8 Appendices

Fig. 2: External API Quotas for 'Semantic Insights'.

API	Media Type	Quota
Flicker	Images	3600 requests per hour
Guardian	News	5,000 requests per day (2 per second)
Feedzilla	News	No Quota (Not Real-Time)
Instagram	Images	5000 requests per hour
Youtube	Videos	5,000,000 units per day
Bing	Videos	5000 requests per month
Tumblr	Blog Posts	No Quota
Google Play	Apps	15,000 requests per day
Wikipedia / MediaWiki	General Information	No Quota

Fig. 3: CrowdFlower Human Test 1

Fig. 4: CrowdFlower Human Test 2

Fig. 5: CrowdFlower Human Test 3

Fig. 6: Legend for demonstration client wire-frame designs.
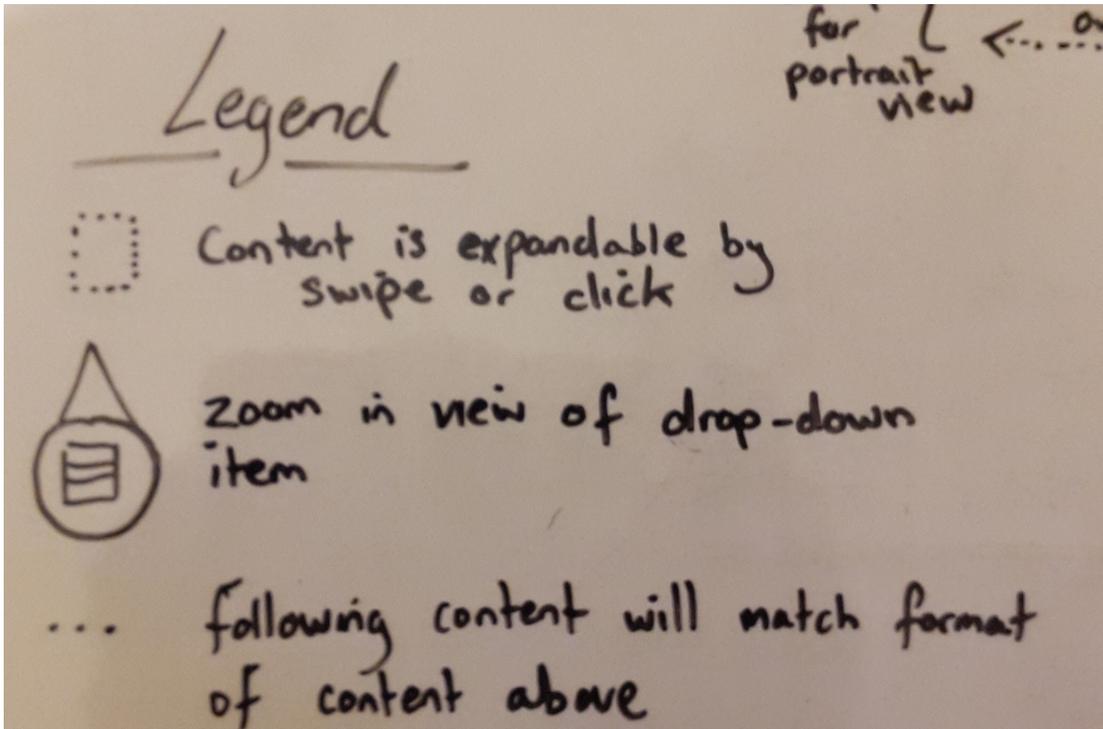
Fig. 7: Initial header wire-frame design of client.
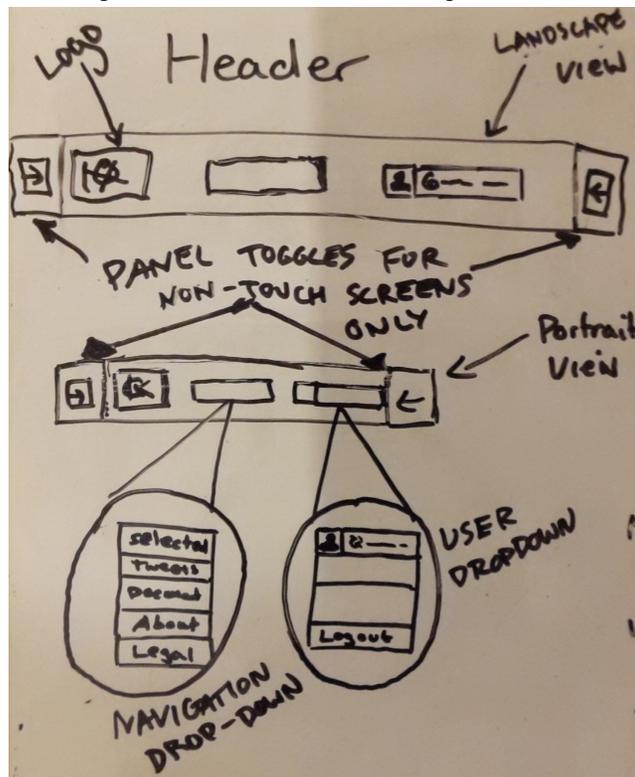
Fig. 8: Initial main body wire-frame design of client.
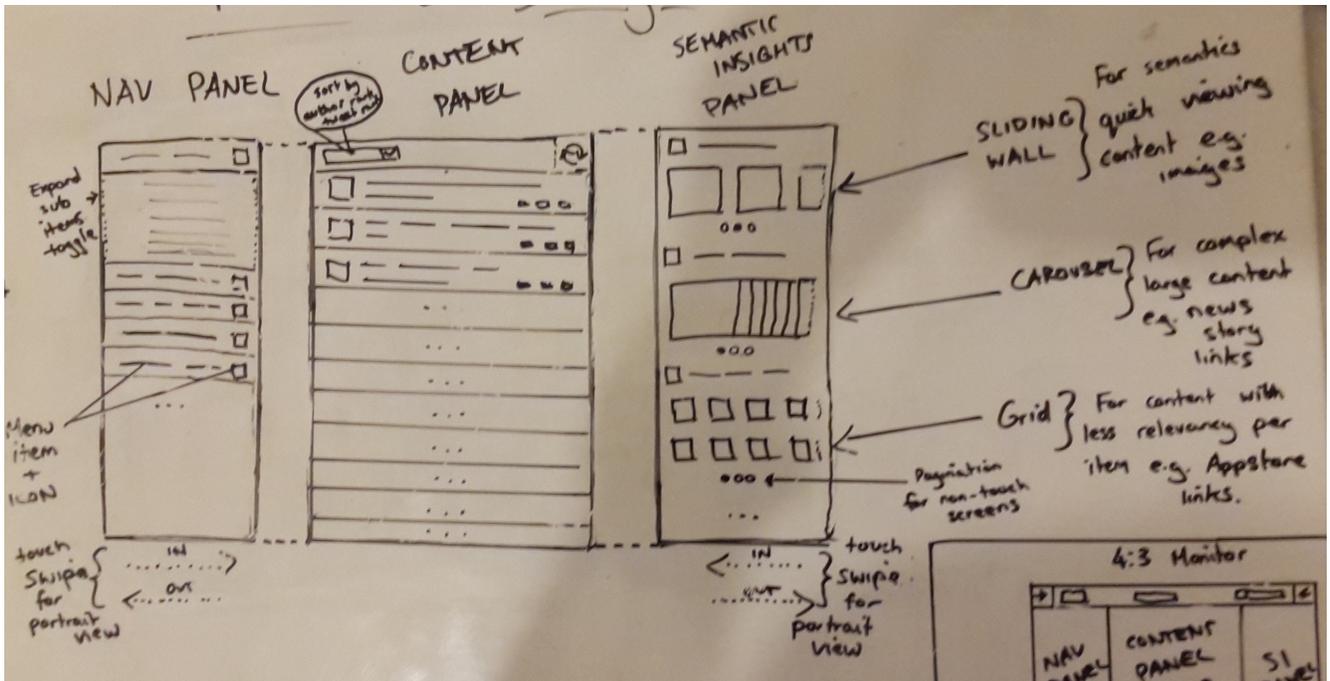
Fig. 9: Example wire-frame mock-ups of client on various platforms.
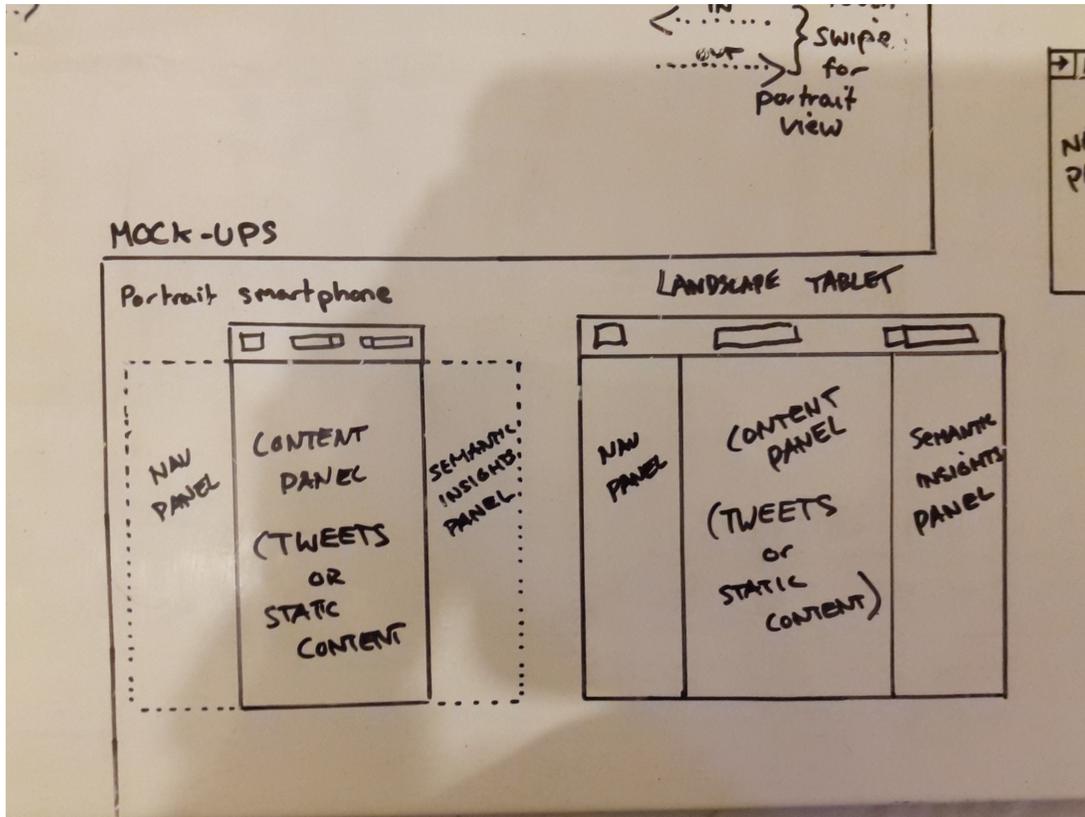
Fig. 10: Example wire-frame mock-ups of client on various platforms.
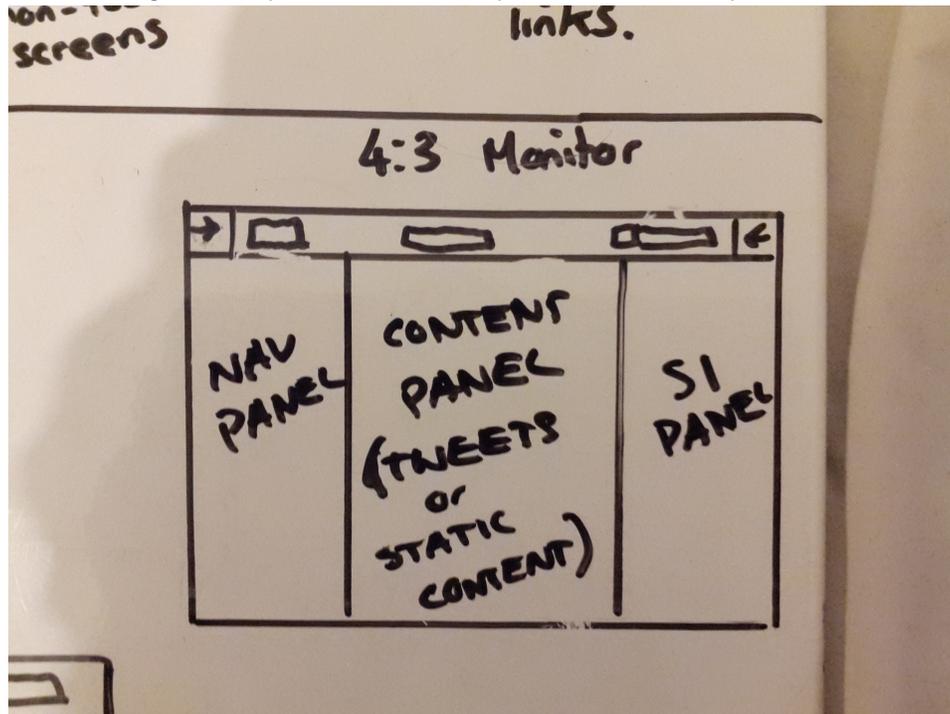
Fig. 11: Initial API End-point Tree Structure

