

# Semantic Analysis of One Million #GamerGate Tweets Using Semantic Category Correlations

Phillip R. Polefrone  
PhD Candidate, Department of English and Comparative Literature  
Columbia University  
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## Abstract

This paper develops a methodology for describing the contents of a controversy on a microblogging platform (Twitter) by measuring correlations in broad semantic categories. Over one million tweets were gathered daily from November 2015 to June 2016 using Tweepy and the Twitter API, over 280,000 of which were not retweets and thus contained unique data. Using a Python implementation of Roget's hierarchy of semantic categories, these tweets were collected in bins of one thousand and analyzed using a "bag of categories" model, or a categorized bag of words. The linear correlation of each category with the "WOMAN" category was measured and compared with a control group. The categories concomitant with "WOMAN" in the test corpus include some noise, but over all present a meaningful description of the conversation that adheres to its known qualities. This result suggests that a more developed version of this methodology could be used to detect conversational trends on social media platforms more easily and with less human labor than other similar methods.

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## Introduction

At present, the common methodologies used to perform semantic analysis of social media content present many limitations. Much of the existing work on the topic of online harassment uses network analysis (Baio 2014) or sentiment analysis (Wofford 2014), neither of which takes the specific semantic meaning of the posts themselves into account. Although the possibilities afforded by network analysis are exciting, it derives conclusions primarily from who is connected to whom, not the contents of any message sent. Sentiment analysis abstracts word meanings into a numeric value of positive or negative sentiment from a dictionary of human-

supplied sentiment ratings. While widely utilized, reducing semantic content to a single vector limits the meaningfulness and scope of the conclusions that can be drawn from it. By far the most promising of the common methods is the application of machine learning and statistical modeling techniques (Ostrowski 2015; Burnap & Williams 2015), but the requirements of these methods are at odds with the nature of many social media platforms. The need for large samples is inconsistent with the medium's usual brevity, while the need for human-generated training corpora makes keeping up with rapidly evolving conversations impractical. There is, then, a disconnect between methods that are flexible enough to keep up with the medium and those that are robust enough to provide meaningful conclusions.

This presents a potentially existential problem for social media platforms and their users. Platforms such as Twitter intends to give all users an equal platform, but ungoverned usage limits the ability of many women as well as racial, religious, and sexual minorities to enter these forums without fear of harassment or worse. The difficulty that faces a company trying to semantically classify posts automatically while keeping up with shifting topics means that a culture of harassment is able to persist and keep some users from the freedoms others enjoy. A method to provide more meaningful semantic analysis of posts in real time could ease the governance of these forums and ultimately help protect the right of all users to express themselves online.

The purpose of this paper is to outline and begin developing a method that uses broad semantic categories, derived from a hierarchy introduced in Roget's thesaurus, to detect the semantic content of social media trends. I will evaluate this method based on its ability to describe the content of the Twitter conversation marked by the #GamerGate hashtag, which has notoriously led to harassment and silencing of marginalized groups in the video gaming

community. I will analyze the raw counts of these categories using a “bag of categories” model in which a bag of words derived from a bin of one thousand tweets is replaced with the categories that describe each word. After normalizing these counts according to the total number of words in each bin, I will calculate the linear correlation of each word category with the “WOMAN” category. Finally, I will evaluate the resulting correlations by comparing them with a control group of 1.6 million tweets gathered by Stanford’s Sentiment140 group (2009).

I expect this approach to yield a sense of how a certain topic is being discussed by identifying correlative categories, or in other words, categories that covary according to shifts in the conversation. This study uses a much-discussed controversy so that its known features can be used to evaluate two factors: the extent to which the method is descriptive and the manner of its description. Because the method is still naive in ways described below, I expect some correlative categories to be descriptive and some to either qualify as noise or be difficult to interpret. In particular, I expect the categories that correlate with the “WOMAN” category to illustrate the harassment and denigration that has characterized the discussion, as well as the recourse to “freedom of speech” rhetoric that pro-GamerGaters are known to use as a smokescreen.

This approach rests on several basic assumptions. The first is that #GamerGate is a movement devoted to maintaining gaming culture’s domination by white heterosexual males, and that it achieves its goals by harassing, threatening, and overwhelming its opponents. This interpretation is consistent with most examinations of the movement beyond the pro-#GamerGate contingent itself, but those within the movement frequently claim it is about “media ethics.”<sup>1</sup> Some might claim that this assumption constitutes question-begging, but as I am

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<sup>1</sup> This claim is undercut by one of their key pieces of evidence. The movement began with a campaign against Zoe Quinn, a game developer best known as the creator of *Depression Quest*. Future participants in the movement began harassing Quinn, alleging that she exchanged sex for favorable reviews for her games. It appears, however, that these claims

evaluating the method's effectiveness according to its ability to detect this trend rather than using the method to prove the existence of the trend, it should not present an issue. My second assumption is that Roget's word categories correspond meaningfully to a human understanding of language. This assumption is supported by findings that methods built on a Roget framework perform at a success rate similar to that of human users (Jarmasz & Szpakowicz 2012; McHale 1998; Klingenstein, Hitchcock, & DeDeo 2014).

Several methodological difficulties persist that will limit my findings. First, the tool I built to incorporate Roget's framework into a natural language processing suite is based on the 1911 edition of Roget's thesaurus (Roget 1991), meaning that fewer of the words will match the word-category dictionary than would be the case with a more recent version. The need for a digitized, plain text version for automatic processing restricted me to editions that had gone out of copyright, however, so without additional resources, this problem will persist. Second, no edition of the thesaurus has kept up with the rapidly changing contours of language on Twitter, meaning that much semantically meaningful and relevant content has been excluded from the model. Third, the rate of correspondence between the words in the corpus and those in the thesaurus could be improved by more sophisticated stemming and lemmatization. Finally, and perhaps most significantly, the project is hindered by Twitter's restrictive licensing policy, which has prevented me from obtaining the most relevant data from the beginning of the hashtag's lifespan. My data covers the second year of this lifespan, a period marked by self-referentiality and rehashing of previous arguments, while the ideal dataset would include data from the most

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began with a post by a giltied ex-boyfriend, Eron Gjoni, which led to a cascade of misogynistic comments and threats that have characterized the discourse since (Parkin 2014).

volatile period (in the first month, before the bulk of the press coverage had occurred) when threats and harassment were at their most extreme.

Several terms that require more explicit definition. A **category** will refer to a numbered section in Roget's Thesaurus (1911). All categories refer to the lowest level of abstraction in the category hierarchy, unless otherwise indicated. (The full hierarchy is reconstructed in my "Roget Tools" based on the headings and subheadings above each category, and other levels of abstraction can be used.) A **mention** refers to a tweet that tags a user's screen name with the "@" sign, which causes notifications to be sent to that user and the tweet to appear in the user's timeline. A **hashtag** refers to a word or words preceded by a "#" and not separated by white space; it is a common convention on Twitter for linking tweets to an ongoing conversation. A **supertweet** is a term coined by [grant\_online\_2011] to describe the process of aggregating multiple tweets into bins for modeling and analysis. Supertweets in this paper contain one thousand tweets unless otherwise specified. A **bag of words** indicates a set of words to which order is irrelevant.

## **Review of Related Literature**

Two categories predominate in the literature relevant to this study: computational studies of GamerGate and other instances of online harassment, and semantic analysis of text using Roget's or other word categories.

### *Studies of Online Harassment*

Andy Baio's "72 Hours of #GamerGate" (2014) collects and analyzes the statistics of three days' worth of tweets using the "#GamerGate" hashtag and the associated users. He finds that ~69% of the tweets are retweets, which is reflected in my dataset. He also found that many

of the accounts responsible have a very low “age,” pointing out that “[r]oughly 25% of all Gamergate activity is coming from accounts created in the last two months [as of October 2014]” while the average account age for a general sample has a more even distribution (Baio 2014). Significantly, the #GamerGate hashtag is used ten times more frequently by pro-Gamergate users than anti-Gamergate users, meaning that findings using his hashtag disproportionately describe the pro-Gamergate side of the debate.

Taylor Wofford and Newsweek’s “Is Gamergate about Media Ethics or Harassing Women? Harassment, the Data Shows” (2014) uses sentiment analysis performed by the company BrandWatch to analyze a corpus of tweets representing the hashtag from September 1, 2014 to October 23, 2014. They found that a female game developer (Zoe Quinn) was mentioned in fourteen times as many tweets as a male game journalist (Nathan Grayson) despite both facing the same accusation. The same trend was found when comparing male and female journalists (Stephen Totilo and Leigh Alexander) writing in similar contexts. Although tweets directed at Grayson and Totilo were classified as more negative than those directed at Quinn, Alexander, and others, a greater number of negative tweets were found to be directed at the female users studied. The quantity of negative sentiment, then, taking into account the relative volume of tweets, was found to be greater in the tweets received by the female users studied.

Pete Burnap and Matthew L. Williams analyze the proliferation of hate speech following triggering events in “Cyber Hate Speech on Twitter: An Application of Machine Classification and Statistical Modeling for Policy and Decision Making” (Burnap & Williams 2015). The authors demonstrate the applicability of machine learning to social media contexts in which hate speech is present, using syntactical pattern recognition and a human-tagged training corpus.

## *Previous Applications of Roget's Categories for Semantic Analysis*

I was introduced to Roget's category hierarchy as a methodology at a talk by Simon DeDeo on (Klingenstein et al. 2014), which uses these categories and latent Dirichlet allocation to map the "civilizing" trend in verdicts from London's Old Bailey legal archive. This study uses Roget's categories to "coarse grain" the language of trial transcripts, studying the shifting logic according to which crimes are classified as violent or non-violent. Latent Dirichlet allocation has been an effective method of topic modeling in other semantic studies of social media content as well, e.g. (Grant, George, Jenneisch, & Wilson 2011). I adopted their method of coarse-graining as well as adapting the method into an open-source tool for this study.

Jarmasz and Spakowicz (2012) and McHale (1998) have both demonstrated Roget-based methods' ability to detect word similarity comparable to human users. The latter also finds that the method compares favorably with WordNet, a similar tool. Stan Spakowicz has done extensive additional studies of using Roget's thesaurus as a natural language processing tool, including an exploration of automatic updating (Kennedy & Szpakowicz 2014).

## **Methodology**

My methodology can be divided into three main steps:

1. Gathering test and control data
2. Classifying words by Roget's categories
3. Determining category correlation coefficients for test and control data

### *Gathering test and control data*

I collected a live stream of tweets to create a corpus of test data by scheduling a daily automatic query of Twitter's API. Using Tweepy (2009), a Twitter API wrapper for Python, I gathered as many tweets as possible that use the "#GamerGate" tag between November 18, 2015

and June 30, 2016, a total of 1,049,890 tweets. Scrubbed of retweets, the total was 281,449 tweets. To clean the data, I eliminated all tokens with non-alphanumeric characters, including mentions and hashtags.

My control data is taken from Sentiment140's corpus, a Stanford University project that facilitates brand- and trend-based sentiment analysis (Sentiment140 2009). Using a range of queries, they gathered 1.6 million tweets, which I split into bins of 100,000 for comparison with the test data.

### *Classifying words by Roget's categories*

To classify the words by category, Roget's thesaurus first had to be adapted for use in a natural language processing environment. I transformed the 1911 edition of the text from Project Gutenberg (1991) into a set of nested Python dictionaries, creating a catalog of words in the thesaurus according to the category or categories that describe them. In total, there are 1044 categories. Each of these categories can be traced up the hierarchy to categories at a higher level of abstraction if desired, though only the lowest level was used in this study.

