blacc, charcoal, irish, fals,
 tight, rosebud, destroi, huck, patrol, soundtrack, relationship, control, second, inhal,
 exhal, hardcor, puls, thrill, dream, ceain, absolut, socialit, dragrac, dragqueen, com-
 parison, nigra, fax, fr, photogen, stone, brawl, sa, flappi, tellin, bowl, spliff, moke,
 saint, yaaaaaa, irrit, nowai, duhh, nit, ik, notch, dex, ideolog, nunchuck, stanki, slide,
 pumpkin, patch, juici, chest, moe, iv, argu, trait, se, acab, rob, hahahahahahahaha-
 haahah, sephora, plastic, earli, milk, spermicid, lube, headass, dinner, jelli, cheer,
 mexico, evalu, tuck, boob, talkn, frequent, warm, fuzzi, swung, fee, 11k, knw, rube,
 dubya, note, boat, cup, autograph, scheelp, struck, victim, bounty, jordan, puttin, ha-
 hahaha, witcha, contribut, product, cheek, tee, grindin, bib, dwn, tall, john, blast,
 brief, trappa, 7th, nld, scrimmag, specif, flame, tht, wha, showtim, godfath, maddis-
 ton, wee, al, spine, pooest, flounder, gf, glori, lmaoooooooo, desol, smaug, conclus,
 bilbo, hobbit, android, ipad, xxx, german, milf, unc, shiiiiit, golden, statu, crank,
 superman, vers, tuh, solv, isnt, altern, vampir, nahhh, esp, puff, soul, 24s, str8up,
 faster, hint, center, climb, latter, bold, cheesecak, choos, momma, benihana, toe, jit-
 terbug, sweethea, chunki, diettim, crazzyyyyyy, tyga, chevron, stripe, charli, barbi,
 imma, ken, doll, smellin, filet, mignon, menthol, lipstick, app, flight, flite, wealth,
 edm, festiv, pm, yid, nid, snip, classic, getcho, triccin, slouch, skyrocket, fallen,
 sharpli, contrari, tender, vibrat, suuuuck, winter, degre, struggl, loyalti, eaten, popul,
 concours, mistaken, satisfi, thou, shooter, lmaoooooooo, psycho, sucha, awwwww, fe,
 ne, commerci, brilliant, bitchi, mcbitcherson, groupi, gallop, mmkai, desper, nig-
 orprobz, giant, usin, hamburg, lace, rhythm, stroke, pattern, accent, gabbi, smelt,
 period, includ, jigger, ohhhhhh, opp, far, marack, dip, lyric, ign, tape, nag, forward,
 grass, choosin, letr, quiet, whoa, model, knowyourplac, steakhous, bosh, dann, wal,
 moulinyan, spike, st, nigggaaa, hashtag, princess, jet, bitchen, arguin, slutttt, dis-
 lik, deeeez, perspect, nomor, gather, easier, sacrif, ickblah, bloati, 2hr, whineytweet,
 stood, penni, multipl, autopsi, sweatshi, badongl, breakfast, spent, highli, cuteeee,
 seafood, sole, ocean, unrespect, polo, mi, badass, kuzi, hunni, asf, sheet, pronounc,
 correctli, pillow, lowkei, highschool, illest, ez, lingo, 30s, 40s, warn, conclud, fifti,
 buck, dens, tote, cheerlead, weiner, cowboi, dig, ballot, lored, steak, lime, gra-
 ham, crust, speed, winnnn, niqqa, bobbi, gaggin, laggin, habit, merch, beam, love-

him, proper, pharaoh, sarcophagu, deaf, compet, choo, shelbi, sandi, sooo, whom, piou, scarlet, breast, sob, xavier, honorari, cooler, hoosier, starburst, cuddl, familiar, treasur, access, discount, lowww, fareal, stock, jello, liquid, sunset, insid, glu, okc, sundi, plot, balloon, float, outfit, function, hmmm, umbrella, risk, perm, lotteri, thesi, whippin, instagram, crai, runna, stat, easi, data, fawk, ginzo, nassau, curios, weight, anydai, distract, stripper, viru, repo, copi, tuleneck, below, plu, stagger, fear, netflix, watchin, nigg, clicquot, dom, moet, condo, expos, abouta, crayon, 30pm, hadn, host-ess, march, marchmad, collegehoop, indiana, iubb, analyz, train, mode, suit, acquir, per, scr, chillin, dismiss, downfal, imik, coochi, fukin, yappin, tae, vital, poli, haz-ard, result, perman, donno, demz, iz, gurll, tonk, badonkadonk, met, cologn, curri, hardli, itself, crash, debat, snitch, intent, meat, develop, btw, asthma, lake, join, de-termin, grizzli, teddi, polar, market, mickei, mous, softer, ra, current, code, happiest, cockiest, ostrich, choosinh, glorifi, pow, sheeeeeit, wana, bologna, dot, slept, brace, fierc, saga, twinkl, ge, flyer, pjnet, plate, larg, salad, pobo, porn, tho, bird, loyal, girlfriend, mock, tonight, sex, femal, mean, chick, done, lip, score, otherwis, kloku, dollaz, snatch, molli, dunk, apam, downtown, wheeler, fast, wine, bit, younger, droid, mile, dro, drum, yeer, happyhour, pleasur, capri, sun, accus, adulteri, poll, dolphin, 2nite, strictli, reli, tabl, flag, holiest, pilgrimag, although, conced, funnel, desk, ohh-hhh, yesss, slope, cdc, attract, tupac, logic, perform, htt, wei, interview, dank, snobbi, physic, featur, opposit, fukn, damian, mate, missingtheaussi, err, wobn, wefo, things-peoplesai, curv, emot, brotha, yoooo, motha, swerv, prettier, forreal, slam, e350, amg, coup, associ, comprehens, sang, sexiest, 2am, gorg, june, pocket, wacko, standtal, stunk, land, tastiest, wmn, neighbour, veil, film, romant, comedi, roommat, titti, ig, mullet, floyd, pac, screw, suburban, boom, waaai, rlly, height, patienc, inde, breezi, coooooool, entranc, chip, flock, zipper, stash, gift, dolo, unemploi, googl, unexcept, clinger, evolv, fatter, heavi, byee, iverrishaa, offshor, grudg, grime, slowli, moan, bby, workout, pilchard, expans, budget, jumbotron, haannnn, clingi, stylish, cael, sel, paak, mic, hive, nemesi, slag, wrist, nt, smurf, noon, jadapos, threw, talentless, skag, wardrob, malfunct, dorki, suav, teardrop, dolla, miracl, coco, incid, grew, pizza, decim, farm, homeboi, afterward, built, ketchup, trueee, frisk, systemat, stow, settl, thurl, byeeeeee, rii, mistak, lineup, olivia, primari, mouthwork, stunt, stateoftheunion, 15mins, headach, inch, mustard, pleeeeeas, un, shower, shampoo, beard, holllll, herk-fact, actor, mite, cell, manifesto, adopt, enlarg, loosen, spunk, donta, dah, yaknow, grrrr, runoff, sacc, inflam, treatment, whe, cho, sudden, whisper, savior, futurist, nerd, sentiment, frame, regardless, dive, bruinsfan, possibl, chavhot, scal, souvenir, rapeyass, addict, forcin, puss, unicorn, ton, fresh, attempt, infront, stomach, psychic, incred, quest, ingredi, ashlei, brook, hardwood, floor, hungri, nervou, fliin, mervin, bite, lnyhbt, ccot, gop, tgdn, rim, teeth, gotten, content, skank, lettin, muafucka, slur, script, fck, stupidest, brb, whichever, shall, award, scissor, timber, focu, tone, scroll, tbt, 90s, meaner, princip, vic, lean, role, bitchhhh, drugssss, sup, mask, bitchpleas, concern, smut, ji, tammi, stuntin, 2nd, beatin, witout, irrat, frfr, huntin, kicker, yard, chug, orang, indirectli, mentor, powder, leader, talker, flagrant, wigg, asid, fabul, naa, nae, ko, fuckgm, barber, sshop, porno, rachel, rach, elissa, snutti, dove, bb, hawk, musti, ahead, answerd, nonsens, statist, beleib, process, lml, wrd, bitvj, instrument, bath, pana, vibe, lap, whether, fountain, tour, deadlin, drippin, mtn, master, nun, ev, campaign, wcvb, wcvbpoli, hump, chad, reed, 5th, tomb, curs, durham, woodi, tar, plane, lakeeri, cle, switch, roo, booner, hung, yh, shy, cri, tad, illmissu, shiner, mlb, joei, reckless, dr, cruz, swoop, sweater, speakin, pleadin, 5ths, dez, revolv, boooti, mmy, flavio, deuc, recommend, noneee, facilit, ear, roof, explod, cai, bacc, web, di-agnosi, mon, 6th, cuzin, snupe, thirst, flaki, 1x, sperri, husband, heyyi, sec, wink, knowingli, seclud, bridg, balmi, autumn, hors, ouch, thunder, desrv, squiin, sever, thoe, punchin, notif, founat, fvckin, itun, condit, vodka, lemon, zimmerman, beach, aoa, benghazi, maaaaan, tablet, baller, whilin, owiee, bang, wifi, password, track, spoke, volum, rippl, butta, feet, jaw, drip, fufu, hackei, sacker, khaki, jacker, slapper,