API
├── Authenticate
└── Discover
    ├── Timeline
    │   ├── Feed
    │   ├── Insights
    │   └── Topics
    ├── Personal
    │   ├── Timeline
    │   │   ├── Feed
    │   │   ├── Insights
    │   │   └── Topics
    │   └── Favourites
    │   ├── Feed
    │   ├── Insights
    │   └── Topics
    ├── Global
    │   ├── Feed
    │   ├── Insights
    │   └── Topics
    └── *
        ├── Feed
        └── Insights
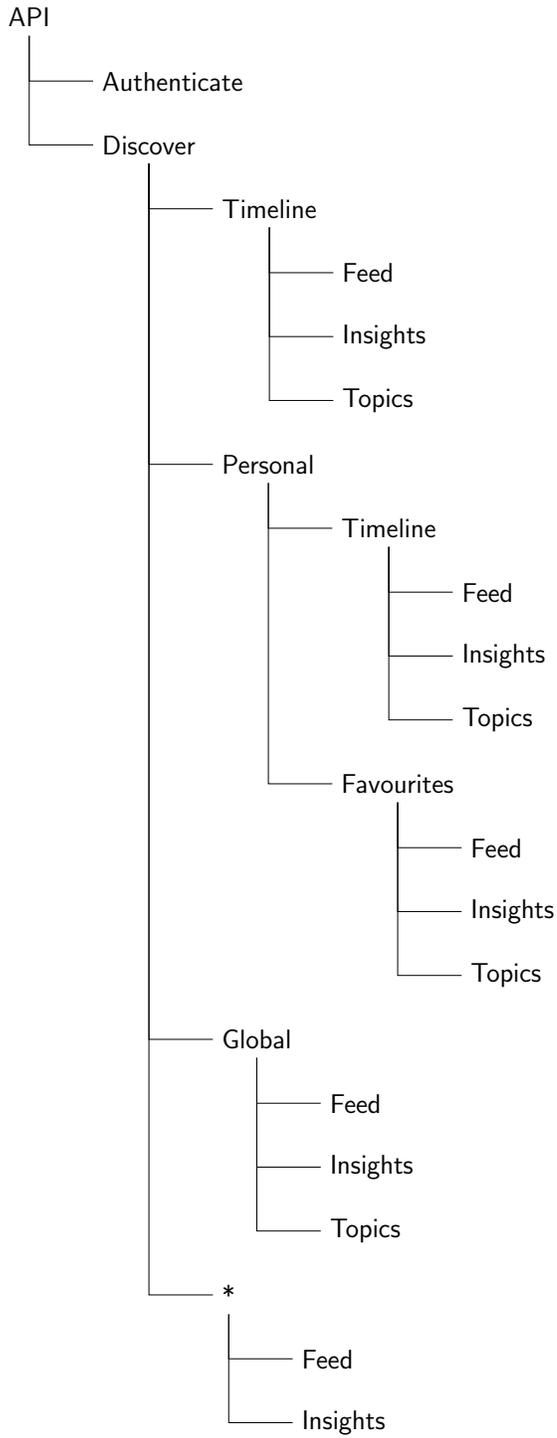
Project Meeting Notes - Week 6

- Human keyword classification against Alchemy keyword extraction results.
  - Results very inconsistent.
  - Recall significantly better than precision.

'
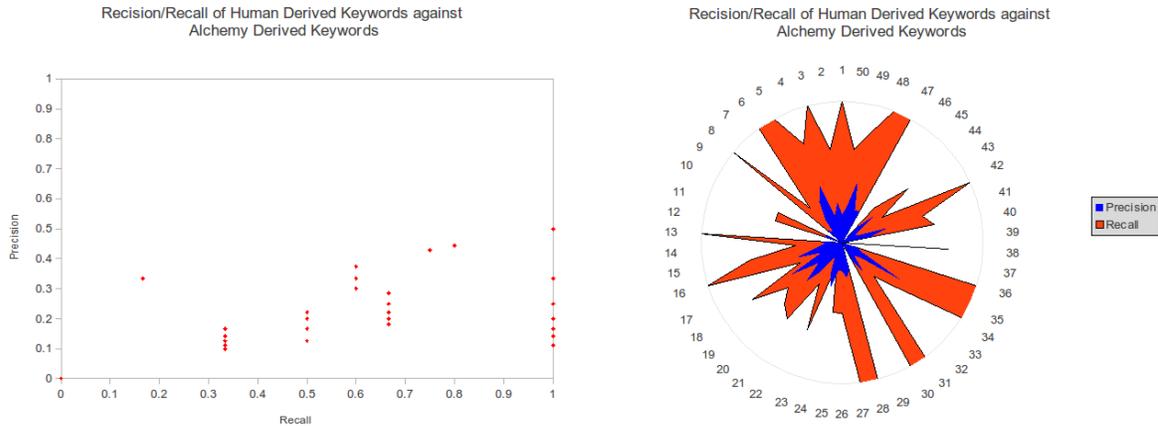
- A few possible n-gram corpuses.
  - Many papers use Microsoft's Web N-Gram corpus, indexed by its Bing search engine.
  - Rovereto Twitter N-Gram Corpus of 75 Million Tweets
  - Twitter don't seem to like these corpus' many including the Edinburgh corpus were either restricted to TweetIDs or taken down.

- **TwiNER**: Unsupervised **Named Entity Recognition in Targeted Twitter Stream -** SIGIR Portland Oregon 2012

  - States the difficulties of using traditional taggers with text chunking, and POS with tweets due to abnormal capitalisation and grammatical errors. e.g.

  - Proposes an unsupervised method for tweet segmentation using a dynamic programming algorithm to evaluate various combinations of consecutive words to determine a set of keywords (by using metrics such as probability to assess whether a string of words can be split further)e.g.
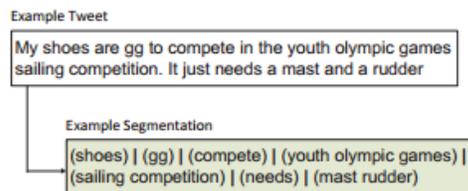
  - Uses Microsoft Web N-Gram corpus to evaluate potential entities coupled with Wikipedia.
  - Paper then proposes a way of ranking tweets to find true named entities (unneeded in this scope).

Fig. 12: Weekly Supervisor Notes for Week 6 - Page 1

Project Meeting Notes - Week 7

NLTK Tagger

1. Annotated Corpus are limited, the most significant and native to the nltk is the Brown corpus.
2. Created and exported Brown NLTK tagger as a cPickle file, fast importing and no need to recompile.
3. Tagger uses the entire Brown corpus with n-gram tagging - comprising of tri-gram tagging, falling back to a bi-gram tagging, falling back to unigram tagging, falling back to the nltk default tagging; so every string has a best-fit word classification to it.
4. Keyword extraction process comprises of extracting single words from a Brown annotated tokenized string which are classified as a type of Noun or Verb.