After a "bag of words" was made out of each bin of one thousand tweets, each word was replaced by the category or categories that apply to it, resulting in a "bag of categories" containing where applicable and null categories where none applied. If a word fell into multiple categories, its ambiguity was preserved by including all relevant categories in the bag.

A frequency distribution was created for each bag of categories, providing a count for each category, which was then normalized for the total word count (categorized or not) for each bag. These normalized frequencies were recorded in a spreadsheet for correlation calculation.



This process was applied to both the test and control corpora, except that the test data used bins of 10,000 tweets and the control data used bins of 100,000 tweets. There were 282 bins for the test data and 108 bins for the control.

### *Determining category correlation coefficients for test and control data*

For each set of data, I calculated the linear correlation of each word category with the “WOMAN” category across all the bags of categories derived from the bins of one thousand tweets. I then isolated the categories that were statistically significant ( $p < .05$ ) for the number of samples. In the case of the control data, I chose the top twenty-five categories, all of which correlated to a degree that was statistically significant for the number of samples.

## **Analysis of Data**

Table 1 shows the categories that correlate with “WOMAN” in the test data, and Table 2 shows these categories with the words in that category for additional interpretive context. Many of the category names in themselves are meaningful—“PENALTY” seems to point to calls for retribution by one side against the other, while “OSTENTATION” could either indicate criticism of the rhetoric of the other side of the argument or a common trope in criticizing women for attention to appearances (hardly unique to GamerGate in the history of misogyny). Other categories appear to be noise until the list of category words is inspected carefully. The baffling “HORIZONTALITY,” for example, comes into focus when one considers that any instances of the word “lie” are being interpreted quite literally as “making oneself horizontal” when classification as an accusation of dishonesty would be more appropriate and meaningful.

Trends can be detected in this list of category correlations:

### *Words of Conflict*

These are words that might appear as features of an argument regardless of the context of that argument, particularly a bitter argument between two clear sides that is defined by acrimony. Categories include:

- PENALTY, DECREMENT, DISCORD, INCREDULITY, PHYSICAL INSENSIBILITY, REGRESSION, VIRTUE, DECEIVER, RELINQUISHMENT, HELL, NOBILITY, REPETITION, TROPHY, TRUTH, INELEGANCE, HASTE, ENVY, MALEDICTION

### *Misogynistic Tropes*

Like “OSTENTATION,” discussed above, these categories are familiar in the history of vilifying women as a group. They include categories that, in context, seem to imply a reduction of a person to appearance or physicality, deemphasis of intellect, and implications of deception, dishonesty, or manipulation. Categories include:

- MATERIALITY, OSTENTATION, HORIZONTALITY/DECEIVER, ORNAMENT, DIMNESS, DECEIVER, PRODUCTIVENESS/PRODUCTION (birth, procreate, etc.), INGRATITUDE, JEWELRY, APPEARANCE, JEWELRY

### *Sexual Language*

This list is self-explanatory, but there are several categories that I am including because the best explanation for the correlation with “WOMAN” is miscategorization of modern sexual slang. (In these instances, I will include the word in parenthesis.) Categories include:

- STREAM (“blow”), CARRIER (“ass”), SEXUALITY

These categories are almost entirely absent from the control group, as can be seen in Figure 3. Indeed, the contrast is surprisingly clear: the categories that most strongly correlate

with women in the control group are almost uniformly positive, so much so that there may be cause to look for experimental error. The top four categories, 'FRIENDSHIP,' 'FAVORITE,' 'LOVE,' 'BENEVOLENCE,' tell the tale of the distribution, and none of the categories at the top of the test distribution appear high up in the control group's list. It appears that the category correlations exposed in the #GamerGate tweets are unique to that dataset.

## **Conclusions**

As expected, this method of semantic analysis yielded results that are both descriptive and legible—even more legible than expected. There is a clear trend in these category correlations. In GamerGate's corner of Twitter, women are discussed in terms of their material form and appearance, with reference to common misogynistic tropes, and in an inflammatory manner characteristic a bitter disputes. There is also a proliferation of sexual language that accompanies these categories. The mixture of these broad categories describes the trend that is visible to the human eye, but on a scale that exceeds what a human user can parse in a comparable amount of time.

Nevertheless, this is a naive instantiation of the methodology that leaves much more room for improvement. I did not deal with n-grams in this experiment, despite the presence of n-grams in Roget's word dictionary. I also did not stem or lemmatize the words, which could have reduced the number of words that fell into a null category. Perhaps most important, I have not removed the archaic entries or attempted to update the word dictionary in any way. This introduces more noise into the system, but it also prevents the method from picking up many more modern terms. Some means of implementing a more modern version of the thesaurus, a

means of manipulating WordNet data to add entries to the dictionary, or a protocol for manual addenda could aid the process considerably.

Confidence in my interpretations is impossible without broadening the study to include other known controversies that are similarly acrimonious and have a clear target of abuse. There is sadly no shortage of misogynistic hashtags on Twitter, so replicating the results in other contexts should not present a challenge. Doing so requires being able to get to the epicenter of a controversy, though, and studying it from beginning to end. This will remain difficult as long as Twitter's licensing agreements and terms of use remain as obstructive as they currently are, so it is advisable to begin collecting data as early as possible when a useful topic emerges.

Finally, a word on the purpose of this study. Developing automatic semantic analysis is not meant as a first step in automatically blocking, punishing, or censoring users. Rather, it is meant as a way of flagging certain topics for monitoring by the governing bodies of a given social media forum. And contrary to what a pro-Gamergater would surely say, the intention is not to censor the speech of some users, but to make sure that everyone can participate in the modern public forum online without fear of threats or harassment. In a forum as huge as a platform like Twitter, some degree of automation is required to bring content to the attention of human arbiters.

Categories	Statistically Significant Correlations with "Woman" by Category (p < .05)
('WOMAN', 'cat0374')	1
('PENALTY', 'cat0974')	0.2165915529
('MATERIALITY', 'cat0316')	0.206136624
('OSTENTATION', 'cat0882')	0.1931942794
('DECREMENT', 'cat40.a')	0.175721327
('HORIZONTALITY', 'cat0213')	0.1661889801
('DISCORD', 'cat0414')	0.164865744
('SIMPLENESS', 'cat0042')	0.1579639682
('RESPECT', 'cat0928')	0.1572288105
('LEARNING', 'cat0539')	0.1561260369
('INCRECUDILITY', 'cat0487')	0.1536853448
('CARRIER', 'cat0271')	0.1493326214
('STREAM', 'cat0347')	0.1420658763
('ORNAMENT', 'cat0577')	0.139249848
('ARRIVAL', 'cat0292')	0.1370752301
('TEACHING', 'cat0537')	0.1364858972
('PHYSICAL INSENSIBILITY', 'cat0376')	0.1340969768
('REGRESSION', 'cat0283')	0.1334929839
('DISUSE', 'cat0678')	0.1316266895
('VIRTUE', 'cat0944')	0.1303371881
('DIMNESS', 'cat0422')	0.125913392
('MESSENGER', 'cat0534')	0.1242361704
('VALUE', 'cat812.a')	0.1238270939
('DECEIVER', 'cat0548')	0.1231316459
('DRYNESS', 'cat0340')	0.1210036872
('PUBLICATION', 'cat0531')	0.1204010077
('RELINQUISHMENT', 'cat0782')	0.1194993812
('LINING', 'cat0224')	0.1193638456
('ARTLESSNESS', 'cat0703')	0.119336499
('NECESSITY', 'cat0601')	0.1185088886

## Figures:

Figure 1:

Category

Correlations

with

"WOMAN" in

Test Group

Figure 2: Correlating Category Words with “WOMAN” in Test Group

Roget Categories	Words	Correlation with “WOMAN”
WOMAN	['bachelor girl', 'betty', 'bitch', 'consanguinity', 'cotquean', 'cow', 'dame', 'doe', 'dowager', 'dyke', 'effeminate', 'estrogen', 'ewe', 'fair sex', 'female', 'feminality', 'feminine', 'feminist', 'feminize', 'frow', 'gammer', 'girl', 'good wife', 'good woman', 'goody', 'grisette', 'gynaecic', 'gynecaeum', 'gynecic', 'hen', 'henhussy', 'her', "hers.", 'lady', 'ladylike', 'lesbian', 'lioness', 'madam', 'madame', 'maidenly', 'mare', 'matron', 'matronage', 'matronhood', 'matronly', 'mistress', 'mollycoddle', 'Mrs', 'muff', 'muliebrity', 'Nanny goat', 'new woman', 'nymph', 'oestrogen', 'old woman', 'paternity', 'petticoat', 'Pron', 'rani', 'roe', 'she', 'she-', 'she goat', 'sissy', 'softer sex', 'sow', 'squaw', 'suffragette', 'suffragist', 'tabita', 'the fair', 'the sex', 'tigress', 'unmanly', 'vixen', 'Vrouw', 'weaker vessel', 'wench', 'wife', 'wifely', 'woman', 'woman is the	1

lesser man', 'womanhood', 'womanish', 'womankind',  
'womanly']

PENALTY  
['amerce', 'amercement', 'confiscate', 'confiscation',  
'damages', 'deodand', 'escheat', 'estreat', 'fine', 'forfeit',  
'forfeiture', 'mulct', 'pain', 'pains and penalties',  
'penalty', 'penance', 'retribution', 'sconce', 'sequester',  
'sequesterate', 'sequestration', 'the devil to pay',  
'weregild', 'wergild'] 0.2165915529

MATERIALITY  
['article', 'bodily', 'body', 'brute matter', 'corporal',  
'corporality', 'corporeal', 'corporeity', 'corpus',  
'element', 'experimental philosophy', 'flesh and blood',  
'frame', 'hyle', 'impersonal', 'material', 'materialism',  
'materialist', 'materialistic', 'materiality',  
'materialness', 'materials', 'matter', 'natural  
philosophy', 'neuter', 'nonsubjective', 'object',  
'objective', 'pabulum', 'palpable', 'parenchyma',  
'physical', 'physical condition', 'physical science',  
'physicism', 'physicist', 'physics', 'plenum',  
'ponderable', 'principle', 'sensible', 'somatic',  
'somatics', 'somatism', 'somatist', 'somatology',  
'somatoscopic', 'something', 'still life', 'stocks and  
stones', 'stuff', 'substance', 'substantial',  
'substantiality', 'substantialness', 'substratum',  
'tangible', 'thing', 'unspiritual'] 0.206136624