flex, sloppi, fuckkn, wann, fxck, yuh, janemba, valet, lordddd, disast, sippin, coca, kkdaldalegend, blowback, offseason, corps, yessssssss, disbelief, rode, cou, potent, anarchist, vagina, jr, bless, creek, explain, thincc, supa, maini, goofi, ahhh, obsess, somewher, rubberband, kappa, neither, ainn, crutch, swipe, grant, libtard, dwade, wed, uninvit, rise, musician, herd, five, holidai, ae, bee, pooci, yaaaasssss, buhlowin, somwher, warp, yayyyyi, gaaaaaaaai, biiiiitch, price, boon, returnthefavor, gm, sumpin, prayin, instat, signedtothestreets2, empti, steadi, twitta, mong, kok, democ-raci, communist, infam, wave, 8th, proudli, volunt, angel, burnt, applaud, ancient, firebird, local, insur, agen, itakeshitfromnoon, stomp, squaddd, whammer, eggplant, rod, southridg, twerkin, tricycl, saliv, tier, announc, cit, stapl, blindsid, greatest, bein, condom, invent, pump, painkil, dispossess, sittin, icon, torn, platinum, skunk, gill, tournam, curvi, havin, mug, mm, rocket, befo, marriott, mansion, swim, metaphor, taller, clock, superpow, squar, mea, enter, bubba, trinna, regret, dab, humanitarian, distanc, pain, eew, carrrr, splurg, shine, chemistri, bait, button, sublimin, theyr, slap-pin, sweep, turnip, likkadawgg, fw, wigga, ammo, shidd, supahot, fohead, bound, wishfulthink, thigh, gestur, marijauna, wannnnaaa, nog, chow, pup, witchu, elimin, proven, eagl, usta, hundr, trigger, txt, wetter, builder, whatchu, idgaf, asleep, stare, 2pac, yuhh, gmula, sniffei, swimm, niether, acn, hotter, tacki, classi, badger, ethic, defec, governor, morningjo, coverup, altar, favor, pf, paki, pedo, mutual, l8v3, hon-estli, esteem, yess, peep, dougi, behav, audit, proudmom, soooo, pointless, milei, appreci, nobl, guinea, steampunk, dragon, elast, ehh, cuhz, cuff, troop, intrigu, re-puls, wrote, essai, bibliographi, laptop, froze, hadnt, steve, clue, trippen, 4owe, foo, herkenbaar, hesj, je, eigen, buu, jaren, voor, bevreesd, ooit, te, wer, hockei, nhl, prego, cinnamon, toast, crunch, mindless, conceit, marmalad, saran, askkevin, keeper, dong, eatin, pour, honei, silki, revalu, cardin, overs, hoodi, outrag, pencil, merit, scholar, horn, mimiblargh, kingdom, birb, emoticon, scrappi, crave, relation-shipgo, horni, sweat, thief, shoutout, collar, everytim, passion, wiper, blade, bytche, oreo, roach, sweetest, inviat, wolv, petit, schleeeeeeeeepppppppp, neva, fleec, cloud, toolbox, ricki, phoni, delici, link, duti, confirm, mulatto, acronym, complim, tur-moil, filterless, dari, jugg, attorney, cg, heck, gry, leash, nano, eas, path, impact, deflect, kuz, cont, chirp, onlywantonenight, elitist, china, bitchez, headlock, polan-dia, putabirdonit, arent, trench, coat, fedora, thatch, cottag, grei, janitor, shutupcry-babi, jihadi, theorist, relief, bedrock, boyz, neanudda, twin, futon, provid, demand, recount, ordin, referendum, lgbt, direct, layov, spy, ski, assoc, advanc, tech, in-form, pheonix, imag, zee, calc, cici, seagul, thrown, wrench, bump, ning, gold, lash, 3abde, soooooooooo, layer, instant, yaga, brite, bagpip, revamp, lt, told, top, sexi, nan, somebodi, bishhhhhh, waasup, spamblock, spew, slingin, turnt, hotnigga, leo, honest, wiz, scandal, dial, nooki, rooki, girllll, glossi, photograph, hid, harlem, fad, fli, felonspleas, iffi, mermaid, fishi, twelv, kenya, deck, stencil, needi, seein, crook, muh, kit, fal, tunchei, toddler, unloy, saxophon, balanc, catchin, uncivil, pa-poos, shri, homegirl, yass, le, prioriti, fug, bitchhhhhhhh, dildo, mammal, amphib-ian, vanish, mayonnais, benz, dissent, await, getlostfakebitch, otha, hobbi, fuk, upd, dik, suker, wipe, shmurda, spookyblack, lighter, shoota, grandmoma, gentl, creativ, photographi, aicl, leprechaun, handyman, liquor, cabinet, troubadour, serio, wassuo, knight, stefani, net, triesto, drama, hahahaaha, badgui, noos, desi, razor, goth, cooper, throwin, twice, bikini, jeweler, shinin, mop, glo, shawti, wingstop, quintessenti, em-bodi, feminin, drown, excess, amount, veggi, kik, pool, nuthin, icecub, nwa, diari, worm, tomcat, bulli, yai, jacob, layout, emergen, motion, mulligan, bash, shouldn, mak, mobbin, smaller, champion, coconut, oil, shutup, derrrrrr, showman, labor, swing, jam, downnnn, hilllll, pander, jizzbag, crisp, held, magaluf, probli, lsd, rare, shallow, grab, constitut, contempt, chilli, snob, cardigan, shoest, bouta, waffl, committ, cite, outlaw, redicul, vilifi, cassidi, eww, waist, pearl, schooldanc, duval, mikepp, dayum, shell, directli, descend, royalti, asa, fucken, teapot, haiku, mijikai, snappi, owl, scratch, privat, swat, realtalk, skip, orient, meetin, parker, aaryn, loser,