Precision / Recall of Human vs Alchemy Derived Keywords

Precision / Recall of Human vs Brown Tagger Derived Keywords
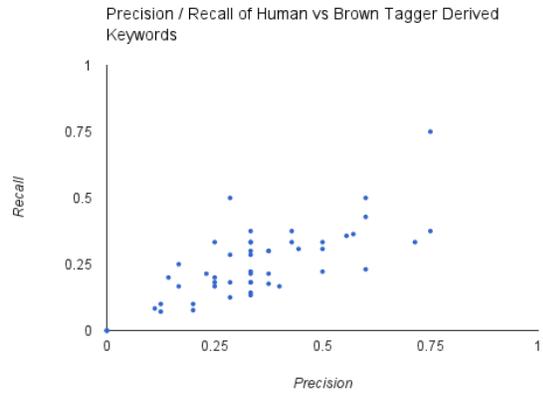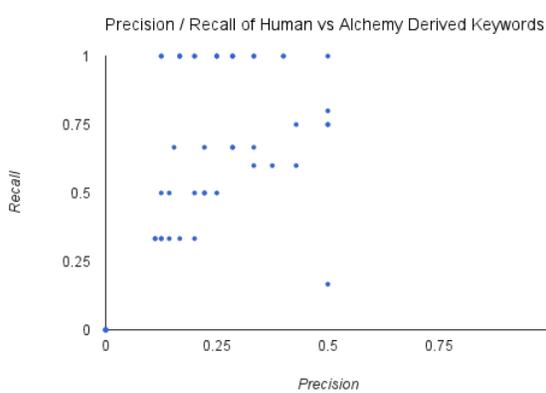
	Average		Minimum		Maximum	
	Alchemy	Brown	Alchemy	Brown	Alchemy	Brown
Precision	0.2222	**0.3424**	0	**0**	0.5	**0.75**
Recall	**0.6337**	0.2463	**0**	**0**	**1**	0.75

Conclusions from results:

1. On average, Brown tagger produced more keywords than Alchemy that matched what a human would derive.
2. However, Alchemy has significantly better recall, suspected due to smaller set size of keywords - Better metrics in place than just extracting all nouns and verbs.
3. Both methods produced results with 0 precision or recall.
4. Neither method can produce optimum precision and recall for any Tweet.

Issues to consider going forward:

1. Whilst the n-gram nature of the brown tagger takes into consideration context of preceding words, it does not account for sentence breaks by punctuation.
2. White-space tokenization leaves sentence break grammar in place and abnormal placement of punctuation characters.
3. Human tags almost exclusively had Twitter specific entity identifiers removed (e.g. @ and #) from any corresponding tags.
4. The implemented brown tagger only extracts individual verbs and nouns and does not take into consideration multiple consecutive words as key phrases.
5. Very similar or duplicate strings are possible with the Brown Tagger.

NLTK Parser

Features of the brown tagger should be expanded to attempt to remove these issues; a bespoke algorithm was devised:

- Explode the tweet by tokenizing by white space to form a single list of strings.
- Iterate through the list and for each item:
  - Iterate through each character from position 0 until a character which is not standard English language punctuation is found:
    - When a non breaking punctuation character is found - @ # [({ : - continue to next character.
    - When a breaking punctuation character is found - , . ; ! ?)] } ... - add all previously cleaned keywords to a list of keywords known as a sentence segment which aren't current in a segment. If no keywords are yet to be placed in a segment(e.g. when two or more breaking punctuation is consecutive e.g. !!!?!) then continue to the next character.
    - When punctuation has been cleaned from the start of a string, make the string a substring of it self from the current iteration index to the end of the string e.g ,@LiamDTurner!!! becomes LiamDTurner!!!
  - Repeat previous steps whilst iterating from character position -1. Resulting in the example of LiamDTurner!!! finally becoming LiamDTurner. Punctuation in the middle of a string is unaffected so that conditions such as £1.30 or v1.0.0.1b remain.
- Perform n-gram tagging using the previous Brown Tagger on each cleaned string in each set of segments.
- Parse each segment through an nltk RegexpParser with a set bespoke grammar to try and join relevant consecutive strings together. The result of parsing for each segment is a tree representation with each branch representing a keyphrase of conjoined sub-branches or leaf nodes.
- Each segment tree is then iterated through to produce a single list of keyphrases and keywords. Whilst iterating through the tree each keyword or keyphrase to be added is checked with the current pool in terms of Levenshtein edit-distance - The number of characters difference between two strings to avoid duplicates and close similarities (within two characters). e.g. merging 'Windows 8' and 'Windows8'.
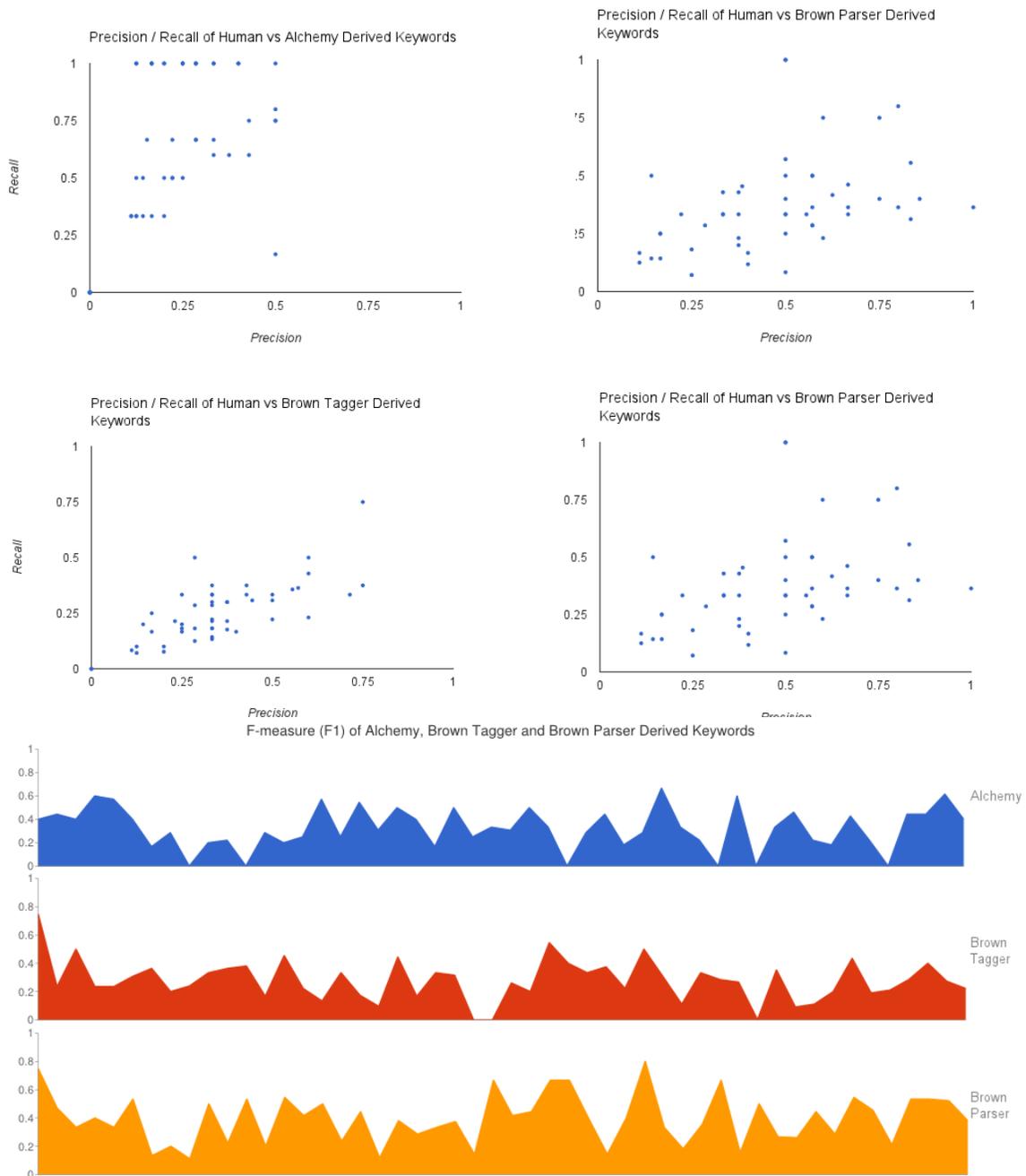
Precision / Recall of Human vs Alchemy Derived Keywords