['all decked out', 'array', 'attitudinarian', 'attract attention', 'ball dress', 'be ostentatious', 'blazon forth', 'brandish', 'ceremonial', 'ceremonious', 'ceremony', 'chic', 'claptrap', 'come forward', 'coup de theatre', 'court dress', 'cry up', 'cut a dash', 'cut a figure', 'cut a splash', 'cut a splurge', 'dangle', 'dangle before the eyes', 'dash', 'dashing', 'decjed out', 'demonstration', 'display', 'dramatic', 'dress', 'dressed to kill', 'dressed to the nines', 'emblazon', 'endimanch\_e', 'equipage', 'etiquette', 'evening dress', 'exhibit', 'exhibition', 'exposition', 'f=ete', 'fancy dress', 'field day', 'figure', 'figure away', 'flaming', 'flashing', 'flaunt', 'flaunting', 'flourish', 'flourish of trumpets', 'flying colors', 'fop', 'foppery', 'form', 'formal', 'formality', 'frippery', 'full dress', 'fuss', 'gairish', 'gala', 'garish', 'gaudy', 'gaudy as a butterfly', 'gaudy as a peacock', 'gaudy as a tulip', 'gay', 'glitter', 'glittering', 'grand', 'grand doings', 'grand function', 'hand out', 'have framed and glazed', 'high-sounding', 'hold up', 'in best bib and tucker', 'in Sunday best', 'insubstantial pageant', 'janty', 'jaunty', 'magnificence', 'magnificent', 'majestic', 'make a dash', 'make a display', 'make a show', 'make a splash', 'make a splurge', 'man millinery', 'march past', 'millinery', 'mount', 'mouth honor', 'mummery', 'ostentation', 'ostentatious', 'pageant', 'pageantry', 'palatial', 'parade', 'pomp', 'pomposity', 'pompous', 'pretense', 'pretensions', 'pretentious', 'prink', 'procession', 'promenade', 'punctilio', 'punctilious', 'punctiliousness', 'put a good face upon', 'put a smiling face upon', 'put forward', 'put oneself forward', 'review', 'ritual', 'set off', 'set out', 'show', 'show off', "show off one's paces", 'showing off', 'showy', 'solemn', 'solemn mockery', 'solemnity', 'spectacle', 'spectacular', 'splash', 'splendid', 'splendor', 'splurge', 'sport', 'stage effect', 'stage trick', 'star it', 'starched', 'starched stateliness', 'state', 'stateliness', 'stately', 'stiff', 'strut', 'sumptuous', 'tailoring', 'theatrical', 'tomfoolery', 'tour de force', 'trot out', 'turgid', 'turn out', 'with beat of drum', 'with flourish of trumpet', 'with flying colors']

OSTENTATION

0.1931942794

DECREMENT

['afterglow', 'decrement', 'deduction', 'defect', 'discount', 'eduction', 'loss', 'waste']

0.175721327



['accubation', 'accumbent', 'alluvial', 'azimuth', 'be horizontal', 'billiard table', 'bowling green', 'butte', 'calm', 'calm as a mill pond', 'couch', 'couchant', 'cricket ground', 'croquet ground', 'croquet lawn', 'dead flat', 'dead level', 'decumbence', 'decumbency', 'decumbent', 'discumbency', 'esplanade', 'estrade', 'even', 'fell', 'flat', 'flat as a billiard table', 'flat as a bowling green', 'flatness', 'flatten', 'floor', 'horizontal', 'horizontality', 'horizontally', 'jacent', 'knock down',  
HORIZONTALITY 'lay down', 'lay out', 'ledge', 'level', 'level plane', 'lie', 'lie 0.1661889801  
down', 'lie flat', 'lie prostrate', 'loll', 'lying', 'lying down',  
'mesa', 'on all fours', 'on its beam ends', "on one's back", 'parterre', 'plain', 'plane', 'plateau', 'platform',  
'procumbent', 'prone', 'proneness', 'prostrate',  
'prostration', 'reclination', 'recline', 'recubant',  
'recumbency', 'recumbent', 'render horizontal',  
'resupination', 'sit down', 'smooth', 'smooth as glass',  
'spirit level', 'sprawl', 'stratum', 'supination', 'supine',  
'table land', 'terrace']

DISCORD ['ajar', 'altercation', 'apple of discord', 'at cross 0.164865744  
purposes', 'at daggers drawn', 'at feud', 'at high words',  
'at issue', 'at loggerheads', 'at odds', 'at sixes and  
sevens', 'at variance', 'barney', 'battle ground', 'be  
discordant', 'bear garden', 'bicker', 'bone of  
contention', 'bone to pick', 'brabble', 'brand of discord',  
'brangle', 'brawl', 'breach', 'breach of the peace', 'break  
squares with', 'break with', 'breeze', 'broil', 'cat-and-  
dog life', 'clash', 'come amiss', 'commotion', 'conflict',  
'contentious', 'contentiousness', 'controversial',  
'controvert', 'cross purposes', 'declaration of war',  
'declare war', 'demel\_e', 'differ', 'difference',  
'disaccord', 'disagree', 'disagreeing', 'disagreement',  
'discord', 'discordant', 'disputant', 'disputatious',  
'dispute', 'disputed point', 'disruption', 'dissension',  
'dissent', 'dissentient', 'dissidence', 'dissonance',  
'disturbance', 'disunion', 'disunite', 'disunited',  
'division', 'division in the camp', 'Donnybrook',  
'Donnybrook Fair', 'embranglement', 'embroil',  
'embroiled', 'embroilment', 'enmity', 'entangle',  
'faction', 'factious', 'fall foul of', 'fall out', 'family jars',  
'fasten a quarrel on', 'feud', 'fish in troubled waters',  
'fracas', 'get into hot water', 'gladiatorial', 'ground of  
quarrel', 'hate', 'have a bone to pick', 'have a crow to  
pluck with', 'have no measures with', 'have words',  
'high words', 'hubbub', 'imbroglio', 'in hot water',

'jangle', 'jar', 'jarring', 'join issue', 'jostle', 'jostling',  
'kick up a dust', 'kick up a row', 'Kilkenny cats',  
'litigant', 'litigate', 'litigation', 'litigious', 'live like cat  
and dog', 'misunderstand one', 'misunderstanding',  
'nag', 'no love lost between them', 'odds', 'on bad  
terms', 'open rupture', 'out of tune', 'outbreak', 'part  
company with', 'pettifogging', 'pick a quarrel', 'pit  
against', 'polemic', 'polemics', 'pull different ways', 'put  
in issue', 'quarrel', 'quarrelsome', 'question at issue',  
'racket', 'riot', 'rixation', 'row', 'rumpus', 'rupture',  
'schism', 'screw loose', 'scrimmage', 'set against', 'set at  
odds', 'set together by the ears', 'shock', 'snarl', 'snip-  
snap', 'sow dissension', 'spar', 'spat', 'split', 'squabble',  
'squall', 'stir up dissension', 'strange bedfellows',  
'strife', 'subject of dispute', 'tiff', 'together by the ears',  
'torn', 'towrow', 'tracasserie', 'troubulous times', 'try  
conclusions', 'unpacific', 'unpacified', 'unreconciled',  
'up in arms', 'variance', 'vexed question', 'warfare',  
'widen the breach', 'with', 'words', 'wrangle',  
'wrangling']

SIMPLENESS

['bolt', 'clear', 'disentangle', 'elementary', 'eliminate',  
'elimination', 'exclude', 'exclusive', 'exempt from', 'free  
from', 'get rid of', 'homogeneity', 'homogeneous',  
'incomplex', 'neat', 'only', 'pure', 'purification', 'purify',  
'purity', 'render simple', 'sheer', 'sift', 'sifting', 'simple',  
'simpleness', 'simplify', 'single', 'unadulterated',  
'unalloyed', 'unblended', 'uncombined',  
'uncompounded', 'undecomposed', 'unfortified',  
'uniform', 'unmingled', 'unmixed', 'unsophisticated',  
'untinged', 'winnow']

0.1579639682

RESPECT

['admiration', 'all Hail!', 'approbation', 'attention',  
'awe', 'bareheaded', 'bear respect for', 'bend the knee  
to', 'bow', 'bow to', 'cap in hand', 'ceremonious',  
'command respect', 'consideration', 'courtesy', 'dazzle',  
'decorous', 'defer to', 'deference', 'deferential',  
'devoirs', 'devotion', 'do homage to', 'do honor to', 'do  
the honors', 'duty', 'egards', 'emeritus', 'entertain  
respect for', 'esteem', 'estimation', 'fall down before',  
'fealty', 'genuflection', 'hail', 'hail!', 'hallow', 'have a  
high opinion of', 'hold a high opinion of', 'hold in  
reverence', 'homage', 'honor', 'honor pricks me on',  
'impose', 'in deference to', 'in high esteem', 'in high  
estimation', 'inspire awe', 'inspire respect', "keep one's  
distance", 'kneel to', 'kneeling prostration', 'kowitz',

0.1572288105

'look up to', 'make room', 'obeisance', 'obsequious',  
'obsequiousness', 'observe due decorum', "on one's  
knees", 'overawe', 'pay attention', 'pay homage to', 'pay  
respect', 'pay tribute to', 'present arms', 'presenting  
arms', 'prostrate', 'prostrate oneself', 'regard',  
'regards', 'render honor to', 'respect', 'respected',  
'respectful', 'respecting', 'respects', 'revere',  
'reverence', 'reverential', 'salaam', 'salute', 'saving your  
grace', 'saving your presence', 'show courtesy', 'stand  
upon ceremony', 'think much of', 'time-honored', 'to',  
'venerable', 'venerate', 'veneration', 'with all due  
respect', 'with all respect', 'with due respect', 'with  
submission', 'with the highest respect', 'worship']

['acquaint oneself with', 'acquire knowledge',  
'acquired knowledge', 'acquirement', 'acquisition of  
knowledge', 'acquisition of skill', 'apprenticeship',  
'apt', 'aptitude', "at one's books", 'attainment', 'be  
dismissed', 'be informed', 'be studious', 'be taught',  
'burn the midnight oil', 'coach up', 'collect knowledge',  
'con over', 'consume the midnight oil', 'cram', 'dip into',  
'dismiss', 'docile', 'docility', 'drink in knowledge', 'drop  
out', 'edification', 'erudition', 'expel', 'flunk out', 'gain  
knowledge', 'gather knowledge', 'get knowledge', 'get  
up', 'glean information', 'glean knowledge', 'glean  
learning', 'go to college', 'go to school', 'go to the  
university', 'graduate', 'grind', 'imbibe knowledge', 'in  
statu pupillari', 'industrious', 'inquiry', 'kick out of  
school', 'learn', 'learn by heart', 'learn by rote', "learn  
one's trade", 'learning', 'leave school', 'lore', 'make  
oneself master of', 'master', 'matriculate',  
'matriculation', "mind one's book", 'novitiate', 'obtain  
knowledge', 'perusal', 'peruse', 'pick up knowledge',  
'pore over', 'prenticeship', 'pupilage', 'pupilarity', 'quit  
school', 'read', 'reading', 'receive knowledge', 'run the  
eye over', 'run the eye through', 'scholarly',  
'scholarship', 'scholastic', 'self-instruction', 'serve an  
apprenticeship', "serve one's time", 'spell', 'studious',  
'study', 'take a leave', 'take in knowledge', 'teachable',  
'thumb over', 'transfer', 'turn over the leaves',  
'tutelage', 'wade through', 'wide information']