rid, brake, dust, paner, dec, dump, mngop, sribpol, mnleg, whenev, mannn, fukkin, wicha, awak, thotti, killer, kaya, pummel, toi, plaq, hc, mighti, layin, boringgggg, hoosiern, funnier, foolin, rick, jame, groceri, cowgirl, hash, career, mugg, mattwho, independ, lololol, sellin, bare, descript, mah, nowplai, inda, ona, sofa, taber, fault, merk, hormon, thugga, rental, studio, million, denial, hy, chipmunk, straw, dri, crusti, gut, attribut, wackest, hyp, unsolicit, unaffili, reaffirm, burg, averag, nansemond, gum, panomera, whi, defeat, lyfe, rebel, nutella, wildnigga, pt1, cereal, granni, seee-exxaaaai, payback, valentin, yeezi, textin, cryin, stressin, allegedli, shostop, ahoi, havent, option, venu, troubleman, rhyme, lawyer, sosa, lmfaooooooooooooo, cheeki, consist, rehash, underperform, hw, grad, banana, westsid, freckl, assign, orangutan, actress, greas, yungin, nat, puffin, dutchi, isni, smackhead, beur, dgaf, velvet, wasp, higher, butthead, routin, popular, 49ers, dominion, given, tend, ili, leggo, hungrier, phat, diet, bitchier, anniversari, authent, jim, segreg, lynch, suffrag, puppet, intention, unifi, consensu, energi, electrifi, plenti, memori, odd, flash, whatwashedo, eeeeeee, douchetard, butterbal, fanboi, reclaim, bona, fide, adventur, rumor, possess, countin, bond, bittin, flawless, ahahahha, cooli, preggi, swollen, swole, yeeye, unrecogniz, loss, soundcloud, joint, heckl, closer, whinei, bestfriend, prairi, circumst, hospit, shrimp, denot, applic, nbc, abc, cnn, bigotri, hairstylist, nesha, beeni, lmfaoooo, moder, consider, gero, gimm, likkl, squeez, hahaa, psh, bouncin, harder, retir, core, messinwithsasquach, normal, whiff, cellular, chew, tasti, crispy, lingeri, lmbo, ungrat, rightou, reconsid, almighti, talent, intox, scarf, yaasss, soulja, easiest, slienc, ceddi, ridah, quan, dollah, franc, luki, stanc, 27th, hunnid, progress, tranquil, indian, hottest, ladykil, rank, facil, eboni, fantasygam, pricklypear, inni, godamn, swam, 2ur, eloqu, popcorn, couuuuuch, prize, lifelong, cuttin, depress, gettn, fella, funer, unthaw, manual, coolin, uhhe, busk, phonei, khalifa, unprovok, biologi, baldli, wearin, ugg, nationaldoughnutdai, signific, cdfu, carni, republican, abt, legisl, grown, trace, frozen, kim, chair, flee, th, gain, shootin, necess, cruel, propos, lack, antigun, heabroken, theophyllin, crystallin, compound, extract, spellingbe, resist, urg, duel, chepa, aghh, salt, soulmat, row, trucker, sold, cent, realist, salmon, sitcom, anger, therapist, arroz, con, pollo, habichuela, espect, renew, federalboobieinspector, oversteppin, boundir, zone, outdoor, amateur, ee, pole, helli, brah, tweekin, fucki, booth, 10th, lookingformor, string, exit, rollin, swaggin, max, vacai, wizdom, tweekin, pedest, unsuspect, stapler, bestf, bon, combo, grip, thrive, econom, sector, wobbl, dean, peter, fckn, thunderpunch, accur, promot, hickey, bind, itti, bitti, esco, aist, hustlaz, hittaz, bumpin, stiff, tune, sober, llive, introduc, healess, climat, hou, youda, reelect, killeri, diff, betta, forwd, fetish, island, winner, mushroom, mountain, stamp, appropri, mybabyisallgrownup, munchi, joker, skillet, biscuit, nye14, drunkenlov, beyonc, bicep, oper, disrupt, 2ssss, ironi, grind, stri, teas, feedm, calwood, steer, loco, credit, near, cruiss, pen, picslip, borrow, sarcast, heffa, karli, iron, trashcan, cuzzint, brickk, ent, blog, relentless, duddi, gish, sucki, wouldnt, bangin, kinky, lad, sneak, brand, chirpin, junk, casual, waldo, chipotl, soap, medicin, hoop, skill, lbcc, bol, blank, midterm, numba, bruda, bahaha, weaken, environment, regul, infinit, latest, whatcha, hun, dana, donat, allstar, weeeekend, mardi, gra, windoowww, asl, theori, strawberri, shhhhhh, shite, dangl, ting, pang, flick, bic, anxieti, 6months, roulett, waiv, frisbe, hustla, smooth, rattlesnak, rattler, multi, visionari, dum, freeway, nab, nor, legendari, practic, contain, pigment, coccu, costa, cochin, insect, rooftop, cargo, instanc, sacr, incess, siren, tweetin, pleasant, dodger, ont, separ, sno, bop, yaw, weeknd, muzik, rea, aww, bias, khan, lawwwddd, jitt, woof, effo, nude, y, lmfao, ju, number, pregnant, try, catch, oven, sshitti, ritz, lu, epidem, subject, verb, agreem, branch, sunburnt, wick, east, vile, getyamindright, nohsid, looter, arrest, goalkeep, fashoo, fought, haircut, rockin, youu, whoever, speci, lanki, sasquatch, olympic, apparel, upstair, worldcup, grin, stealin, bando, hemroid, chitown, sb2014, pornhub, stream, downi, brunch, mimosa, brag, haggl, receatt, indiegamepickuplin, receptacl, mud, limb, reveal, hiv, bow, commenc, earnest, belt, spite, butcher, fifa, matt,

zombi, singer, indi, genr, syndrome, aluminum, zima, lovin, decemb, kobe, shaq,
 mike, retirin, hoodcomedi, flytv, la, wood, fulla, squi, zip, recal, bestroommateev,
 homeland, secur, bamoos, prophet, thy, dawn, lmaoooooooo, eli, smallest, d1, shoer,
 dobett, fu, spiritu, scout, prospect, ranger, gentrif, wii, yellin, bktrack, eaterrrrrrrr,
 filter, lens, hilari, cramp, smokewe, teamloudpack, shroom, hooousee, laid, blaxican,
 gatorad, 1d, diana, written, boyzzzzzz, lolol, metropol, penguin, ro, review, diver,
 hollywood, redbook, toinight, noddin, insan, pari, lex, allen, cav, perri, sky, criticis,
 burb, coast, madam, outcha, unreal, monopoli, scoot, tent, substitut, supremacist,
 luhv, tioo, research, usaa, che, odio, finito, idol, donjuuuan, confess, tron, hotel,
 lesson, loom, oili, bulbou, shriek, drag, hoo, pigd, thew, soak, stockboi, unqualifi,
 appeal, sodaa, coke, gonorrhea, brad, pitt, 11wd, bumbl, bekuz, sting, 3rd, strap,
 muhfucka, loll, beggin, catchup, innoc, schoolgirl, dippin, hangin, hippo, unlimit,
 flexin, sucker, smd, accordingli, damnit, shittt, worryin, munnaaaa, congrat, banter,
 biiiiiititch, niggggg, scoop, nam, houseee, hoethea, sat, puddl, arizona, dear, con-
 jug, cyru, macklemor, adam, levin, mmm, oldi, kush, space, wheresshitgo, vitamin,
 lyt, holla, givenchi, purp, dehydrat, gamer, conc, fraud, brisket, sizzlin, load, butttttt,
 bett, mfa, rejectedpeanutsspeci, assault, materi, suspect, vote5sos, euro, lilwayn, mo-
 bil, teef, onto, jabroni, diss, marijuana, yokel, impli, spooopi, commment, ofcours,
 jackass, dingbat, junior, murk, vid, goodmorn, wore, yank, recycl, bin, limewir, 1b,
 3b, 2b, waka, turndown, follin, daft, temporari, iont, hahah, badonka, ankh, swur,
 jake, espa, pear, backpagepussi, com, voguet, vintag, jewelri, bugout, yep, dont-
 trym, bitchmod, testm, sushi, bush, vacat, wah, skinnier, remot, staer, somedai, ycg,
 oppuun, freshfac, gamma, gurl, mono, upgrad, debt, pogo, screamin, juelz, shark,
 3phone, sniff, swamp, alex, tighten, jane, blogger, moxi, credenti, 5h, mt, brown-
 gal, gouach, tiki, erbodi, deciph, overdo, return, espec, ctfuu, consol, denim, puke,
 crissi, loonei, implant, frontin, tuesdai, streeta, graffiti, mural, duo, unrol, dusti, toot,
 bouncer, dontouch, braid, loyalist, plea, caller, heavili, dink, yrd, ilusm, meal, fil,
 cashier, yacht, clubbb, stegosauru, hiss, pterodactyl, rex, parrot, eleph, saggi, ha-
 hahaahahahaha, harsh, packet, remov, hallwai, headphon, bumblebe, robin, some-
 how, select, truefriendsarebasictogeth, instig, fap, invest, donut, bellybutton, cankl,
 peel, glamazon, pimpin, smackin, sneaki, lord, pancak, lha, congress, compromis,
 gospel, choir, xbox, baffl, upmost, pepper, gurlei, manziel, helmet, unhing, kalori,
 bun, biatch, iter, within, shiiid, sumptin, mick, playground, wantin, bre, hogg, baen-
 der, meme, regard, corrupt, administr, burden, annoy, michan, reaction, shoobi, gov,
 widd, brick, meeeeeee, chiquito, knotch, lesser, allergi, pedicur, unfollw, slackin,
 rug, mumbo, jumbo, plasma, nba, playersmi, larri, strait, contract, weaaaakkk, lm-
 faoooooooooooo, skyler, errrryth, columbian, fume, concept, inevit, bracken, riot, doinv,
 gremlin, fireston, null, han, fritag, junki, unfair, user, stockton, choppa, luke, fatherrr,
 thanksgiv, vraag, maanden, zich, een, stel, hoeren, gaan, mfer, alongsid, beamer,
 impo, cuzzo, batter, cani, tub, creami, butter, greener, soggi, septic, showin, dept,
 longexposur, lightwrit, libdog, bark, audibl, foriegn, tide, tempt, discou, lowwwwwww,
 sinf, flavor, leaf, gei, rei, trilla, rhetor, noo, jai, ova, babbyyi, stepper, pep, silenc,
 lasagna, mimi, slight, fruit, loop, afteast, belasco, doet, haar, ze, ongesteld, vra-
 gen, waar, denkt, weer, uit, panda, panera, meeedd, simp, oath, blissfulli, thinker,
 chump, ponder, myriad, travel, omm, ahaha, creamteam, cockbreath, ecstasi, ap-
 plebe, az, boil, broiler, prosecutor, workin, matur, satir, moovin, hoova, prais, sleev,
 acoust, ciroc, maximum, repeatedli, vag, goingtogethuagain, whoppin, pasta, giggl,
 weari, 5s, 1personidbitchslap, tl, spare, leavin, dairi, bachman, outa, funnygui, pacer,
 breadstick, bland, incomplet, werewolf, guilti, sprout, cordon, dif, health, finest, pla-
 giarist, parri, clariti, websit, instruct, mee, fuccccccckn, fuuuuuck, yoouuuuuu, duct,
 3k, necessarili, decis, becam, largest, wealthiest, whose, aim, communion, whack,
 brainwork, pacemak, devic, simul, 7s, scuff, masturb, wulf, bench, eege, slo, litebrit,
 drose, okaaaaai, tomboi, phenomen, guido, themoreyouknow, letterman, game, ppl,
 food, school, littl, call, cloth, repres, thorough, heroin, tryina, educ, toothless, slippin,