Precision / Recall of Human vs Brown Parser Derived Keywords

Precision / Recall of Human vs Brown Tagger Derived Keywords

Precision / Recall of Human vs Brown Parser Derived Keywords

F-measure (F1) of Alchemy, Brown Tagger and Brown Parser Derived Keywords

Alchemy

Brown Tagger

Brown Parser

	Average			Min			Max		
	Alchemy	Brown T	Parser	Alchemy	Brown T	Parser	Alchemy	Brown T	Parser
Prec	0.2222	0.3424	**0.4812**	0	0	**0.1111**	0.5	0.75	**1**
Recall	**0.6337**	0.2463	0.3744	0	0	**0.0714**	1	0.75	**1**
F1	0.323	0.278	**0.395**	-	-	-	-	-	-

Conclusions From Results:

1. Increased precision, recall and F-measure or improved parser, recall is still less than Alchemy.
2. At least one keyword matched the human keywords for every tweet.
3. Optimum precision/recall achieved for at least one tweet.
4. Average of matching just under 50% keywords should now be looked into to find any major issues that may still be hindering the keyword extraction.

Inspected human derived keywords and found that where multiple consecutive keywords were chosen; there was great variation between individuals with words included either side of a central group of keywords. Also, the average percentage of user agreement for each tweet is below, the average of these averages is **32.45%** co-occurrence.

Percentage co-occurrence of Human derived tags across participants
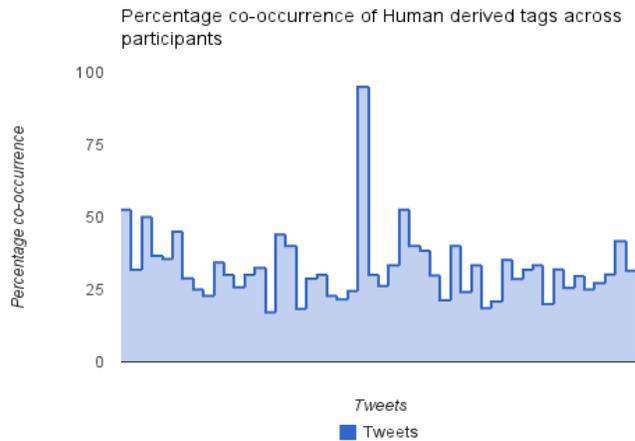
Created co-occurrence keyword set from human results which contained keywords and keyphrases which at least 2 individuals selected. Calculated precision and recall for each of the sets again:
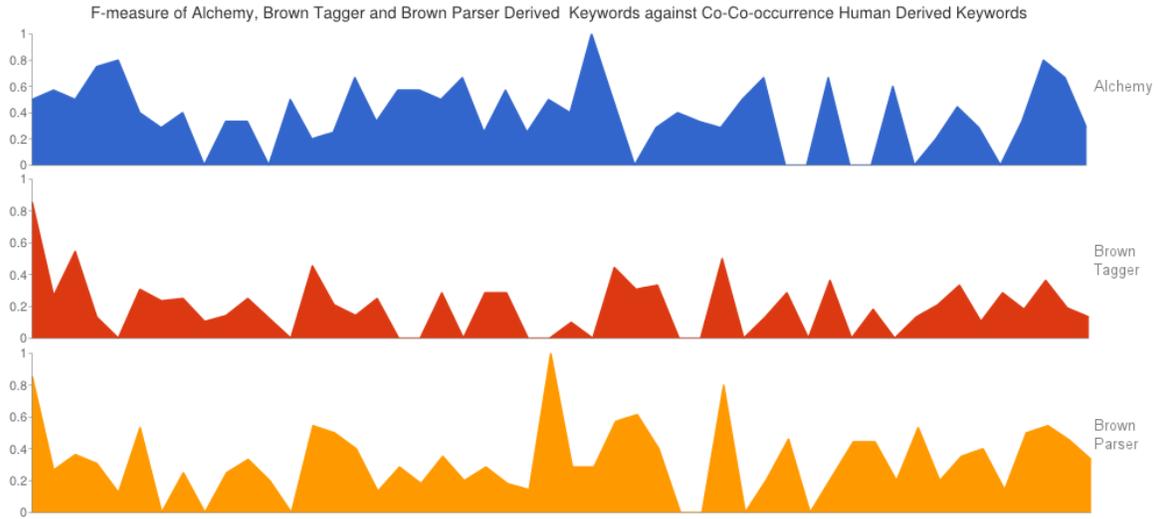
Precision / Recall of Human Co-Occurrence Keywords vs Alchemy Derived Keywords

recision / Recall of Human Co-Occurrence Keywords vs rown Tagger Derived Keywords

Precision / Recall of Human Co-Occurrence Keywords vs Brown Parser Derived Keywords

F-measure of Alchemy, Brown Tagger and Brown Parser Derived Keywords against Co-Co-occurrence Human Derived Keywords

	Average			Min			Max		
	Alchemy	Brown T	Parser	Alchemy	Brown T	Parser	Alchemy	Brown T	Parser
Prec	**0.6**	0.3427	0.5478	**0**	**0**	**0**	**1**	**1**	**1**
Recall	**0.509**	0.1443	0.248	**0**	**0**	**0**	**1**	0.75	**1**
F1	**0.387**	0.194	0.322	-	-	-	-	-	-

Conclusions From Results:
1. Alchemy results have a better precision, recall and F-measure than both the Brown Tagger and Parser.
2. However all three were unable to match keywords with some tweets - Alchemy and Parser: 7 Tweets, Brown Tagger: 14.
3. Both Alchemy and Brown Parser were able to reach optimum precision and recall on 1 tweet.
4. Both Brown Tagger and Parser suffered low recall, suspected due to large set of keywords in comparison to Alchemy.