LEARNING

0.1561260369

INCREdulITY	['be incredulous', 'cynic', 'cynical', 'cynicism', 'disposed to doubt', 'distrust', 'distrustful', 'hard of belief', 'heretic', 'hold aloof', 'ignore', 'inconvincible', 'incredulity', 'incredulous', 'incredulousness', 'indisposed to believe', 'misbeliever.a', 'mistrust', 'pyrrhonism!', 'pyrrhonist', 'refuse to believe', 'scrupulosity', 'scrupulous', "shut one's ears to", "shut one's eyes to", 'shy of belief', 'skeptic', 'skeptical', 'skepticism', 'suspicion', 'suspicious', 'suspiciousness', 'turn a deaf ear to', 'unbeliever', 'unbelieving', 'want of faith']	0.1536853448
CARRIER	['Arab', 'asinine', 'ass', 'barb', 'bayard', 'bearer', 'beast', 'beast of burden', 'bidet', 'blood horse', 'brace', 'broncho', 'bronco', 'Bucephalus', 'burro', 'camel', 'cargador', 'carriage', 'carrier', 'carrier pigeon', 'cart', 'cart horse', 'cattle', 'charger', 'cob', 'colt', 'conductor', 'conveyer', 'coolie', 'courser', 'cow pony', 'creature', 'critter', 'cuddy', 'dolley', 'donkey', 'draft horse', 'dray horse', 'dromedary', 'elephant', 'equine', 'express', 'expressman', 'filly', 'foal', 'fork lift', 'galloway', 'garran', 'garron', 'gelding', 'genet', 'goer', 'hack', 'hinny', 'horse', 'hunter', 'jackass', 'jade', 'jennet', 'jument', 'ketch', 'llama', 'locomotive', 'mare', 'motor', 'mule', 'mustang', 'nag', 'Narraganset', 'pack horse', 'pad', 'palfrey', 'pallet', 'Pegasus', 'pony', 'porter', 'post horse', 'punch', 'racehorse', 'racer', 'reindeer', 'roadster', 'roan', 'Rocinante', 'sheltie', 'shelty', 'Shetland pony', 'ship', 'stallion', 'stevedore', 'stud', 'sumpter horse', 'sumpter mule', 'support', 'thoroughbred', 'tit', 'tranter', 'waler']	0.1493326214
STREAM	['blow', 'flow', 'flowmeter', 'stream']	0.1420658763
ORNAMENT	['Alexandrine', 'alliteration', 'alliterative', 'altiloquence', 'altiloquent', 'antithesis', 'antithetical', 'artificial', 'beautified', 'big-sounding', 'big-sounding words', 'bombast', 'bombastic', 'declamation', 'declamatory', 'elegance', 'euphemism', 'euphemist', 'euphemistic', 'euphuism', 'euphuist', 'euphuistic', 'figurative', 'figurativeness', 'fine writing', 'flaming', 'flashy', 'florid', 'floridness c', 'flourish', 'flowers of rhetoric', 'flowers of speech', 'flowery', 'frills of style', 'frothy', 'fustian', 'grandiloquent', 'grandiose', 'high flowing', 'high flown', 'high-sounding', 'high-sounding words', 'inflated', 'inflation', 'inversion', 'Johnsonian', 'macrology', 'magniloquent', 'Minerva press', 'mouthy',	0.139249848

'ornament', 'ornate', 'orotund', 'orotundity',  
'overcharge', 'overlay with ornament', 'paronomasia',  
'pedantic', 'phrasemonger', 'pompous', 'pretension',  
'prose run mad', 'rant', 'rhetorical', 'rich', 'sententious',  
'sesquipedal', 'sesquipedalian', 'sesquipedality', 'smell  
of the lamp', 'sonorous', 'stilted', 'swelling',  
'teratology!', 'tumid', 'turgescence', 'turgescence',  
'turgid', 'turgidity', 'well-rounded periods']

ARRIVAL 0.1370752301  
['advent', 'airport', 'alight', 'all Hail!', 'anchorage', 'any  
port in a storm', 'arrival', 'arrive', 'arriving', 'attain', 'be  
in at the death', 'bounce upon', 'bunder', 'burst upon',  
'cast anchor', 'come', 'come across', 'come at', 'come  
back', 'come home', 'come in', 'come in contact', 'come  
to', 'come to hand', 'come up to', 'come up with', 'come  
upon', 'complete', 'completion', 'debar', 'debar',  
'de-orbit', 'deplane', 'destination', 'detrain',  
'disembark', 'disembarkation', 'dismount', 'drop in',  
'encounter', 'fetch', 'get back', 'get home', 'get to', 'go  
ashore', 'goal', 'goalpost', 'good morrow!', 'good-day',  
'hail!', 'halting ground', 'halting place', 'harbor',  
'haven', 'here', 'hit', 'hither', 'home', 'homeward  
bound', 'join', "journey's end", 'land', 'landing', 'landing  
place', 'landing stage', 'landing strip', 'light', 'light  
upon', 'make', "make one's appearance", 'make the  
land', 'meet', 'meeting', 'outspan', 'overtake', "pitch  
one's tent", 'pitch upon', 'plump upon', 'pop upon',  
'port', 'put in', 'put into', 'reach', 'reception', 'recursion',  
'rejoin', 'remigration', 'rencounter', 'resting place',  
'return', 'runway', 'sit down', 'spaceport', 'terminal',  
'terminus', 'visit', 'welcome', 'welcome!']

TEACHING 0.1364858972  
['A,B,C,D,E,F', 'A.B.C.', 'academic', 'advise', 'apologue',  
'beat into', 'beat into the head', 'book', 'book exercise',  
'break', 'break in', 'breed', 'bring forward', 'bring up',  
'bring up to', 'brute memory', 'calisthenics', 'chalk  
talk', 'classical education', 'coach', 'college education',  
'collegiate education', 'convince', 'cooperative  
learning', 'course', 'course of study', 'cram',  
'curriculum', 'denominational education', 'didactic',  
'direct', 'direct attention to', 'direction', 'disciplinary',  
'discipline', 'discourse', 'disseminate', 'doctrinal', 'drill',  
'drynurse', 'edification', 'edify', 'educate', 'education',  
'educational', 'elementary education', 'enlarge the  
mind', 'enlighten', 'exam', 'examination', 'excitation',

'exercise', 'exercise book', 'exercise for the student',  
 'explanation', 'expound', 'fail', 'familiarize with', 'final  
 exam', 'form', "gentleman's C", 'give a discourse', 'give a  
 lecture', 'give a lesson', 'give a sermon', 'give new  
 ideas', 'given an idea of', 'graft', 'grammar', 'ground',  
 'guidance', 'guide', 'gymnastics', 'habituate', 'hold  
 forth', 'homework', 'imbue', 'implant', 'impregnate',  
 'impress upon the memory', 'impress upon the mind',  
 'improve', 'incept', 'incomplete', 'inculcate',  
 'inculcation', 'indoctrinate', 'indoctrination', 'infiltrate',  
 'infix', 'infuse', 'ingraft', 'initiate', 'initiation',  
 'inoculate', 'inoculation', 'instill', 'instruct',  
 'instruction', 'instructional', 'instructive', 'inure',  
 'lecture', 'lesson', 'liberal education', 'marks', 'mid-  
 term exam grade', 'military education', 'Montessori  
 method', 'moral education', 'moral tuition', 'moralize',  
 'nurture', 'open the eyes', 'opsimathy', 'parable', 'pass',  
 'persuasion', 'phonics', 'physical drill', 'physical  
 education', 'point a moral', 'practice', 'preach', 'preach  
 to the converted', 'preach to the wise', 'preachment',  
 'preinstruct', 'preparation', 'prepare', 'primary  
 education', 'prime', 'project', 'prolection',  
 'propaedeutic', 'propaedeutical', 'propaedeutics',  
 'propaganda', 'propagandism', 'proselytism', 'put in the  
 way of', 'put to nurse', 'put up to', 'qualification',  
 'qualify', 'read a lesson', 'rear', 'religious education',  
 'rote', 'rote memorization', 'scholastic', 'school',  
 'schooling', 'score', 'secondary education', 'secular  
 education', 'send to school', 'sermon', 'sermonize', 'set  
 right', 'sharpen the wits', 'sloyd', 'sow the seeds of',  
 'take in hand', 'take-home lesson', 'tame', 'task',  
 'taught', 'teach', 'teach granny to suck eggs', 'teaching',  
 'technical education', 'test', 'the schoolmaster abroad',  
 'theme', "three R's", 'train', 'training', 'tuition',  
 'tutelage', 'tutor', 'tutorage', 'ungraded classes',  
 'university education', 'workbook']

PHYSICAL  
 INSENSIBILITY

['anaesthesia', 'anaesthetic', 'anaesthetic agent',  
 'anaesthetize', 'be insensible', 'benumb', 'blunt',  
 'callous', 'case hardened', 'chloral', 'chloroform',  
 'coma', 'comatose', 'dead', 'dull', 'ether', 'exhilarating  
 gas', 'hard', 'hardened', 'have a rhinoceros hide', 'have  
 a thick skin', 'hemiplegia', 'impercipient',  
 'insensibility', 'insensible', 'laughing gas', 'motor  
 paralysis', 'nitrous oxide', 'numb', 'obtund', 'obtuse',  
 'obtuseness', 'opium', 'pachydermatous', 'pall',

0.1340969768

'palsied', 'palsy', 'paraesthesia', 'paralysis', 'paralytic',  
'paralyze', 'physical insensibility', 'proof', 'protoxide of  
nitrogen', 'refrigeration', 'render insensible',  
'senseless', 'sleep', 'stun', 'stupefy', 'thick-skinned',  
'unfeeling', 'vegetable state']

['as you were', 'back', 'back down', 'back out',  
'backsliding', 'backtrack', 'backward movement',  
'backwards', 'backwater', 'balk', 'balky', 'beat a retreat',  
'come back', 'counter march', 'counter motion',  
'counter movement', 'countermarch', 'crab-like', 'crab-  
like motion', 'crawl', 'dance the back step',  
'deterioration', 'double', 'draw back', 'drop astern',  
'ebb', 'fall', 'fall astern', 'fall back', 'flip-flop', 'get back',  
'go back', 'go home', 'hark back', 'jib', 'lose ground',  
'motion in reverse', 'put about', 'put back',  
'reactionary', 'rebound', 'recede', 'receding', 'recess',  
'recession', 'recidivation', 'recidivism', 'recidivity',  
'recidivous', 'reclade', 'reflex', 'reflexively', 'refluence',  
'refluent', 'reflux', 'regrade', 'regress', 'regression',  
'regressive', 'regurgitate', 'regurgitation', 'relapse',  
'remigration', 'resilience reflection', 'resilient', 'retire',  
'retirement', "retrace one's steps", 'retreat',  
'retroaction', 'retrocede', 'retrocession', 'retrograde',  
'retrograde motion', 'retrogradation', 'retrogression',  
'retrogressive', 'return', 'reversal', 'revert', 'run back',  
'shrink', 'shy', 'sound a retreat', 'take the back track',  
'tergiversation', 'to the right about', 'turn back', "turn  
one's back upon", 'turn round', 'turn tail', "turn upon  
one's heel", 'turning point', 'veer round', 'veering',  
'wheel', 'withdraw', 'withdrawal']

REGRESSION

0.1334929839

DISUSE

['abstain', 'abstinence', 'cast overboard', 'cast to the  
dogs', 'cast to the winds', 'desuetude', 'discard',  
'dismantle', 'dismiss', 'dispense with', 'disusage',  
'disuse', 'disused', 'do without', 'done with', 'forbear',  
'forbearance', 'give warning', 'have done with', 'heave  
overboard', 'keep back', 'keep on the shelf', 'lay aside',  
'lay by', 'lay on the shelf', 'lay up', 'lay up in a napkin',  
'lay up in ordinary', 'leave off', 'let alone', 'lie  
unemployed', 'make away with', 'neglect', 'not  
required', 'not touch', 'not use', 'not used', 'put aside',  
'relinquishment', 'remain unemployed', 'reserve', 'set  
aside', 'shelve', 'spare', 'supersede', 'throw aside',  
'throw overboard', 'unapplied', 'uncalled for',

0.1316266895

'unculled', 'undisposed of', 'unemployed', 'unessayed',  
'unexercised', 'ungathered', 'unspent', 'untouched',  
'untrodden', 'waive']