holdin, richardson, finer, ducanvil, ned, tailgat, sssshhhhh, cost, snuggli, hideou, lotion, orajel, oop, constitutionalist, mississippi, ratifi, centerpiec, 13th, amend, hawt, itstoofuckingeasi, championship, payday, digest, drawer, destini, livestream, champ, dentist, reced, sandiego, girli, prime, mover, scien, bruno, mar, debarg, phatti, io, osi, tangi,uku, tangibl, fie, lea, lahi, launcher, roadrag, fest, transluc, solid, airbag, liessss, whoopass, zoom, feelin, strength, extrem, sigh, fing, anorex, misfit, rhym, sorrow, failur, reflex, holic, hospic, doodi, diaper, kor, moooob, pattyfuckingbog, rig, declin, quaer, pounder, reassess, gatoraid, petal, chop, bello, quickli, honeybun, whatta, infrastructur, hardest, flo, lent, bap, click, clack, onna, nanosecond, fain, fuccin, encourag, galor, millionair, domin, unn, knick, wth, comfoabl, preppi, doggi, captur, eeeen, improv, wyd, carbon, emiss, dioxid, atmospher, underag, openli, superh, advis, glue, reallli, 8pm, central, snowday2014, creep, shawn, arch, bck, bff, cheesebal, hammer, pffttt, viue, lowlif, delux, timin, smalltownproblem, neversaid-itwasabadth, brooksndunn, suppoiv, selv, scheme, guid, rover, veng, yeen, thong, lataa, highest, ty, nomo, volleybal, hazelnut, byeeee, withou, popz, amen, emotion, flood, mj, fav, pin, awfi, oldhead, randomli, karat, founder, theo, polygamist, puppi, besid, leisuuuur, ww, tran, syst, clubinsomnia, principl, loan, 3times, wolf, cheap, exp, squish, ooo, itsi, bitsi, teeni, weeni, pock, spong, bob, remix, ana, chai, rotat, mcbob, appoint, agenda, vegeta, trim, ovari, refere, whass, hannin, clownin, yung, quicc, cinegram, licens, rooster, distant, remain, perfectli, guitar, twatch, kitchen, superhero, gooder, whiteknight, silent, passerbi, seeeeen, faceeee, maa, wayyyi, 15minute, werent, gung, fucksug, misread, sunglass, sleazi, lamp, lighten, ipod, dissin, map, duuuuuuuu, onyur, ghost, 2a, logo, birdhous, cur, gwop, gadget, cheater, eater, sloot, honeybadg, tu, puta, madr, blah, heroic, shank, pancrea, mild, itch, flowin, shown, beast, mvp, nerdi, aesthet, 1more, anal, banger, upward, aintnobread, era, civic, lx, 180k, weezi, ym, egyptian, inherit, ethiopian, luvv, swore, dea, gene, slimi, radiu, cooti, herp, eem, shittiest, breakup, gag, rural, potenti, everybi, dodg, wolverin, pokemon, scorpion, yesiamstillsalti, pinto, grigio, moscato, factori, exot, mutha, fuckah, dieselst, washington, ram, steven, wackson, weepi, fog, ceas, soar, hannnnnn, nicki, triff, neat, pistol, daylight, uuuuuuuuuu, stucc, mouthpiec, sammich, oakleaf, clevelandfan, clevelandprid, clevelandbrown, clevelandspo, revel, marshmallow, verifi, damnear, nb, homegrown, kenwood, handsom, drone, pinpoint, blanket, presenc, troopthank, billboard, yg, mayweath, intens, 3d, bass, trippp, wildin, arguem, argur, thuggeri, ammend, thenna, tonit, bussin, mouf, livestock, sketch, incas, par, attain, skndndndnd, constant, swiftli, sunris, thebird, jer-ryre, tenur, skit, cave, hai, fridg, healthi, photshop, 21st, ayyyyyye, babbbyyi, comma, shid, nvr, happin, seasid, whaaat, bomber, undermin, mythologi, veto, ayeee, loudmouth, dumbfuck, awaken, pea, ibuprofen, caldito, estuvo, snuggl, snuggi, hubbi, riiikkooo, recoveri, achiev, pun, prg, tribe, fsu, orgi, roxi, dawggg, dre, 131st, waiter, laughin, wealthi, squander, steph, rag, lmfaooo, shocut, merri, asvab, grumbl, shutdown, toilla, buster, blameamotherfuck, realer, tab, beacg, bod, adept, tong, recip, almond, flour, palm, inktob, twentysix, pappi, 5x2, sabl, paintbrush, hoooooussse, staircas, rat, bloke, kiddin, fishin, fucka, pork, mole, stoner, oss, ginyu, vent, insight, ahhi, freshmen, nea, louisvil, purg, dominican, fvck, edict, carn, asada, tajada, verd, queso, frito, milca, smoothli, peak, natl, mufuckin, drank, gin, alotta, newsfe, texan, innat, nooooo, pyhscopath, 8am, bruhhh, niiiieeggga, reus, soap, pitcher, mtvhottest, paradis, caress, runner, burger, marathon, nicknam, tot, agent, gaymarriag, ssm, refreshin, starv, thegoodlif, bullshittin, biz, lbvsbitch, inlov, rememb, person, such, type, outsid, patriot, unpleas, behavior, paicip, comb, hibern, bitchnigga, thevref, igggggi, yoi, blaze, network, hanger, goug, harmless, fetu, justifi, squat, icu, woozi, funci, wym, ajai, elv, gullibl, useless, critiqu, jawn, peen, nfl, polici, josh, endors, belli, 23y, allegi, kesha, lettuc, benzino, naah, bl, grandpa, bundi, cad-dilac, luxuri, cooder, fuckfriendzon, ici, soho, abel, depot, occas, dough, bummi, fwm, adjust, intercours, canttrustanyon, hatefakepeopl, vanilla, dunkin, muffin, ki-