Precision and Recall of Brown based taggers/parsers against Alchemy:

Precision / Recall of Brown Tagger vs Alchemy Derived Keywords

Precision / Recall of Brown Parser vs Alchemy Derived Keywords
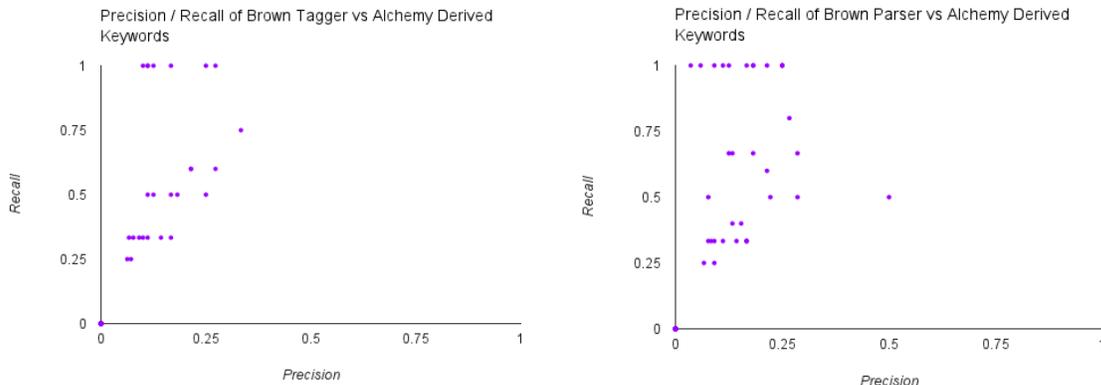
	Average		Minimum		Maximum	
	Brown T	Parser	Brown	Parser	Brown	Parser
Precision	0.078	**0.113**	0	0	0.333	**0.5**
Recall	0.298	**0.441**	0	0	1	1
F1	0.119	**0.169**	-	-	-	-

Conclusions From Results:

1. Brown Parser produces more keywords that match Alchemy results but with very poor precision, likely due to the difference in set size.
2. Whilst the Brown Parser and Alchemy have a low F-measure between them, both have relatively close F-measures against Human data.

Project Meeting Notes – Week 8

Misc

- Python Twitter Tools Library integrated, future proof method calls make it the most suitable given Twitter's API changes.

Keyword Extraction Script

- Fixed a minor issue where characters 'R' and 'T' were being removed from the beginning of keywords.

- Implemented unicode conversion function which converts unicode characters to ASCII equivalents for greater stability with use in Python and Twitter character choices for truncation and quoting. Unconvertible characters are removed.

- Colon (:) character is now classed as ending punctuation, forcing a Tweet segmentation break; to avoid keywords to be incorrectly conjoined e.g. … @BBCSport: Vettel … -> 'BBCSport Vettel' now becomes -> 'BBCSport', 'Vettel'.

Tweet Ranking

- Took some of the tweet ranking metrics discussed briefly last week, inspired from paper:
  'User Oriented Tweet Ranking: A Filtering Approach to Microblogs', I. Uysal, W. B. Croft, October 2011

Tweet Integrity	Tweet Interest	Author Integrity	Author Interest
Tweet Lifetime	Keyword Precision against search terms	Is the author verified?	Number of lists the author belongs to
Keyword Cosine Similarity against other tweets.	Keyword Precision against home timeline keywords	Account Age (Days) / Friends Count {Spam Check}	Is the author a friend of tweet viewer?
	Keyword Precision against user timeline keywords	Number of Followers	Follower Count / Posts per day {Maintainability of followers with low post count}
	Retweet Count		

Tweet Integrity = Lifetime * Keyword Cosine

Tweet Interest = (((Search Term Prec * Home Timeline Prec) * User Timeline Prec) * Retweet Count

Author Integrity = (((Account Age (Days) / Friends Count) * Number of Followers) * 1+(isVerified))

Author Interest = (((Follower Count / Posts per day) * Listed Count (if not 0)) * 1+(isFriend))

- Explored the NSGA-II algorithm and concluded that only a portion of the algorithm was applicable, the 'fast non-dominated sort'.

- Looked into existing Python solutions including: PyGMO, py-nsga-ii, nsga-ii-python, ecsPY and pyNSGA2.

- All of the solutions above provided a near complete solution to all aspects of the NSGA-II algorithm, including processing data through genetic operators for offspring populations.

- None of the existing solutions provided loosely coupled methods or easy use of methods for just using the 'fast non-dominated sort'.

- Took the 'fast non-dominated sort' algorithm pseudo-code from the original paper:
  'A Fast Elitist MultiObjective Genetic Algorithm: NSGA-II' , K. Deb et al, April 2002

- Explored applicability of using pseudo-code into a form that suited implementation of 2 objective population members (x and y co-ordinates), referencing somewhat the approach outlined in paper:
  'Improved NSGA-II Based on a Novel Ranking Scheme', Page 92, Rio G. L D'Souza et al, Feburary 2010

- Used implementation of 2 objective member domination defined in paper:
  'A survey of computational approaches to portfolio optimization by genetic algorithms', Page 5, O. Rifki et all, April 2012

1. Proposal: Due to the number of metrics used to determine tweet ranking being 4 rather than 2; this gives an opportunity for two level sorting such that:
2. The content of the tweet is arguably more important in the context of this project rather than the author therefore, if the 'non dominated sort' is run twice using tweet metrics together and author metrics together; each tweet would have two 'ranks' which could be displayed in the following way:
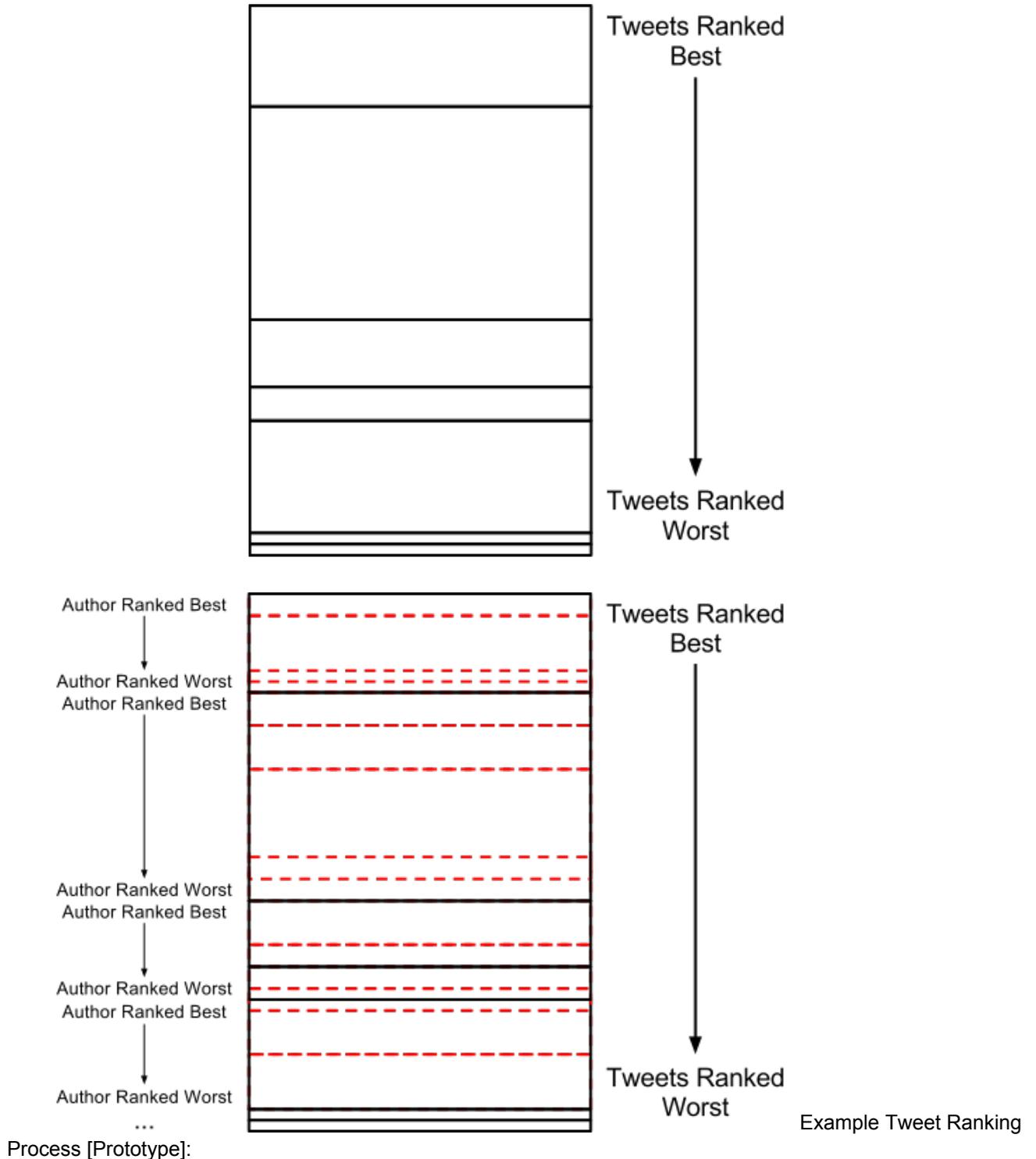