VIRTUE  
[ 'above all praise', 'acquit oneself well', "act one's part", 'act well', 'admirable', 'angelic', "be on one's best behavior", "be on one's good behavior", 'be virtuous', 'beyond all praise', 'cardinal virtues', "command one's passions", 'commendable', 'correct', 'credit', 'creditable', 'desert', 'desertful', 'deserving', 'discharge of duty', "discharge one's duty", "do one's duty", 'duteous', 'dutiful', 'ethics', 'excellence', 'excellent', 'exemplary', 'fight the good fight', "fulfill one's duty", 'fulfillment of duty', 'godlike', 'good', 'good actions', 'good behavior', 'heaven-born', 'innocence', 'innocent', 'integrity', 'keep in the right path', "keep one's promise", 'laudable', "master one's passions", 'matchless', 'merit', 'meritorious', 'moral', 'moral rectitude', 'morality', 'morals', 'noble', 'nobleness', 'peerless', "perform one's duty", 'performance of duty', 'practice virtue', 'praiseworthy', 'pure', "redeem one's pledge", 'right', 'righteous', 'right-minded', 'saint-like', 'saintly', 'self-control', 'self-denial', 'seraphic', 'set a good example', 'set an example', 'sterling', 'virtue', 'virtuous', 'virtuously', 'virtuousness', 'virtus laudatur et alget', 'well-doing', 'well-intentioned', 'well-spent life', 'whole-souled', 'worth', 'worthy']

0.1303371881

DIMNESS  
[ 'aurora', 'be dim', 'bedim', 'blear', 'break of day', 'candlelight', 'cloud', 'cloudy', 'cockshut time', 'confused', 'crepuscular', 'crepuscule', 'dark', 'darken', 'darkish', 'darkness', 'dawn', 'daybreak', 'demi-jour', 'dim', 'dimness', 'dingy', 'dirty', 'dull', 'dun', 'dusk', 'eclipse', 'fade', 'faint', 'farthing candle', 'firelight', 'flicker', 'fuliginous', 'glassy', 'gliming', 'glimmer', 'grow dim', 'half light', 'lackluster', 'leaden', 'loom', 'looming', 'lower', 'lurid', 'misty', 'moonbeam', 'moonglade', 'moonlight', 'moonshine', 'muddy', 'muggy', 'nebular', 'nebulosity', 'nebulous', 'obnubilated', 'obscure', 'overcast', "owl's light", 'pale', 'pale its ineffectual fire', 'paleness', 'partial eclipse', 'partial shadow', 'render dim', 'rushlight', 'shades of evening', 'shadow of a

0.125913392



shade', 'shadowed forth', 'shorn of its beams',  
'starlight', 'tone down', 'twilight', 'twinkle']

MESSENGER  
['ambassador', 'apparitor', 'Ariel', 'bellman', 'cable',  
'carrier pigeon', 'chore boy', 'courier', 'crier', 'dak',  
'delivery service', 'emissary', 'envoy', 'errand boy',  
'estafette', 'express mail', 'Federal Express', 'Fedex',  
'flag bearer', 'gentleman of the press', 'herald',  
'informer', 'internuncio', 'Iris', 'legate', 'letter bag',  
'mail', 'marshal', 'Mercury', 'messenger', 'newsboy',  
'next-day delivery', 'nuncio', 'overnight mail', 'own  
correspondent', 'penny-a-liner', 'post', 'post office',  
'pursuivant', 'reporter', 'runner', 'scout', 'special  
correspondent', 'spy', 'telegraph', 'telephone',  
'trumpeter', 'United Parcel Service', 'UPS', 'wire'] 0.1242361704

VALUE  
['appraisal', 'appraise', 'appraisement', 'appreciate',  
'assess', 'assessment', 'cost', 'esteem', 'estimable',  
'evaluate', 'fair price', 'full of worth', 'going price',  
'intrinsic value', 'market price', "money's worth", 'par  
value', "penny's worth", 'precious', 'price current',  
'quality', 'quotation', 'rate', 'valuable', 'valuation',  
'value', 'what it will fetch', 'what the market will bear',  
'worth', "worth a king's ransom", 'worth the price',  
'worthwhile', 'worthy'] 0.1238270939

DECEIVER  
['actor', 'adventurer', "ass in lion's skin", 'Cagliostro',  
'charlatan', 'cheat', 'cockatrice', 'conjuror', 'crimp',  
'deceiver', 'decoy', 'decoy duck', 'dissembler', 'empiric',  
'faker', 'false witness', 'Fernam Mendez Pinto', 'four  
flusher', 'fraud', 'gypsy', 'horse coper', 'humbug',  
'hypocrite', 'imposter', 'Janus', 'Jesuit', 'jilt', 'jobber',  
'jockey', 'Joseph Surface', 'Judas', 'juggler', 'knave',  
'liar', 'man of straw', 'Mawworm', 'medicaster',  
'mountebank', 'Pecksniff', 'perjurer', 'Pharisee',  
'prestidigitator', 'pretender', 'quack', 'quacksalver',  
'ringer', 'rogue', 'Rosicrucian', 'saltimbanco',  
'saltimbanque', 'Scapin', 'serpent', 'shuffler!', 'snake in  
the grass', 'sophist', 'spieler', 'stool pigeon', 'story-  
teller', 'swindler', 'Tartufe', 'trickster', "wolf in sheep's  
clothing"] 0.1231316459

DRYNESS	<p>[ 'adust', 'anhydrous', 'arefaction', 'arescent', 'arid', 'aridity', 'be dry', 'be fine', 'blow dry', 'clothes drier', 'clothesline', 'dehydrate', 'dehydrated', 'dephlegmation', 'desiccate', 'desiccation', 'desiccative', 'dessicated', 'dessicator', 'drain', 'drainage', 'dried', 'drier', 'drought', 'dry', 'dry as a biscuit', 'dry as a bone', 'dry as a mummy', 'dry as a stick', 'dry as dust', 'dry up', 'drying oven', 'dryness', 'ebb tide', 'electric drier', 'exsiccate', 'exsiccation', 'fine', 'gas drier', 'hair drier', 'hang out to dry', 'hold up', 'husky', 'juiceless', 'kiln', 'kiln dry', 'low water', 'lyophilizer', 'mummify', 'oven dry', 'parch', 'rainless', 'render dry', 'sapless', 'sear', 'siccidity', 'soak up', 'sponge', 'swab', 'undamped', 'vacuum dry', 'vacuum oven', 'water proof', 'water tight', 'wipe', 'without rain' ]</p>	0.1210036872
PUBLICATION	<p>[ 'acquire currency', 'ad.', 'advertise', 'advertisement', 'affiche', 'arrant', 'bandy about', 'be public', 'be published', 'become public', 'bill', 'blaze about', 'blaze abroad', 'blazon', 'blow about', 'bring before the public', 'broach', 'broadside', 'bruit', 'bruit about', 'buzz about', 'circular', 'circular letter', 'circulate', 'circulation', 'come out', 'cry', 'currency', 'current', 'daily', 'diffuse', 'disseminate', 'drag before the public', 'drag into the open day', 'edit', 'edition', 'emit', 'encyclic', 'encyclical', 'evulgare', 'exoteric', 'find vent', 'flagrancy', 'flagrant', 'fly about', 'gazette', 'get about', 'get abroad', 'get afloat', 'get out', 'get wind', 'give forth', 'give out', 'give to the world', 'give tongue', 'go about', 'go forth', 'go the rounds', 'hawk about', 'herald', 'hue and cry', 'hype', 'imprint', 'in circulation', 'in open court', 'indiction', 'issue', 'journal', 'lay before the public', 'make known', 'make public', 'manifesto', 'newspaper', 'noise abroad', 'notice', 'notice is hereby given', 'notice!', 'notoriety', 'notorious', 'O yes!', 'open', 'Oyez!', 'pass current', 'pass from mouth to mouth', 'placard', 'post', 'post up afficher', 'poster', 'proclaim', 'proclaim at Charing Cross', 'proclamation', 'promulgate', 'promulgation', 'promulgatory', 'propagate', 'propagation', 'public', 'public announcement', 'public press', 'publication', 'publicity', 'publicly', 'publish', 'publish in the Gazette', 'published', 'publisher', 'put about', 'put forth', 'put forward', 'raise a cry', 'raise a hue and cry', 'raise a report', 'report', 'rumor', 'run like wildfire', 'see the light', 'send forth', 'send round the crier', 'set news</p>	0.1204010077

afloat', 'sound a trumpet', 'speak of', 'spread', 'spread  
abroad', 'spread like wildfire', 'take air', 'talk of',  
'telegraphy', 'the press', 'these are to give notice', 'this  
is to give', 'thunder forth', 'trumpet forth', 'trumpet-  
tongued', 'utter', 'voice', 'vox populi', 'whisper about',  
'with open doors']

RELINQUISHMEN  
T

['abandon', 'abandonment', 'away with!', 'be quit of',  
'be rid of', 'cast aside', 'cast away', 'cast behind', 'cast  
off', 'cast overboard', 'cast to the dogs', 'cast to the  
winds', 'cede', 'cession', 'culls', 'derelict', 'dereliction',  
'disburden oneself of', 'discard', 'discards', 'dismiss',  
'dispensation', 'dispose of', 'dispossess oneself of',  
'divest oneself of', 'drop', 'eject', 'expropriate!',  
'expropriation!', 'fling aside', 'fling away', 'fling  
overboard', 'fling to the dogs', 'forego', 'foundling',  
'garbage', 'get quit of', 'get rid of', 'give away', 'give  
notice to quit', 'give up', 'give warning', 'jetsam',  
'jettison', 'lay apart', 'lay aside', 'lay down', 'lay on the  
shelf', 'left', 'let go', 'let slip', 'make away with',  
'maroon', 'part with', 'pitch aside', 'pitch away', 'pitch  
overboard', 'pitch to the dogs', 'put aside', 'put away',  
"quit one's hold", 'quitclaim', 'quitclaim deed', 'refuse',  
'reject', 'rejects', 'relinquish', 'relinquished',  
'relinquishment', 'renounce', 'renunciation', 'resign',  
'resignation', 'rid oneself of', 'riddance', 'rubbish', 'set  
aside', 'spare', 'supersede', 'surrender', 'sweep away',  
'sweep to the winds', 'throw aside', 'throw away',  
'throw overboard', 'throw to the dogs', 'throw to the  
winds', 'turn away', 'unappropriated', 'unculled',  
'unowned', 'waif', "wash one's hands of", 'yield']

0.1194993812

LINING

['coating', 'fill', 'filling', 'incrust', 'inner coating', 'line',  
'lined', 'lining', 'pad', 'padding', 'stalactite', 'stalagmite',  
'stuff', 'stuffing', 'wad', 'wadding', 'wainscot', 'wall']