morablaç, nyquil, sadden, motor, triton, sailor, ughh, 2faces, geez, proof, algebra, bonner, lookout, event, convoi, asia, capuano, oo, squinti, scoon, 3some, profession, untal, wizard, intoler, frc, p2, foxnew, unaccomplish, hoesaintloy, firstli, secondli, backwood, woe, tubbi, imsad, lisp, bitccccch, receipt, unrequit, linux, kernel, as-set, slingi, dingi, salamand, tweeti, manli, foul, violent, childhood, shitless, sheesh, jenni, perf, barrybond, jigga, chic, niec, khloe, french, lik, meech, modern, cran-berri, sloppili, thoo, stroll, tarah, elong, dun, overbit, megaldon, smith, ditch, jac, noll, stalker, m4w, talm, prep, cre, horri-fi, trial, convict, yak, fux, lupe, fiasco, il-legitim, censorship, empow, censor, wholesal, repetit, chili, cornbread, elev, stair, fatti, pompou, chowder, daytim, drove, exposin, onlyi, coin, spoken, linkup, underr, bailei, stub, bainbridgian, youuuu, voodoo, 10yrs, txtn, 2yrs, ainnn, cruze2014, defi-antli, otp, upppp, graviti, intellectu, youth, fantasyfootballproblem, earl, letz, getup, vocal, flu, emoto, destin, momz, loveit, booooooi, gal, otter, pier, burrow, lowest, workforc, yuhhh, wheat, belief, wdywt, juxtaposit, gr8, rampag, freemarket, rand-paul, scrawni, bespectacl, mourn, zeitgeist, bellicheck, inki, backup, usher, meeeeee, gangstaz, wive, pissr, defi, youpeopl, game7, deeper, trainer, hahahah, heel, plug, absurd, bratti, gentrifi, cheaper, launch, nakalagai, ng, handout, lalagai, pad, flyest, biggi, afta, choosi, fml, yasssss, deepli, devotedli, waitress, parseltoung, basilisk, awww, sellout, drill, impregn, copacet, roastin, stach, revers, psychologi, endear, bitchess, falcon, miguel, tono, ultra, zing, ka, cupcak, tighter, cheeto, likka, mar-gin, every1, bigass, meeeeee, coexist, occupi, iguana, pitch, obei, sayi, node, tube, screamn, cabl, pregnant, noooooooooo, rubber, renam, fuckn, autocorrect, flyover, angl, spaceship, knowww, massah, shaquita, yee, shotti, std, yup, perv, blndsun-doll4mj, riri, petti, ford, garland, merica, defenit, blink, amongst, sheep, frenchscal, lux, deliveri, finess, eyyyi, youn, duce, violat, download, collabor, orai, sampl, lem, reek, havoc, interfer, sumn, coleslaw, midnight, sincerest, apologi, pepsi, wvnextin6, gerri, yoursid, poland, shore, flopper, nh, reproduc, san, veic, horizont, sando, fink, catfish, pluck, tim, drinker, stonnaaaaa, brazilian, survivor, scruffi, favourit, stolen, tetherbal, adorb, litter, pissi, mattress, cringiest, whaddup, hog, windturbin, gasbag, jers, wr, aspir, electr, stim, benefit, sunshin, perfum, needl, aftereah, growup, sip, crumb, marker, rivalri, sprite, mickeyblowsyourmind, skype, dishin, coolatta, sopris, skylar, cheerio, slidin, nutt, naiv, taunt, apka, wais, bhi, khatam, chukka, simpli, in-terrupt, playlist, gramat, host, crumbl, casserol, faget, 2escape, indycar, cherri, witha, boa, agru, batch, relo, spank, perpetu, kilgor, utterli, memorabilia, therbi, stove, en-titl, nick, bumgarn, icanhashtaghoweveriw, complimentari, doj, yawn, crew, motto, poten, sew, mascato, floridaprimari, littlest, dumbest, hum, brazil, youaremoreattract, pubeless, runt, their, ball, bruh, kid, alon, pull, claim, guess, uya, gravel, llab, freebi, registr, fulltim, oveim, sameeee, ass, brittani, niggaa, tryanna, moma, immedi, 2min-utes, glock, verbal, aggress, med, moist, bint, lob, sumtim, mussel, str888, class-room, sumo, wrestler, ron, compel, h456d, hoodiest, prom, dere, feisti, counter, surg, spice, flake, cab, tractor, unfriend, liq, waitin, riff, raff, crazyi, fairweath, effect, centuri, snotti, democrat, suddenli, fluffi, mybabi, falcant, status, mme1636, black-kingz, veteran, hunch, peev, esophagu, rascal, biggovern, vei, sticker, ode, stake, simultan, mobb, trev, justin, beiber, unattract, carrol, celesti, tachiro, fou, ohh, dizzi, overheard, goodi, worship, cast, rough, swingin, michiganst, compass, saltin, awhil, tbtweet, eitha, lbv, unclean, brush, client, kimora, boobi, unlock, muthaafuckin, seri, diamondback, atm, gladli, catalog, raglyscrag, recess, sorceri, traumat, termin, hurl, incent, playen, cattl, prod, naam, engel, dood, dacht, eerst, uhm, iet, heet, kat, ook, oja, sidewalk, nuffin, nonstop, weirdosand, sparkl, hallelujah, solar, freeee, slither, coil, foreverrrr, younnnnng, flask, explor, fuse, mma, predict, linguist, deriv, scampi, despis, clich, origin, pinada, betcha, mk, maintain, mediocr, basura, horizon, prim, baddi, kendra, persona, amber, drool, su, stall, wib, abouttim, spider, redeem, qual, fraudul, domest, violenc, ebolian, goddess, gwap, dracula, ax, wankin, monster, snowboard, attest, 10k, focus, ai, geniu, perus, jant, bedtim, goooooood, savouri, 3peat,

overal, boxer, smear, fuccck, slipperi, paranoid, ahhhhh, braxton, regularli, voter, tweeter, taser, impeach, licker, porkchop, carrot, celeri, cayenn, coordin, lactos, heterochromia, iridum, marehood, bronie, mlp, wyome, gna, fantast, employe, nikki, moos, hims, wheet, sidetrack, monsta, nugget, appointe, farcic, proactiv, watcher, scent, dickhol, touchin, hadddd, stuf, typo, deadass, mastu, refund, kardashian, gen, disconnect, shmedium, translat, hollow, kaboom, salsa, poem, subwai, gape, nylon, robber, fckd, truuu, pusssi, hairlesssss, eyelash, flatfoot, lispi, bowleg, deform, snowman, fstow, paraphernalia, handin, chines, mocha, grandbabi, crw, ins, persist, aboion, cemeteri, southcarolina, uninform, nike, bada, raven, povei, roam, dedic, patti, sorry4thewait, grim, eharmoni, taquito, bunge, rawest, lawd, crept, trembl, fiberglass, careless, bitchesbelik, newyork, hoodbitch, parlai, comed, cola, bitchmast, chuuiu, repoodli, xx, yaya, tumblr, hag, xxxtra, eryth, vehicl, strippin, custodi, assss, gi, yasss, pharr, sarah, palin, ncaa, hoosierdaddi, lyin, cheatin, scoundrel, henni, aa-hahah, erybodi, ultimatpickuplin, upsid, uglier, bumpi, mondai, unoffici, duunkk, bat, signal, spanish, pacc, seater, vogu, atound, midsect, kimlau, sq, gothic, overlord, tmrw, gatsbi, l00py, illog, unhappi, soa, payrol, liftin, damp, huggin, ck, acceler, wrinkl, shud, hose, colder, summm, oversea, gass, squirrelli, heaburn, 9pm, turnout, sandal, robb, msnbc, viewer, nyyce, headac, summ, jeff, fisher, elig, ulcer, messin, dmt, sicc, shawnda, jockin, mandat, unconstitut, saian, milkshak, noun, perve, airplan, yeet, interv, lightbil, excel, sociolog, gluten, identifi, pub, alleg, bedroom, jayonna, mainli, slot, og, scar, whiffi, involuntari, climatechang, gauntlet, secretari, nawl, semest, zahra, pomegran, catcher, inspir, vineyard, profit, chik, hipotl, whitw, ph, chunk, trendin, melanin, immigr, gawd, knive, shack, ruffl, faker, chaser, facad, ij, wontgetm, whopper, fanni, enhanc, cutter, juvenil, minivan, yeahhhhhhhh, encount, rasor, mellow, pec, niggad, incarn, 4get, iggi, widow, ect, meani, spici, probat, pinch, panamono, asco, drugz, lat, unknown, asfck, googli, fenna, headless, extens, cord, wherearetheynow, dap, transcend, grandstand, pile, dodgerofzion, trai, redleg, foreskin, circumcis, greaser, eccentric, behead, journalist, gwenyth, sayfi, bei, poster, pud, wimmi, shithol, summfest, motorcycl, accolad, tase, burk, blackgirl, jealousy, sholl, tien, cansada, songz, bm, skate, ouh, learnt, amirit, bigot, smaest, dslr, yooooooooouuu, condescend, redsox, buzz, unboth, carryon, imediatli, hoze, gn, guala, meth, discrimin, histori, incit, blurri, pennant, thuglif, piti, mutat, evolut, enthusiasm, tink, lookatathehood, nightclub, crackhead, everrrrrrr, ba, toto, santi, highwai, skyscraper, telephon, dopest, fuq, dammit, gypo, dubstep, expand, fuh, gangster, riri22barbie, armor, slayer, helm, droppi, outgo, slumber, avatar, 10am, uno, webo, woyk, moanin, livid, weaker, grandest, seventh, everyo, mummi, panick, wwn, pong, vallei, mapl, doughnut, gta, peanut, diverg, tunheimr, juheard, weakkk, treadmill, hmu, homer, twitpic, waaaaannnnnt, hitler, leather, poon, civilis, uncivilis, stuf, jkbridgeturstraight, enforc, malwar, enforcem, carburetor, foyer, chevi, c10, rebuilt, xan, accessor, sexism, slush, speciali, tighti, whiti, restrict, dressin, mintu, cdfuuuu, vaniti, fiji, cinamon, handcuff, hookah, trenttruc, patricko, collect, credibl, hunger, 17th, bountyhunters4lyfe, woahh, affili, custi, manga, longest, recogn, fuccn, naughti, yello, mcoi, umm, annouc, mister, tribut, direction, absent, pledg, cd, paddi, item, politician, 60th, maggot, sac, claritin, solut, hispan, hangout, linguin, choppin, lapdanc, niggga, candid, tourebasebal, froyo, shordi, stem, sahara, slip, hirin, bootleg, senat, ri, commend, savant, sorrynotsori, chea, newwww, dykei, maven, whale, tiger, amus, nage, palac, class, ani, hair, ll, asse, b00gie, suppli, kingtunchi, meow, hen, paridg, poopin, pedophil, dolt, bham, softwar, summn, agoni, curli, toward, abou, 24k, rillo, chatter, alledg, yeaa, tiff, frat, fresher, youv, hack, bliss, crop, bachelor, stoop, nigor, spree, tigher, pu, hairlin, fac, invis, wire, invisiblebird, costli, tsunami, extramarit, sneaker, commut, coalit, sumthin, cookin, aaahhhhhh, spirit, christma, teezi, eit, 3am, formal, waaaaaa, chuck, flap, traprinthion, barca, reall, welt, disposit, 27and, imagineherfac, bihd, shuddup, alll, atl, turnup, snicker, hem, lobster, bettehanamobst, sewn, kimono, sea, aaron, christ, wishi, washi, crazzzi, fixit, hellen, keller, pokeflut, mute,