Example Tweet Ranking

Process [Prototype]:

[TWEET]: RT @AntiJokeApplee: A tomato walks into a bar... Just kidding, tomatoes can't walk...
[RETWEET COUNT]: 126
[TWEET LIFETIME]: 19 seconds
[TWEET KEYWORDS]: ['AntiJokeApplee', 'tomato', 'bar', 'walk']
[TWEET SEARCH PRECISION]: 0.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.00322580645161
[TWEET COSINE]: 0.7407
[TWEET KEYWORD COSINE]: 0.7544

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 95
[AUTHOR FRIENDS]: 145
[AUTHOR AGE]: 623.0 days
[AUTHOR EST SCORE]: 4.29655172414
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 0
[AUTHOR REACH SCORE]: 11.6437143419

[TWEET INTEGRITY SCORE]: 14.0733
[TWEET INTEREST SCORE]: 0.0
[AUTHOR INTEGRITY SCORE]: 408.172413793
[AUTHOR INTEREST SCORE]: 11.6437143419

[TWEET]: RT @AntiJokeTyrone: A tomato walks into a bar... Just kidding, tomatoes can't walk.
[RETWEET COUNT]: 215
[TWEET LIFETIME]: 51 seconds
[TWEET KEYWORDS]: ['AntiJokeTyrone', 'tomato', 'bar', 'walk']
[TWEET SEARCH PRECISION]: 0.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.00322580645161
[TWEET COSINE]: 0.7378
[TWEET KEYWORD COSINE]: 0.6618

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 75
[AUTHOR FRIENDS]: 79
[AUTHOR AGE]: 246.0 days
[AUTHOR EST SCORE]: 3.11392405063
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 0
[AUTHOR REACH SCORE]: 13.6767976279

[TWEET INTEGRITY SCORE]: 37.6278
[TWEET INTEREST SCORE]: 0.0
[AUTHOR INTEGRITY SCORE]: 233.544303797
[AUTHOR INTEREST SCORE]: 13.6767976279

[TWEET]: #WhenIWasACarrot I used to chill out in summer with tomatoes, potatoes and cucumbers.
[RETWEET COUNT]: 0
[TWEET LIFETIME]: 56 seconds
[TWEET KEYWORDS]: ['WhenIWasACarrot', 'chill', 'in summer with tomatoes', 'in summer', 'summer', 'with tomatoes', 'tomatoes', 'cucumbers']
[TWEET SEARCH PRECISION]: 1.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.0
[TWEET COSINE]: 0.6996
[TWEET KEYWORD COSINE]: 0.7601

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 297
[AUTHOR FRIENDS]: 237
[AUTHOR AGE]: 786.0 days
[AUTHOR EST SCORE]: 3.3164556962
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 0
[AUTHOR REACH SCORE]: 15.4669051878

[TWEET INTEGRITY SCORE]: 39.1776
[TWEET INTEREST SCORE]: 1.0
[AUTHOR INTEGRITY SCORE]: 984.987341772
[AUTHOR INTEREST SCORE]: 15.4669051878

[TWEET]: RT @AntiJokeApplee: A tomato walks into a bar... Just kidding, tomatoes can't walk...
[RETWEET COUNT]: 126
[TWEET LIFETIME]: 62 seconds
[TWEET KEYWORDS]: ['AntiJokeApplee', 'tomato', 'bar', 'walk']
[TWEET SEARCH PRECISION]: 0.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.00322580645161
[TWEET COSINE]: 0.7407
[TWEET KEYWORD COSINE]: 0.7003

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 70
[AUTHOR FRIENDS]: 112
[AUTHOR AGE]: 1062.0 days
[AUTHOR EST SCORE]: 9.48214285714
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 0
[AUTHOR REACH SCORE]: 59.093799682

[TWEET INTEGRITY SCORE]: 45.9234
[TWEET INTEREST SCORE]: 0.0
[AUTHOR INTEGRITY SCORE]: 663.75
[AUTHOR INTEREST SCORE]: 59.093799682

[TWEET]: @HollyFritz A tomato walks into a bar... Just kidding tomatoes can't walk
[RETWEET COUNT]: 0
[TWEET LIFETIME]: 69 seconds
[TWEET KEYWORDS]: ['HollyFritz A tomato', 'HollyFritz A', 'A', 'tomato', 'bar', 'walk']
[TWEET SEARCH PRECISION]: 0.0
[TWEET USER TIMELINE PRECISION]: 0.00534759358289
[TWEET HOME TIMELINE PRECISION]: 0.00645161290323
[TWEET COSINE]: 0.726
[TWEET KEYWORD COSINE]: 0.6601

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 34
[AUTHOR FRIENDS]: 60
[AUTHOR AGE]: 6.0 days
[AUTHOR EST SCORE]: 0.1
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 0
[AUTHOR REACH SCORE]: 2.0198019802

[TWEET INTEGRITY SCORE]: 50.094
[TWEET INTEREST SCORE]: 0.0
[AUTHOR INTEGRITY SCORE]: 3.4
[AUTHOR INTEREST SCORE]: 2.0198019802