0.1193638456

ARTLESSNESS	<p>['abandon', 'aboveboard', 'Arcadian', 'artless', 'artlessness', 'be artless', 'be free with one', 'blunt', 'bonhomie', 'call a spade a spade', 'candid', 'candor', 'confiding', 'direct', 'downright', 'frank', 'frank-hearted', 'free-spoken', 'guileless', 'honest', 'honesty', 'in plain English', 'in plain words', 'inartificial', 'ingenu', 'ingenuous', 'innocence', 'innocent', 'lain', 'look one in the face', 'matter of fact', 'matter of fact man', 'naive', 'naivete', 'native', 'natural', 'nature', 'not to mince the matter', 'open', 'open as day', 'open-hearted', 'outspoken', 'plain speaking', 'plain-spoken', 'pure', 'rough diamond', 'simple', 'simple-hearted', 'simple-minded', 'simplicity', 'sincere', 'sincerity', 'single-hearted', 'single-minded', 'singleness of heart', 'singleness of purpose', "speak one's mind", 'speak out', 'straightforward', 'think aloud', 'unaffected', 'undesigning', 'unflattering', 'unpoetical', 'unreserved', 'unsophisticated', 'unsuspicious', 'untutored']</p>	0.119336499
NECESSITY	<p>['adverse necessity', 'astral influence', 'automatic', 'automaton', 'avoidless', 'be destined', 'be doomed', "be one's fate", 'befated', 'blind', 'blind impulse', 'book of fate', 'by stress of', 'cast a spell', 'compel', 'compulsion', 'destination', 'destine', 'destined', 'destiny', 'devote', 'dire necessity', 'doom', 'elect', 'election', 'fatalism', 'fatalist', 'fatality', 'fate', 'fated', 'Fates', 'foredoom', 'foreordination', "God's will", 'hard necessity', 'have no alternative', 'have no choice', "Hobson's choice", 'Ides of March', 'if need be', 'imperious necessity', 'impulsive', 'in for', 'inborn proclivity', 'inevitable', 'inevitableness', 'inexorable', 'inexorable necessity', 'innate proclivity', 'instinct', 'instinctive', 'involuntariness', 'involuntary', 'iron necessity', 'irresistible', 'irrevocable', 'it cannot be helped', 'it is written', 'it must be', 'it must be so', 'it needs to be', 'it will be', 'it will have its way', 'kismet', 'last resort', 'last shift', 'lie under a necessity', 'lot fortune', 'mechanical', 'native tendency', 'natural impulse', 'natural tendency', 'necessarian', 'necessaries', 'necessarily', 'necessary', 'necessitarian', 'necessitate', 'necessitation', 'necessity', 'needful', 'needs must', 'obligation', 'of course', 'of necessity', "one's days are numbered", "one's fate is sealed", 'Parcae', 'perforce', 'pis aller', 'planet', 'planets', 'predestination', 'predestine', 'predetermination', 'preordain', 'preordination', 'resistless', 'Sisters three', 'sky', 'spell', 'spellbound']</p>	0.1185088886

compulsory', 'star', 'stars', 'stern necessity',  
 'subjection', 'the die is cast', 'there is no help for',  
 'there is no helping it', 'to be unable to help',  
 'unavoidable', 'unconscious', 'uncontrollable', 'under  
 the necessity of', 'unintentional', 'unthinking',  
 'unwitting', 'what must be', 'wheel of Fortune', 'will he  
 nil he', 'will of Heaven', 'willing or unwilling', 'willy  
 nilly']

PRODUCTIVENESS ['aftercrop', 'aftergrowth', 'aftermath', 'arrish',  
 'conceive', 'eddish', 'fecund', 'fecundate', 'fecundify',  
 'fecundity', 'fertile', 'fertility', 'fertilization', 'fertilize',  
 'fructification', 'fructify', 'frugiferous', 'fruit-bearing',  
 'fruitful', 'generate', 'generative', 'hydra', 'impregnate',  
 'life-giving', 'luxuriance', 'luxuriant', 'make productive',  
 'milch cow', 'multiparous', 'multiplication', 'multiply',  
 'omnific', 'parturient', 'pregnancy', 'pregnant',  
 'procreant', 'procreate', 'procreation', 'procreative',  
 'produce', 'productive', 'productiveness', 'profitable',  
 'prolific', 'propagable', 'propagation', 'protoplasm',  
 'pullulation', 'rabbit', 'rowen', 'second crop', 'seed plot',  
 'spermatic', 'spermative', 'superfetation', 'teem',  
 'teemful', 'teeming', 'uberous', 'uberty', 'warren'] 0.1182832252

HELL ['Abaddon', 'abyss', 'bottomless pit', 'Cocytus',  
 'Domdaniel', 'eternal damnation', 'everlasting fire',  
 'everlasting torment', 'gehenna', 'Hades', 'hell', 'hell  
 fire', 'hellish', 'infernal', 'infernal regions', 'inferno',  
 'jahannan', 'limbo', 'Pandemonium', 'pit of Acheron',  
 'place of torment', 'Pluto', 'purgatory', 'realms of Pluto',  
 'Rhadamanthus', 'shades below', 'sheol', 'stygian',  
 'Stygian creek', 'Styx', 'Tartarus', 'Tophet', 'worm that  
 never dies'] 0.1154839513

NOBILITY ['ameer', 'aristocracy', 'aristocrat', 'aristocratic',  
 'armiger', 'atheling', 'banneret', 'baron', 'baronet',  
 'baronetcy', 'be noble', 'begum', 'better sort magnates',  
 'big bug', 'big gun', 'bigwig', 'birth', 'blood', 'blue blood  
 of Castile', 'boyar', 'celebrity', 'chevalier', 'condition',  
 0.1151248159

'count', 'countess', 'courtly', 'dame', 'distinction',  
 'Do\$a', 'don', 'donship', 'duchess', 'duke', 'earl',  
 'effendi', 'elite', 'emir', 'esquire', 'every inch a king',  
 'exalted', 'fashionable world', 'genteel', 'gentility',  
 'gentlefolk', 'gentleman', 'gentlemanlike', 'gentry',  
 'grandee', 'great folks', 'great gun', 'great man',  
 'hidalgo', 'high-', 'high descent', 'high life', 'highly  
 respectable', 'house of lords', 'house of peers', 'in high  
 quarters', 'king', 'knight', 'kighthood', 'lady', 'laird',  
 'laureate', 'Lord', 'lordling', 'lords', 'magnate',  
 'maharaja', 'maharani', 'man of distinction', 'man of  
 mark', 'man of rank', 'marchioness', 'margrave',  
 'marquis', 'marquisate', 'memsahib', 'nawab', 'nobility',  
 'noble', 'nobleman', 'noblesse', 'notabilities', 'notables',  
 'of gentle blood', 'of rank', 'optimacy', 'optimates',  
 'order', 'palsgrave', 'pantisocracy', 'pasha', 'patrician',  
 'peer', 'peerage', 'personage of distinction', 'personage  
 of mark', 'personage of rank', 'primates', 'prince',  
 'princely', 'princess', 'quality', 'rajah', 'rani', 'rank',  
 'sahib', 'scherif', 'seignior', 'sharif', 'signior',  
 'squirarchy', 'squire', 'squireen', 'star', 'superstar',  
 'swell', 'thane', 'three-tailed bashaw', 'titled', 'upper  
 classes', 'upper ten thousand', 'vavasour', 'viscount',  
 'waldgrave', 'wali', 'well-born']

REPETITION

[ 'a number of times', 'above-mentioned', 'above-said', 0.1151155849  
 'aforenamed', 'aforesaid', 'afresh', 'again', 'again and  
 again', 'anew', 'another', 'battologize', 'battology',  
 'begin again', 'bis', 'burden of a song', 'chimes',  
 'chiming', 'cuckoo', 'cut and come again', 'day by day',  
 'de novo', 'diffuseness', 'din in the ear', 'ding-dong',  
 'ditto', 'do over again', 'drum', 'drum in the ear',  
 'drumming', 'echo', 'encore', 'ever recurring',  
 'frequent', 'frequently', 'full many a time', 'go over the  
 same ground', 'go the same round', 'habitual',  
 'hammer', 'harp on the same string', 'harp upon',  
 'harping', 'incessant', 'iterate', 'iteration', 'iterative',  
 'many a time', 'many times', 'many times over',  
 'mocking', 'monotonous', 'monotony', 'never hear the  
 last of', 'new edition', 'often', 'old song', 'old story',  
 'once more', 'over again', 'over and over', 'over and  
 over again', 'periodicity', 'pleonasm', 'pleonastic',  
 'reappear', 'reappearance', 'recapitulate',  
 'recapitulation', 'recur', 'recurrence', 'recurrent',  
 'recurring', 'recurse', 'recursion', 'recursive',  
 'recursively', 'redouble', 'redundancy', 'redundant',

	'reecho', 'refrain', 'rehearsal', 'rehearse', 'reiterate', 'reiteration', 'renew', 'renewal', 'repeat', 'repeated', 'repeatedly', 'repetend', 'repetition', 'repetitional', 'repetitionary', 'reproduce', 'reproduction', 'resume', 'retold', 'return', 'return to', 'reverberation', 'revert', 'reword', 'rhythm', 'ring the changes on', 'ritornello', 'run', 'say over again', 'second edition', 'several times', 'succession', 'tautology', 'tautophony', 'thick coming', 'time after time', 'time and again', 'twice-told tale', 'unvaried', 'year after year']	
TROPHY	['award', 'bays', 'chaplet', 'civic crown', 'crown', 'decoration', "feather in one's cap", 'flying colors', 'for valor', 'garland', 'insignia', 'Iron Cross', 'laurel', 'laurels', 'medal', 'monumentum aere', 'palm', 'prize', 'triumph', 'triumphal arch', 'trophy', 'Victoria Cross', 'wreath']	0.1148663446
EXCLUSION	['exclusion']	0.1142314335
INGRATITUDE	['be ungrateful', 'benefits forgot', 'et tu Brute!', 'forget benefits', 'forgotten', 'ill-requited', 'ingrate', 'ingratitude', 'insensible of benefits', 'oblivion of benefits', 'thank you for nothing!', 'thankless', 'thankless office', 'thankless task', 'thanklessness', 'thanks for nothing!', 'unacknowledged', 'ungrateful', 'unmindful', 'unrequited', 'unrewarded', 'unthanked', 'unthankful', 'unthankfulness', 'wanting in gratitude']	0.1127440083
TRUTH	['accuracy', 'accurate', 'actual', 'actually', 'at all events', 'at any rate', 'authentic', 'authenticity', 'be the case', 'be true', 'categorically true', 'certain', 'certainly', 'chapter and verse', 'clean-cut', 'clear-cut', 'clockwork precision', 'close', 'conformity to rule', 'constant', 'correct', 'correctitude', 'correctness', 'curious', 'definite', 'definitively true', 'delicacy', 'delicate', 'empirically true', 'ex officio', 'exact', 'exact truth', 'exactitude', 'exactly', 'exactness', 'experimentally verified', 'fact', 'faithful', 'fine', 'genuine', 'get at the truth', "God's honest truth", 'gospel', 'gospel truth', 'have the true ring', 'hold good', 'hold true', 'hold water', 'honest truth', 'in all respects', 'in effect', 'in every respect', 'in its true colors', 'in reality', 'indeed',	0.1114875163

'intrinsic truth', 'just', 'just so', 'just the thing',  
 'legitimate', 'literal', 'literally', 'mathematical',  
 'mathematical precision', 'naked truth', 'natural',  
 'nature', 'neither more nor less', 'nice', 'nicety', 'not an  
 illusion', 'official', 'orthodox', 'orthodoxy', 'orthology',  
 'particular', 'plain fact', 'plain matter of fact', 'plain  
 truth', 'precise', 'preciseness', 'precision', 'prove true',  
 'proven', 'pukka', 'punctual', 'punctuality', 'pure', 'real',  
 'real Simon Pure', 'realism', 'realistic', 'reality', 'really',  
 'religiously exact', 'render true', 'right', 'rigid', 'rigor',  
 'rigorous', 'rigorously true', 'sand the test', 'scientific',  
 'scrupulous', 'severe', 'sic', 'so', 'sober truth', 'solid',  
 'sound', 'sterling', 'stern truth', 'strict', 'strictly  
 speaking', 'substantial', 'substantially true',  
 'substantiate', 'substantiated', 'tangible', 'the fact is',  
 'the truth is', 'the very thing', 'to a hair', 'to a nicety', 'to  
 a T', 'to a tittle', 'to a turn', 'to an inch', 'to the letter',  
 'true', 'true as gospel', 'true by definition', 'true to the  
 letter', 'truly', 'truth', 'unadulterated', 'unaffected',  
 'unalloyed', 'unalloyed truth', 'uncolored',  
 'unconfuted', 'undisguised', 'undistorted', 'unerring',  
 'unexaggerated', 'unflattering', 'unideal', 'unimagined',  
 'unimpeachable', 'unqualified truth', 'unquestionably  
 true', 'unreconfuted', 'unromantic', 'unsophisticated',  
 'unvarnished', 'unvarnished tale', 'unvarnished truth',  
 'valid', 'veracious', 'veracity', 'verbatim', 'verified',  
 'verily', 'veritable', 'verity', 'well founded', 'well-  
 defined', 'well-grounded', 'with truth', 'word for word']