bratwurst, uber, 70s, quadraphon, stereo, bitchlol, method, emploi, england, play-book, yazz, applewood, crunk, dyk, fightin, gtfoh, yyyyyeelllloooooowwwwww, dbh, winnin, unnecessari, ogd, slump, flawgen, bihe, juan, abound, yada, fajita, dread, lmfaooo, peppa, barbeeequee, duh, awwwww, niggar, section, decreas, ps4, perplex, pentagon, worldwide, inferior, gpa, stitch, pursu, ayee, header, propon, jst, recap, preach, drift, bootai, splash, peppermint, raspberri, gelato, sorbet, heav, brighten, wi, rello, energet, shimmi, thu, endeth, 15m, revisit, column, ridicul, diz, diyyyi, revolut, gratata, chri, wasnt, shiii, derail, wintersmith, merci, maniac, centrevil, cvill, brainer, african, frican, publix, hermano, clai, utter, jfk, disagre, loyalest, fruitcak, pussy-footin, xxxma, santa, claw, memo, bride, khay, freakin, throb, looong, drier, goku, xma, iit, jaymohrspo, sleepov, silk, thee, lyi, spin, rainbow, raindrop, fearless, tenden, sugapuss, lastnight, scurl, degrad, pulledpork, babyjesu, lilsmokei, bcuz, betrai, intrest, sag, sunni, swagner, surfboard, shaven, decaf, nina, fuckkk, hunna, possum, giraff, plain, glove, pretenti, sicker, detail, inli, toothbrush, smuggler, critic, larger, gallon, lwayhustle, belvita, myth, sparki, unread, successfulli, chief, ferrari, ausmu, sockin, devout, 5iive, basem, donkei, hahahahahahahahaha, 50centmovie, beforei-selfdestruct, muthafuckin, payment, spazz, lon1, initi, pine, snooti, skimp, embras, beatbox, big10, hoosierst, paulgeorg, codyzel, youhavejustbeen, fuckdimmi, vinnys-notmadon, billgetsbun, thingi, classmat, 20mins, ian, believethat, drunktalk, sh, pice, poo, yanno, playn, thriller, bookgeek, bo, omari, sooooooooooooooooo, conscienceless, shutcho, hiden, condemn, river, insuffer, tropic, upscal, 10x, enerv, tornado, nest, wildlif, yaself, flightless, tens, wae, ars, former, chism, attach, dn, ak, mothafucka, len, auto, reluctantli, grimi, must, mouth, wrong, zoo, smilei, daniel, andrew, ove-hink, repress, drunken, flail, incoher, retro, hetro, nintendo, benzo, cougar, jetsgreen, tame, cajuncharm, assassin, respector, admin, fund, arrang, yaaaa, unto, spinelli, thinh, swirl, m8, crotch, ignit, thuggin, factor, nomin, gown, gawdd, biiiaaatch, teamspad, highgang, ovaaaaaa, shiiittt, snitchn, decor, 10m, 33ft, shadow, realm, thinkkk, shee, maaaa, otheeeeeeeer, baltimor, ratchetttttt, bxtche, greasebal, xfactor, genocid, combat, serenad, sneakersex, sockfetish, trainersex, braisin, parachut, goldig, uncircumcis, dicc, vdai, weknow, circu, tryout, oz, nigca, puzzi, tweaker, aux, nsme, redskind, deemef, therefor, ratha, sesh, blakk, lefti, frivol, equat, dasss, endzon, royal, gingerbread, dodo, saggin, rancher, taylor, rook, refight, eeri, sae, en, feeld, kawkin, neic, moneyi, whr, ouuuu, ita, siana, alu, polosi, nifo, nn, seduc, peekin, loyalll, yooooo, plzing, blinker, moveoutmywai, cori, latin, scotch, lurkin, peer, chrisi, jone, botta, conversatin, lesserfilm, stripei, nug, malzeno, fantasi, displai, disturb, profan, bwahahahahahah, hyu, resili, bou, bslfe, 40st, freestyl, 4s, gangsta, a1, wonderad, japanes, wobbuffet, bandana, screennam, lineback, trinit, boogi, befriend, wnna, ihop, shift, misplac, brethren, hiccup, porai, iwanttoplai, reconcili, britnei, xtima, walker, spiritweek, bec, beli, ved, sane, slower, appetit, montana, mil, scientist, cypher, skool, femin, vouch, cracka, 2k14, richi, twofuck, drain, balconi, reflect, fragil, wexican, hahahh, titanium, texa, strand, backpack, freeeeez, backdoor, sti, mosh, gooooo, awaaaaai, linda, buri, rivvv, spatoon, meridian, unfaith, awwwwwesomeeeee, lectur, sequin, scorecard, stoppag, panni, oldpaint, wahin, surf, happysundai, standbi, buss, trife, gell, whet, spark, witta, summa, ly-ingggggg, shambl, gosh, orderin, categori, waaaai, langdurig, gepest, worden, ze, kiem, smoren, vb, optreden, instinct, twink, quibbl, prosecut, umma, 5grand, iq, eurotrash, manbooti, tuat, disappear, interior, speaker, uhh, scor, tap, technic, fling, setup, stankin, pushi, inconspicu, gig, villag, burrito, potosino, superweak, throne, hopehegetskil, gassss, skier, ringless, ward, motif, bruhh, rum, exception, hallucin, wud, litet, measli, ashit, helot, mysterious, asshat, vandal, kyle, croquett, did, won, complain, alabama, investig, remarriag, redund, frumpi, lovingli, ribbon, gluton, felon, prelud, congressman, staff, firechor, lien, footin, hong, kong, youngin, wahog, cowardli, currenttv, coldhea, neverlovingsomeoneagain, dontneedanyon, andbeat, 9am, diarrhea, treater, ferkin, ipem, funcci, gabl, boof, jen, doodoo, awnser,

naaaa, longhair, rival, poabl, allllll, peski, spectin, konnnichiwa, embassi, satellit,
secondlin, foreplai, lice, claimin, 17k, retriev, tweak, nook, cranni, enlist, poccet,
berg, poppadom, livinthedream, shocak, spung, freshli, colloss, uglash, itni, bahaduri,
mein, hamesha, marn, tayyar, reht, erinblair, rabbit, turner, dutchess, consequ, 60s,
jo, ss, lemonad, vermontproblem, jiggi, thursdai, gaggler, uppppppp, squier, eras,
ewwww, homophobia, reta, cishetero, darn, avg, civil, fetch, pilot, helicopt, farquaad,
frank, wbu, 2much, umpir, monger, diamond, restrain, redonkulu, couesi, bainbridg,
isl, ferri, bowf, hydro, tore, flawg, ngeli, temper, frum, varsiti, ironwood, lexi, river-
sid, sheepl, storm, brew, eldman, snappin, slander, bru, lo, accident, yessssirrrrr,
allerg, pwoosi, fleeto, prescript, refil, grape, kool, jammer, arod, eggnog, lmaooooo,
pr20chat, poki, toaster, dribbl, 00am, instal, chin, sonsof, realnigg, qualitati, trail,
mutant, mayo, condim, bonnet, shitee, finalist, tooth, sesam, lion, tunchi, choosabl,
sleepi, hiddencam, lure, prenup, magin, baker, uppiti, adrenalin, halftim, checken,
het, ging, maar, zo, heftig, wond, niet, verwacht, beterschap, hoor, pinki, trickin, gd,
yous, jammin, streak, sodapop, cheeseburg, endang, 1v1, horoscop, bel, stunna, ac-
custom, steek, morel, vinger, neu, zelfd, bij, stenigt, vrouwen, bosj, tididi, strvp, cold-
est, jada, picket, latifah, titi, savin, hummu, broccoli, ueno, whiper, guest, headband,
pinstrip, dada, cuss, ja, moest, plisi, meteen, denken, willen, wel, meer, mensen, mij,
veellen, ieder, zijn, zaken, mag, noemen, wilt, ben, namelijk, erg, vrijheid, mening-
suit, fk, zaaaammnn, smooov, kobeshia, baddddddd, barn, luvin, jamammi, fakin, funk,
lawn, mower, headlight, reallif, sombodi, assless, chap, cathol, crappi, contest, veuv,
cliquot, outduel, brawd, pissin, mayn, crewwww, fizz, vite, victori, paai, juco, tough-
est, workproblem, workflow, byebitch, metro, carpool, midget, fridayfav, intercept,
suspicion, roug, wog, morph, bubblegum, dock, forgiv, paicularli, unhelp, blatantli,
car, see, am, cool, reason, dat, necessit, suhh, react, agitprop, aifici, trashyyi, issssss,
unclaim, quicker, talkinfgalot, wnba, ac, wettest, winteim, penitentiari, inequ, veer,
ya3ne, celib, luckili, unresolv, jade, janet, deprec, ftw, gummi, powerad, nemo, rust,
julli, gemen, trollen, durven, mene, twijfel, nemen, zegj, kuch, envi, billion, tower,
chequ, nuh, fin, edgewat, grl, yeaaah, tryhard, reblog, phuck, ripe, microphon, mofo,
twatchin, nie, 5hrs, bleedgreen, supper, besti, blackboard, disc, webbi, ooooo, thisti,
gayest, british, decad, courag, sharkett, dispos, 4ever, dictat, corp, fckin, jusi, omi,
anoyin, jab, heir, skateboard, flossin, whitetear, lessonofthedai, upk, turf, krenshaw,
montea, raggedi, pinoccio, worsum, lung, lans, raspi, impaial, firm, wept, weep,
penetr, atheist, punni, mainlin, wyo, anarcho, individu, fiya, bgc, toothpast, snuck,
franchis, devilish, 2day, homei, youngjef, yoursel, geni, datz, griff, 2weeks, began,
indyfam, boast, uo, superstar, finnegan, ceifi, wiunion, leezi, dwig, cardboard, ke,
swine, nile, whith, ahv, ananconda, italian, insul, empir, outcom, conf, upstat, mill,
writer, shoen, wildcard, loudest, cocktail, cone, nugga, guidanc, baptism, wishin,
fouh, hokag, patchouli, overwhelm, trassshhh, reassur, b4, cluck, spineless, sweeti,
bilingu, 15a, fisherman, knwin, 5k, bonfir, cuzz, mia, sped, stoke, fukk, erydai, hol,
cnt, niggasupr, felecia, booya, codin, ama, puedo, dijo, onlif, lattim, grai, bri, blushin,
nomg, suplexin, boit, falisha, forf, thankin, jog, saab1, asap, milit, notfeed, type-
fac, font, pointi, beak, heeb, lmoa, thirstin, confid, oleeee, maplerow, scholarship,
hail, pretttttti, amazi, boldest, hyposhit, downstair, llama, bracelet, waaaaai, lynch,
gambl, snapback, waddup, bangbang, caier, behi, cellar, via, aftermath, dandelion,
faher, olli, 240s, conceiv, permiss, hoopin, lobbi, tge, rubik, cube, fuxin, stormi,
pe, anywaaaaai, macklemoor, caddi, vega, fumbl, reel, unfil, command, scrape,
apologis, skrr, canon, equival, rebelli, titz, samuela, kidnapp, booshi, beeee, qb,
comic, chamber, twerkteam, yeaaaaahhhh, daydream, powerbal, lmaoho, influenti,
groovi, elder, digniti, amari, paranoia, spaghetti, russel, ohshitnigga, boost, switcha-
roo, wallofthewasatch, milwauke, brooo, janki, swell, eventu, 5yr, turntttt, moth-
afuckin, faction, unrealist, gulp, knoww, lyinest, district, yhe, 2million, blahblah,
madd, toss, overpass, ru, smoker, twit, virginnnn, warrant, bearer, pasa, shunsha,
joda, waaa, evem, shmoke, weeden, shiver, thatshitdoesntlookgood, bronco, roe, be-