SIMPLICITY

['bald', 'bare', 'be simple', 'chaste', 'chastity', 'dull',  
 'flat', 'free from affectation', 'free from ornament',  
 'homeliness', 'homely', 'homespun', 'household',  
 'ingenuous', 'inornate', 'ordinary', 'plain', 'plainness',  
 'render simple', 'severe', 'simple', 'simplicity',  
 'simplify', 'sincere', 'unadorned', 'unaffected',  
 'unarranged', 'uncomplicate', 'undecked', 'undress',  
 'ungarnished', 'unornamented', 'untrimmed',  
 'unvarnished']

0.1113601904

DISAPPEARANCE

['avaunt', 'avaunt!', 'be gone', 'be lost to view',  
 'departure', 'disappear', 'disappear!', 'disappearance',  
 'disappearing', 'dissolve', 'dissolving views', 'eclipse',  
 'efface', 'evanescence', 'evanescent', 'evaporate', 'exit',  
 'fade', 'get lost!', 'get out of here', 'go', 'go off the stage',  
 'gone', 'leave no trace', "leave 'not a rack behind'", 'lose  
 sight of', 'lost', 'lost to sight', 'lost to view', 'melt away',

0.1107975112



'missing', 'occultation', 'pass', 'pass out of sight', 'retire from sight', 'suffer an eclipse', 'undergo an eclipse', 'vanish', 'vanish!', 'vanishing point', 'vaporize']

DEPUTY  
['ablegate', 'accredit', 'accredited to', 'acting', 'alter ego', 'answer for', 'appear for', 'archon', 'badli', 'be deputy', 'champion', 'chancellor', 'commissioner', 'consul', 'delegate', 'deputy', 'eight', 'eleven', 'hold a brief for', 'in behalf of', 'lieutenant', 'locum tenens', 'minister', 'next friend', 'plenipotentiary', 'prefect', 'premier', 'proconsul', 'provost', 'proxy', 'regent', 'represent', 'representative', 'secondary', 'stand for', 'stand in the shoes of', 'stand in the stead of', 'substitute', 'surrogate', 'team', 'Tsung-li Yamen', 'vicar', 'vice', 'vice regal', 'viceregent', 'viceroi', 'vizier', 'Wai Wu Pu', 'walk in the shoes of', 'warden'] 0.1103944717

EXTRINSICALITY  
['accident', 'accidental', 'adscititious', 'adventitious', 'apparent', 'appearance', 'ascititious', 'contingent', 'derived from without', 'extraneous', 'extraneousness', 'extrinsic', 'extrinsical', 'extrinsicality', 'extrinsically', 'fortuitous', 'implanted', 'incidental', 'inculcated', 'infused', 'ingrafted', 'modal', 'non ego', 'nonessential', 'objective', 'objectiveness', 'outward', 'phenomenon'] 0.110272255

LANGUAGE  
['Babel', 'betacism', 'bilingual', 'chrestomathy', 'classics', 'comparative grammar', 'confusion of tongues', 'current', 'dead languages', 'dialect', 'dialectic', 'diglot', 'express by words', 'genius of language', 'glossology', 'glottology', 'hexaglot', 'household words', 'humanities', "King's English", 'language', 'letters', 'lexicology', 'lingo', 'lingual', 'linguistic', 'linguistics', 'literary', 'literature', 'mimimation', 'mother tongue', 'muses', 'myatism', 'native tongue', 'nunnation', 'onomatopoeia', 'paleography', 'paleology', 'pantomime', 'pasigraphie', 'pasigraphy', 'philology', 'phraseology', 'polite literature', 'polyglot', "Queen's English", 'republic of letters', 'scholarship', 'speech', 'tongue', 'vernacular', 'vulgar tongue'] 0.1101934587

JEWELRY	<p>['agate', 'alexandrite', 'amethyst', 'anklet', 'balais',  'bejeweled', 'beryl', 'bijou', 'bijoutry!', 'bloodstone',  'bracelet', 'brilliant', 'broach', 'carbuncle', 'carcanet',  "cat's eye", 'chain', 'chalcedony', 'charm bracelet',  'chatelaine', 'chrysolite', 'coral', 'costume jewelry',  'cubic zirconia', 'cultured pearl', 'diamond', 'earring',  'emerald', 'fine jewelry', 'fresh-water pearl', 'garnet',  'gem', 'gemmology', 'gemological', 'gemologist',  'gemology', 'gemstone', 'girasol', 'girasole', 'heliotrope',  'hematite', 'hyacinth', 'jacinth', 'jasper', 'jewel',  'jeweler', 'jewellery', 'jewelry', 'junk jewelry', 'lapel  pin', 'lapidarian', 'lapidary', 'lapis lazuli', 'locket',  'minerologist', 'minerology', 'moonstone', 'mother of  pearl', 'necklace', 'onyx', 'opal', 'oriental', 'oriental  topaz', 'pearl', 'pendant', 'peridot', 'pin', 'pinky ring',  'plasma', 'precious stone', 'ring', 'rock', 'ruby',  'sapphire', 'sard', 'sardonyx', 'shine like a diamond',  'spinel', 'spinelle', 'sunstone', 'synthetic ruby', 'torque',  'tourmaline', 'trinket', 'turquoise', 'turquoise', 'zircon']</p>	0.1081389002
PRODUCTION	<p>['abiogenesis', 'accomplish', 'accouchement', 'achieve',  'achievement', 'acquire', 'albumen', 'archebiosis',  'archegenesis', 'architectonic', 'architecture',  'assimilation', 'authorship', 'be brought to bed of',  'bear', 'bear fruit', 'beget', 'big with', 'biogenesis',  'biogeny', 'birth', 'birth-throe', 'breed', 'bring forth',  'bring into being', 'bring into existence', 'bring up',  'bringing forth', 'brought to bed of', 'build', 'building',  'call into being', 'carve', 'cause', 'childbirth', 'chisel',  'coin', 'coinage', 'compose', 'confinement', 'constitute',  'construct', 'construction', 'contrive', 'create', 'creation',  'creative', 'delivery', 'develop', 'development', 'diaster',  'digenesis', 'digenetic', 'dissogeny', 'do', 'drop',  'dysmerogenesis', 'ean', 'ectogenous', 'edification',  'edifice', 'edify', 'enceinte', 'engender', 'entelechy',  'epigenesis', 'erect', 'erection', 'establish',  'establishment', 'eumerogenesis', 'evolution', 'evolve',  'fabric', 'fabricate', 'fabrication', 'farrow', 'fecundate',  'fecundation', 'fertilization', 'flower', 'flowering',  'forge', 'form', 'formation', 'formative', 'frame', 'fraught  with', 'fructification', 'fructify', 'fruit', 'gamic', 'gar',  'germination', 'generate', 'generation', 'genesis',  'genetic', 'genial', 'genital', 'geniture', 'germination',  'gestation', 'get', 'give birth to', 'growth',  'haematobious', 'hatch', 'heterogamy', 'heterogenesis',  'heterogenetic', 'homogenesis', 'impregnate',</p>	0.1077672931

'impregnation', 'in the family way', 'in the straw',  
 'induce', 'inflorescence', 'institute', 'kindle', 'kitten',  
 'labor', 'lay', 'lie in', 'make', 'make productive',  
 'manufacture', 'merogenesis', 'metogenesis',  
 'midwifery', 'monogenesis', 'obstetrics', 'oeuvre',  
 'oogenesis', 'oogenetic', 'operate', 'opus',  
 'organization', 'organize', 'parthenogenesis',  
 'parturient', 'parturition', 'perform', 'performance',  
 'pile', 'pregnant', 'procreate', 'procreation', 'produce',  
 'produced', 'producing', 'production', 'productive of',  
 'progenerate', 'progeneration', 'prolific', 'propagate',  
 'propagation', 'publication', 'puerperal', 'puerperous',  
 'pullulate', 'pup', 'put together', 'putting together',  
 'raise', 'rear', 'run up', 'set up', 'spontaneous  
 generation', 'sporogenous', 'sporophorous', 'structure',  
 'superinduce', 'suscitate', 'teem', 'teeming', 'tocogony',  
 'tower', 'travail', 'usher into the world', 'vacuolization',  
 'weave', 'whelp', 'workmanship', 'works',  
 'xenogenesis1', 'xenogenetic', 'xenogeny', 'yea']

INELEGANCE 0.1063138159  
 ['abrupt', 'affected', 'artificial', 'awkward', 'barbarism',  
 'barbarous', 'be inelegant', 'cacophony', 'cramped',  
 'crude', 'dry', 'euphuism', 'euphuistic', 'forced', 'formal',  
 'fustian', 'graceless', 'grotesque', 'halting', 'harsh',  
 'inelegance', 'inelegant', 'labored', 'mannered',  
 'mannerism', 'marinism', 'offensive to ears polite',  
 'ponderous', 'rude', 'slang', 'solecism', 'stiff', 'stiffness',  
 'turgid', 'uncourtly', 'uncouth', 'ungraceful', 'unlettered  
 Muse', 'unpolished']

APPEARANCE 0.1059099484  
 ['air', 'angle', 'apparent', 'apparently', 'appear',  
 'appearance', 'as it seems', 'aspect', 'assume the  
 appearance', 'assume the semblance of', 'at first sight',  
 'at the first blush', 'be visible', 'bear the appearance of',  
 'bear the semblance of', 'become visible', 'biograph',  
 "bird's-eye view", 'carriage', 'carry the appearance of',  
 'carry the semblance of', 'cast', 'cast of countenance',  
 'cinematograph', 'color', 'complexion', 'contour',  
 'cosmorama', 'countenance', 'coup de theatre', 'cut a  
 figure', 'cut of one s jib', 'demeanor', 'diorama',  
 'display', 'dissolving views', 'exhibit the appearance  
 of', 'exhibit the semblance of', 'exposure', 'expression',  
 'face', 'face of the thing', 'figure', 'first blush', 'gallanty-  
 show', 'georama', 'guise', 'have the appearance of',  
 'have the semblance of', 'image', 'in the eyes of',

'insignia', 'landscape', 'light', 'look', 'look like',  
'lookout', 'magic lantern', 'metoposcopy', 'mien',  
'moving pictures', 'on the face of it', 'on view',  
'ostensible', 'ostensibly', 'outline', 'outlook', 'outside',  
'pageant', 'pageantry', 'panorama', 'peep-show',  
'perspective', 'phantasm', 'phantasmagoria', 'phantom',  
'phase', 'phasis', 'phenomenon', 'phiz.', 'physiognomy',  
'picture', 'point of view', 'port', 'premonstration',  
'presence', 'present the appearance of', 'present the  
semblance of', 'present to the view', 'profile',  
'prospect', 'raree-show', 'rising of the curtain', 'scene',  
'scenery', 'seem', 'seeming', 'seemingly', 'shape',  
'show', 'sight', 'species', 'spectacle', 'tableau', 'take on  
the appearance of', 'take on the semblance of', 'take  
the appearance of', 'take the semblance of', 'to all  
appearance', 'to all seeming', 'to the eye', 'tournure',  
'view', 'visage', 'vista', 'wear the appearance of', 'wear  
the semblance of']