war, massiv, tendici, infor, caer, ce, shiesti, ukulel, realis, quad, protein, crystal, convolut, currieri, kissther, sleigh, kitten, flourish, thanggg, antonio, bbw, sitter, neo, cleveland, hacker, shoplift, aunti, crossbow, prop, silverwar, golli, lee, bougi, western, repoer, adveis, 4wasting, countless, documentari, timb, deerin, wineproboz, geek, pessimist, 98lb, probl, damm, stingi, boycott, hij, lichter, kleur, beter, kompa, werkt, kleurenblind, gie, getlost, gnarl, straighten, sapphir, 18k, laziest, noregret, undignifi, sprint, transfer, buse, dawdl, dne, ruler, submarin, kinfolk, dreamgirl, wooonnnnttt, loung, girlz, household, cuhh, uma, discredit, factual, moocher, pharmacist, stillwai, honk, consecut, basedgod, transplant, competit, gringo, yaa, slumpin, shoppin, directi, leerkrachten, pest, kunt, voorstellen, groot, pestproblematiek, onder, leerlingen, paus, 13k, 00pm, preoccupi, beaten, spokesman, estupid, nair, s3, 4g, nottin, stolenbas, tilt, fittin, tooo, sibl, dancer, ballet, denomin, him, flameee, monstrou, mainestatepi, citizenship, amnesti, ppint, forese, forhick, hop2get, cmchat, sam, gagggggg, crosshair, percent, stainless, steel, applianc, snag, doorstep, melodi, demo, derbi, wacker, fondl, disingenu, egregi, properli, cigar, sacram, fym, undercov, heabreak, demolish, gimmmmmmi, minutesm, gubernatori, romo, mav, cannon, magnum, itchin, pshh, offa, slim, seal, 51st, muthafxcka, ackin, adderal, dimpl, prayer, crochet, apostl, simplest, dichter, gebeuren, racistisch, drek, komt, nagenoeg, alleen, hoek, buschi, ham, dreamt, undesir, clubmetro, phantom, priorit, farewell, hp, bobbl, cope, ot, wiseword, verdict, evolutionari, gentleman, climax, carl, glenn, maggi, rolex, 2for5, acr, makerr, oooh, chav, toppi, iss, hooker, trillion, alllll, killllllla, decatur, mead, passeng, complac, hii, tomar, bathrob, shed, pussyreal, lamin, emascul, unbutton, tekken, stoppin, prollu, magnet, grinch, wif, regent, rapp, eyi, pushin, hah, contempl, geyser, overplai, itv, ling, hooooow, gatorn, becr, wuh, mascot, riddanc, rabi, hoppin, iu, escal, awak, sofunni, global, fking, 20th, inna, settin, rappin, pj, toooo, submit, ummmm, pigeon, velcor, checkin, bitxh, thought, spawn, trashbucketchalleng, insensit, katrina, forver, nicest, gaug, prop8, fuckher-rightinthepussi, vice, versa, bt, mansplain, strang, masterchefjunior, beeotch, phonic, forgiven, transgress, wohi, brendon, uri, mustash, barrass, hitin, comebacktor, feud, shutemdown, sponsor, weeaboo, billi, attitud, close, lv, hv, qquit, bootyyyyyyi, thur, hahahahahaha, bishhh, erm, paragraph, whataburg, drunkenli, gir, cashin, swinger, haatsmurfen, slagveld, werd, crucifi, drew, adida, baggin, geweest, vaak, zegt, dit, nooit, veonen, dierngedrag, secretli, mandatori, oppon, runwai, kissin, trump, prez, grail, formula, nearest, addit, vein, johnel, 20k, trei, duper, complem, firework, salon, rhineston, tambout, anytim, smaphon, heaach, foun, turnin, calcul, circumfer, skitdaddl, bung, np, horseradish, tfti, camouflag, dimension, gore, 14th, sloth, euphor, gunrun, awk, kaep, idkmadz, shuffl, dent, cole, motiv, bonu, moal, combat, temperatur, materialist, cameo, quid, x2, laker, bac, machineri, slightli, superb, unansw, cork, knot, pug, approach, visibl, harbor, gyp, grrrrrr, dickmat, spittin, cj, december8th, taxi, matress, skiseason, dace, 3pm, afternoon, ramo, ojo, ahora, que, vivir, ello, sapl, emm, knowwww, boner, masqu, tuna, ambit, darker, nowb, slurp, bunga, mangia, platform, kindergaen, nikka, inniz, vdawg, hahahahah, farwel, holmezz, clerk, curiou, packag, buyin, keezi, oooooow, elat, grumpi, gibson, tina, shouldnt, hott, sublet, thirsti, calendar, ach, reathi, ddaaawwgggffaaacce, cccaallddeerooonn, aktin, uneaten, stockmantheliar, sequest, fucktardmobil, cring, 200k, observ, tyle, pale, uncouth, snivel, evn, vegetarian, cuntrag, cheapest, noodl, buter, syrup, 24hrs, bulbasuar, tini, lmaooooooooooooo, promo, huski, cmon, museum, admiss, spectacl, broski, kilt, canker, hinder, them, joselin, athea, onnat, som, wea, hahahahahahah, witchcraft, hysteria, onset, 13yr, wya, dotn, stackin, crackin, in2, misogynist, niic, schinder, hustlelinaa, isint, journal, tow, johndeer, feenin, koula, noooooooooo, shelv, cockei, ding, rofl, jaxon1114, thickest, unsold, thrift, restraint, disown, intimid, throwbac, cluuuuub, psa, barlei, teamrealbooti, growin, cocki, prolyi, grapevin, lewisvil, prohibit, context, missi, lop, tlkn, secondari, flier, canari, bankrol, wednesdai, tbb, islamophob, heaux, stung, java, minu, tramp, geekin, pansy, paul, ky,

wheezi, chronic, canunot, fuckoff, fwu, handbook, brow, fleekat, mamma, curfew, 2months, fuckyou, cig, myboi, tdf, skim, esa, gent, odia, caboos, prenupti, joooooook, mistakin, majest, gotonelessproblemwithoutya, botch, oyster, thinccin, biti, boolin, bleedin, hotdog, patient, tommy, checker, leopard, boni, du, thicker, lor, overnight, rippin, redtail, fosho, il, vitaligro, greatwhiteprivileg, play, wifingsquad2014, discourag, floatin, spankin, nine, platter, teamfluffnevabluff, lax, coughlin, geriater, anaconda, retrograd, wouldv, tyranni, buttock, bulldog, blocklist, topless, twitterspher, tif, wayn, gettin, da, read

Appendix E: Confusion Matrix for STTD Results in Chapter 4

Table E.1: Confusion Matrix: Baseline Results

		DT		kNN		NB		RF		SVM	
		Target	Other	Target	Other	Target	Other	Target	Other	Target	Other
Bag-of-words	Target	102	57	122	37	136	23	105	54	123	36
	Other	52	852	582	322	157	747	36	868	63	841
Doc2Vec	Target	83	76	111	48	25	134	63	96	0	159
	Other	75	830	96	809	7	898	19	886	0	905
Chi-square	Target	23	47	44	26	53	17	10	60	4	66
	Other	22	802	112	712	182	642	1	823	2	822
Entropy	Target	107	51	122	36	147	11	91	67	123	35
	Other	58	845	723	180	298	605	37	866	69	834
Low Variance	Target	104	55	99	60	134	25	105	54	116	43
	Other	67	837	206	698	122	782	35	869	73	831
Firefly	Target	112	47	116	43	139	20	85	74	120	39
	Other	67	837	552	352	204	700	33	871	77	827
LDA	Target	96	63	57	102	130	29	84	75	79	80
	Other	58	846	49	855	114	790	26	878	38	866
PCA	Target	89	70	119	40	89	70	73	86	122	37
	Other	74	830	585	319	32	872	9	895	73	831

Table E.2: Confusion Matrix: STTD Results

		DT		kNN		NB		RF		SVM	
		Target	Other	Target	Other	Target	Other	Target	Other	Target	Other
Bag-of-words	Target	155	3	139	19	158	0	142	16	138	20
	Other	22	882	17	887	37	867	6	898	17	887
Doc2Vec	Target	125	34	140	19	9	150	120	39	0	159
	Other	47	858	68	837	1	904	13	892	0	905
Chi-square	Target	25	3	19	9	27	1	23	5	25	3
	Other	0	801	0	801	13	788	0	801	0	801
Entropy	Target	137	21	141	17	157	1	141	17	137	21
	Other	6	895	33	868	191	710	6	895	3	898
Low Variance	Target	156	2	157	1	158	0	145	13	140	18
	Other	22	882	88	816	39	865	9	895	19	885
Firefly	Target	135	23	116	42	158	0	135	23	137	21
	Other	26	878	64	840	111	793	15	889	22	882
LDA	Target	150	8	104	54	150	8	150	8	151	7
	Other	10	894	12	892	8	896	9	895	9	895
PCA	Target	144	14	137	21	54	104	111	47	138	20
	Other	16	888	17	887	11	893	2	902	18	886

Appendix F: Significance Test for Performance of STTD and PB-STTD

Table F.1: PB-STTD target class significance test with the Baseline and STTD; where the null hypothesis (i.e. the target class had no improved performance detection with the application of PB-STTD) is measured based on the significance level where $p\text{-value} < 0.05$.

	Data sets			Techniques			
Baseline	DS1	DS2	DS3	Bag-of-words	Chi-square	Doc2Vec	LLDA
DT	0.03	0.03	0.03	0.04	0.04	0.04	0.04
GB	0.03	0.03	0.03	0.04	0.04	0.04	0.04
NB	0.03	0.03	0.04	0.04	0.04	0.04	0.16
SVM	0.03	0.22	0.03	0.12	0.28	0.04	0.04
STTD	DS1	DS2	DS3	Bag-of-words	Chi-square	Doc2Vec	LLDA
DT	0.35	0.03	0.50	0.50	0.04	0.12	0.04
GB	0.13	0.03	0.22	0.04	0.04	0.28	0.50
NB	0.35	0.03	0.13	0.28	0.04	0.12	0.50
SVM	0.03	0.22	0.35	0.12	0.50	0.04	0.04