GASEITY  
['aeration', 'aerial', 'aerification', 'aeriform',  
'aerodynamics', 'aerostatics', 'air', 'air bladder', 'airy',  
'ammonia', 'ammoniacal gas', 'cloud', 'diffuse',  
'effluvium', 'elastic fluid', 'emit vapor', 'essence',  
'ether', 'ethereal', 'evanesce', 'evaporable', 'evaporate',  
'flatulence', 'flatulency', 'flatulent', 'flatus', 'fume', 'gas', 0.1055835732  
'gaseity', 'gaseous', 'gasify', 'gasmeter', 'gasometer',  
'partial vacuum', 'pneumatics', 'pneumatostatics',  
'reek', 'sound', 'steam', 'swimming bladder', 'vacuum',  
'vapor', 'vaporize', 'vaporous', 'vaporousness',  
'volatile', 'volatile alkali', 'volatility']

AIR  
['aerial', 'aeriform', 'aerography', 'aerology',  
'aerometer', 'aerometry', 'aeronaut', 'aeronautics',  
'aeroscope', 'aeroscopy', 'aerosphere', 'aerostation',  
'air', 'airy', 'al fresco', 'aneroid', 'atmosphere',  
'atmospheric', 'atmospheric air', 'barometer',  
'baroscope', 'blue sky', 'climate', 'climatology', 'cloud',  
'common air', 'containing air', 'effervescent', 0.1048508442  
'eudiometer', 'eudioscope', 'exposure to the air',  
'exposure to the weather', 'fan', 'flatulent', 'in the open  
air', 'isobar', 'meteorological', 'meteorology', 'open air',  
'pneumatics', 'sky', 'ventilate', 'ventilation', 'weather',  
'weather cock', 'weather gauge', 'weather glass',  
'weatherwise', 'welkin', 'windy']

SEXUALITY  
['adultery', 'arousal', 'attractiveness', 'autoeroticism', 0.1046325482

'become aroused', 'beefcake', 'bisexual', 'bisexuality',  
 'boner', 'buggery', 'carnal', 'carnal knowledge',  
 'cheesecake', 'climax', 'coitus', 'come', 'concupiscence',  
 'copulate', 'copulation', 'deviation', 'do it', 'ejaculate',  
 'ejaculation', 'erection', 'erotic', 'esquire', 'estrus',  
 'female', 'femininity', 'fetish', 'fetishism', 'fornicate',  
 'fornication', 'fuck', 'gay', 'gender', 'get hot', 'get it up',  
 'hardcore pornography', 'hard-on', 'have an erection',  
 'have intercourse', 'have sex', 'have the hots', 'heat',  
 'homosexual', 'homosexuality', 'horns', 'horny', 'hot',  
 'hot-blooded', 'hots', 'hunk', 'hustler', 'in the mood',  
 'incest', 'jack off', 'jerk off', 'lesbian', 'lesbianism',  
 'libidinous', 'libido', 'lovemaking', 'lust', 'lusty', 'make  
 love', 'male', 'maleness', 'marital relations',  
 'masculinity', 'masochism', 'masturbate',  
 'masturbation', 'mate', 'mating', 'oestrus', 'onanism',  
 'one-night stand', 'orgasm', 'passionate', 'pederasty',  
 'perversion', 'pin-up', 'play the field', 'play with  
 oneself', 'Playboy', 'porn', 'porno', 'pornography',  
 'randy', 'rut', 'rutting', 'Sadism', 'sado-masochism',  
 'self-abuse', 'self-gratification', 'sensual', 'sensuality',  
 'sex', 'sex drive', 'sex goddess', 'sex instinct', 'sex  
 symbol', 'sexiness', 'sexual', 'sexual abnormality',  
 'sexual intercourse', 'sexual union', 'sexuality', 'sexy',  
 'sleep around', 'sleep together', 'sleeping together',  
 'sodomy', 'softcore pornography', 'stud', 'tumescence',  
 'up', 'voluptuousness']

MORNING

['a.m.', 'at sunrise', 'aurora', 'break of day', 'cockcrow',  
 'cockcrowing', 'crepuscule', 'dawn', 'daybreak',  
 'dayspring', 'first point of Aries', 'foreday', 'forenoon',  
 'matin', 'matutinal', 'meridian', 'midday', 'midsummer',  
 'morn', 'morning', 'noon', 'noonday', 'nooning',  
 'noontide', 'noontime', 'peep of day', 'prime', 'prime of  
 the morning', 'spring', 'summer', 'sunrise', 'sunup', 'the  
 small hours', 'twilight', 'vernal', 'vernal equinox',  
 'when the morning dawns', 'with the lark', 'with the  
 sun']

0.1036872099

BLINDNESS

['ablepsia', 'ablepsy', 'amaurosis', 'avert the eyes', 'be  
 blind', 'be blind to', 'blind', 'blind as a bat', 'blind as a  
 beetle', 'blind as a buzzard', 'blind as a mole', 'blind as  
 an owl', 'blinded', 'blindfold', 'blindfolded', 'blindly',  
 'blindness', 'blink at', 'Braille', 'Braille-type', 'cataract',  
 'cecily', 'close the eyes', 'dark', 'darkly', 'dazzle',  
 'dimsighted', 'dim-sightedness', 'excecation', 'eyeless',

0.1031696651

'grope in the dark', 'guttaserena', 'have the eyes bandaged', 'hoodwink', 'look another way', 'lose sight of', 'noctograph', 'not look', 'not see', 'prestriction', 'put one's eyes out', 'render blind', 'sand-blind', 'screen from sight', 'shut the eyes-', 'shut the eyes to', 'sightless', 'stark-blind', 'stone-blind', 'teichopsia', 'turn away the eyes', 'undiscerning', 'visionless', 'wall-eyed', 'wink', 'wink at']

['a word and a blow', 'accelerate', 'acceleration', 'all at once', 'amain', 'apace', 'at short notice', 'barrel along', 'be in a hurry', 'be in haste', 'be precipitate', 'bestir oneself', 'boisterous', 'breathless', 'brusque', 'brusquerie', 'bundle on', 'bustle', 'by cable', 'by express', 'by fits and starts', 'by forced marches', 'by spurts', 'by telegraph', 'cursory', 'dart to and fro', 'dash', 'dash off', 'dash on', 'despatch', 'devil take the hindmost', 'dispatch', 'drive', 'expedite', 'express', 'feverish', 'fidget', 'flurry', 'flutter', 'forced march', 'full drive', 'full-tilt', 'furious', 'fuss', 'fussy', 'hard pressed', 'haste', 'haste makes waste', 'hasten', 'hastily', 'hasty', 'have no time', 'have not a moment to lose', 'head and shoulders', 'headlong', 'heels over head', 'helter-skelter', 'holus-bolus', 'hop skip and jump', 'hotheaded', 'hurried', 'hurry', 'hurry on', 'hurry-skurry', 'immediately', 'impetuosity', 'impetuous', 'in a hurry', 'in all haste', 'in haste', 'in hot haste', 'jump at', 'lose no time', 'lose not a moment', 'lose not an instant', 'make a dash', 'make haste', 'make short work of', 'no sooner said than done', 'no time to be lost', 'plunge', 'plunge headlong', 'posthaste', 'precipitancy', 'precipitate', 'precipitately', 'precipitation', 'precipitousness', 'press forward', 'press on', 'pressed for time', 'push on', 'pushing', 'put on', 'quicken', 'railroad', 'rush', 'scramble', 'scrambling', 'scuttle along', 'skurry', 'slap-bang', 'slapdash', 'speed', 'spirt', 'splutter', 'spurt', 'urge', 'urgency', 'urgent', 'velocity', 'whip', 'whip on', 'with all haste', 'with breathless speed', 'with haste', 'work against time']

HASTE

0.1029272255

ENVY

['burst with envy', 'covet', 'covetous', 'envious', 'enviousness', 'envy', 'illwill', 'invidious', 'rivalry', 'spite']

0.1020089863

MALEDICTION

[ 'a plague upon!', 'abuse', 'accuse', 'anathema',  
'anathematize', 'aroynt!', 'aspersion', 'bad language',  
'ban', 'beshrew', 'beshrew!', 'billingsgate', 'blast!', 'bold  
up to execration', 'commination', 'confound!',  
'confusion seize!', 'curse', 'curse and swear', 'curse!',  
'cursed', 'cursing', 'damn', 'damn it!', 'damn you to  
hell!', 'damn you!', 'damn!', 'denounce', 'denunciation',  
'devil take!', 'devote to destruction', 'disparagement',  
'evil speaking', 'excommunicate', 'excommunication',  
'execrate', 'execration', 'fall a cursing', 'foul invective',  
'foul language', 'fulminate', 'fulmination', 'go to  
blazes!', 'go to hell!', 'hang!', 'ill betide', 'imprecate',  
'imprecation', 'invective', 'malediction', 'malison',  
'maranatha', 'more bark than bite', 'oath', 'out upon!',  
'out with!', 'profane swearing', 'proscribe',  
'proscription', 'rap out an oath', 'ribaldry', 'rude  
reproach', 'sauce', 'scold', 'scurrility', 'strong language',  
'swear', 'swear at', 'swear like a trooper', 'threat',  
'threaten', 'thunder against', 'thunders of the Vatican',  
'unparliamentary language', 'vilification',  
'vituperation', 'woe betide', 'woe to!']

0.1014076768

Figure 3: Category Correlations with “WOMAN” in Control Group

Category	Correlation with Woman (p<.05)
('WOMAN', 'cat0374')	1
('FRIENDSHIP', 'cat0888')	0.8187368148
('FAVORITE', 'cat0899')	0.8178576227
('LOVE', 'cat0897')	0.8143562779
('BENEVOLENCE', 'cat0906')	0.8127995009
('TASTE', 'cat0850')	0.8090154668
('COURTESY', 'cat0894')	0.804339191
('WIT', 'cat0842')	0.7963906449
('DEMONSTRATION',	0.7744655093

'cat0478')	
('COLOR', 'cat0428')	0.7729662166
('SWEETNESS', 'cat0396')	0.7681858842
('ACCOMPANIMENT', 'cat0088')	0.7655875014
('MELODY CONCORD', 'cat0413')	0.7645980458
('REJOICING', 'cat0838')	0.758464961
('REFRIGERATION', 'cat0385')	0.7575741773
('RIDICULOUSNESS', 'cat0853')	0.7515830737
('OBSERVANCE', 'cat0772')	0.7485614912
('APPROBATION', 'cat0931')	0.747918816
('CAUTION', 'cat0864')	0.74605189
('GRATITUDE', 'cat0916')	0.7459885554
('PLEASURE', 'cat0827')	0.7418700094
('OSCILLATION', 'cat0314')	0.7375353036
('MEASUREMENT', 'cat0466')	0.7375224685
('DISINTERESTEDNESS', 'cat0942')	0.7371969715
('DEFENSE', 'cat0717')	0.737184811
('DISSUASION', 'cat0616')	0.7359037372

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To estimate semantic similarity scores between tweets we used the publicly available TakeLab semantic similarity toolkit (S€aric et al., 2012) which is based on a submission to SemEval 2012 task 6 (Agirre et al., 2012). We used the data of SemEval 2012 task 6 to train three semantic similarity models corresponding to the three datasets of that task, plus an overall model. Using these models we created four similarity ratings between each tweet of interest and each tweet in the training set. We presented a system of twitter sentiment analysis combining lexicon-based features with semantic similarity and contrast features. The system proved very successful, achieving high ranks among all competing systems in the tasks of sentiment analysis of generic and sarcastic tweets.