[TWEET]: "@AntiJokeApplee: A tomato walks into a bar... Just kidding, tomatoes can't walk..."
[RETWEET COUNT]: 0
[TWEET LIFETIME]: 69 seconds
[TWEET KEYWORDS]: ['AntiJokeApplee', 'tomato', 'bar', 'walk']
[TWEET SEARCH PRECISION]: 0.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.00322580645161
[TWEET COSINE]: 0.7603
[TWEET KEYWORD COSINE]: 0.7003

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 39
[AUTHOR FRIENDS]: 99
[AUTHOR AGE]: 121.0 days
[AUTHOR EST SCORE]: 1.22222222222
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 0
[AUTHOR REACH SCORE]: 143.0

[TWEET INTEGRITY SCORE]: 52.4607
[TWEET INTEREST SCORE]: 0.0
[AUTHOR INTEGRITY SCORE]: 47.6666666667

[AUTHOR INTEREST SCORE]: 143.0

[TWEET]: I hate tomatoes no matter where they are
[RETWEET COUNT]: 0
[TWEET LIFETIME]: 105 seconds
[TWEET KEYWORDS]: ['hate tomatoes', 'hate', 'tomatoes', 'matter']
[TWEET SEARCH PRECISION]: 1.0
[TWEET USER TIMELINE PRECISION]: 0.00534759358289
[TWEET HOME TIMELINE PRECISION]: 0.0
[TWEET COSINE]: 0.6322
[TWEET KEYWORD COSINE]: 0.6613

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 261
[AUTHOR FRIENDS]: 263
[AUTHOR AGE]: 140.0 days
[AUTHOR EST SCORE]: 0.532319391635
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 0
[AUTHOR REACH SCORE]: 3.2157000792

[TWEET INTEGRITY SCORE]: 66.381
[TWEET INTEREST SCORE]: 1.00534759358
[AUTHOR INTEGRITY SCORE]: 138.935361217
[AUTHOR INTEREST SCORE]: 3.2157000792

[TWEET]: Grilled cheese with a side of tomatoes and #hotcheetos #lime. At least there's a fruit involved. #skinnyfata http://t.co/ll8JCeAR
[RETWEET COUNT]: 0
[TWEET LIFETIME]: 123 seconds
[TWEET KEYWORDS]: ['Grilled cheese', 'Grilled', 'cheese', 'side of tomatoes', 'side', 'tomatoes', 'hotcheetos lime', 'hotcheetos', 'fruit', 'skinnyfata']
[TWEET SEARCH PRECISION]: 1.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.0
[TWEET COSINE]: 0.6915
[TWEET KEYWORD COSINE]: 0.7637

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 4277
[AUTHOR FRIENDS]: 695
[AUTHOR AGE]: 1342.0 days
[AUTHOR EST SCORE]: 1.9309352518
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 76
[AUTHOR REACH SCORE]: 162.134798452

[TWEET INTEGRITY SCORE]: 85.0545
[TWEET INTEREST SCORE]: 1.0
[AUTHOR INTEGRITY SCORE]: 8258.61007194
[AUTHOR INTEREST SCORE]: 12322.2446824

[TWEET]: A nice afternoon of salads and Swedes with the spouse (Sweet Tomatoes and IKEA).
[RETWEET COUNT]: 0
[TWEET LIFETIME]: 140 seconds
[TWEET KEYWORDS]: ['afternoon of salads', 'afternoon', 'salads', 'spouse Sweet Tomatoes', 'spouse', 'Sweet Tomatoes', 'IKEA']
[TWEET SEARCH PRECISION]: 0.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.0
[TWEET COSINE]: 0.6542
[TWEET KEYWORD COSINE]: 0.7679

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 20
[AUTHOR FRIENDS]: 110
[AUTHOR AGE]: 1347.0 days
[AUTHOR EST SCORE]: 12.2454545455
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 0
[AUTHOR REACH SCORE]: 23.7566137566

[TWEET INTEGRITY SCORE]: 91.588
[TWEET INTEREST SCORE]: 0.0

[AUTHOR INTEGRITY SCORE]: 244.909090909
[AUTHOR INTEREST SCORE]: 23.7566137566

[TWEET]: @Leah_McNally are you kidding me? pickles & tomatoes are the best two things ever made. #truefact
[RETWEET COUNT]: 0
[TWEET LIFETIME]: 141 seconds
[TWEET KEYWORDS]: ['Leah_McNally', '&amp', 'tomatoes', 'two things', 'things', 'truefact']
[TWEET SEARCH PRECISION]: 1.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.00322580645161
[TWEET COSINE]: 0.7329
[TWEET KEYWORD COSINE]: 0.6929

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 238
[AUTHOR FRIENDS]: 238
[AUTHOR AGE]: 554.0 days
[AUTHOR EST SCORE]: 2.32773109244
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 0
[AUTHOR REACH SCORE]: 51.125242342

[TWEET INTEGRITY SCORE]: 103.3389
[TWEET INTEREST SCORE]: 1.00322580645
[AUTHOR INTEGRITY SCORE]: 554.0
[AUTHOR INTEREST SCORE]: 51.125242342

[TWEET]: @T_FLYE bring me a chef salad no eggs,tomatoes, or ham
[RETWEET COUNT]: 0
[TWEET LIFETIME]: 153 seconds
[TWEET KEYWORDS]: ['T_FLYE bring', 'T_FLYE', 'bring', 'chef salad', 'chef', 'salad', 'eggs,tomatoes', 'ham']
[TWEET SEARCH PRECISION]: 0.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.0
[TWEET COSINE]: 0.664
[TWEET KEYWORD COSINE]: 0.6984

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 142
[AUTHOR FRIENDS]: 131
[AUTHOR AGE]: 226.0 days
[AUTHOR EST SCORE]: 1.72519083969
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 1
[AUTHOR REACH SCORE]: 8.3204563132

[TWEET INTEGRITY SCORE]: 101.592
[TWEET INTEREST SCORE]: 0.0
[AUTHOR INTEGRITY SCORE]: 244.977099237
[AUTHOR INTEREST SCORE]: 8.3204563132

[TWEET]: RT @wags2013: "I mix up tomatoes and potatoes" @Khummel21
[RETWEET COUNT]: 1
[TWEET LIFETIME]: 160 seconds
[TWEET KEYWORDS]: ['wags2013', 'mix', 'tomatoes', 'Khummel21']
[TWEET SEARCH PRECISION]: 1.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.0
[TWEET COSINE]: 0.6404
[TWEET KEYWORD COSINE]: 0.6193

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 76
[AUTHOR FRIENDS]: 119
[AUTHOR AGE]: 124.0 days
[AUTHOR EST SCORE]: 1.04201680672
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 0
[AUTHOR REACH SCORE]: 16.3327556326

[TWEET INTEGRITY SCORE]: 102.464

[TWEET INTEREST SCORE]: 1.0
[AUTHOR INTEGRITY SCORE]: 79.1932773109
[AUTHOR INTEREST SCORE]: 16.3327556326

[TWEET]: My review for 'The Twilight Saga: Breaking Dawn Part 2' on Rotten Tomatoes: 1 1/2 stars-Lenta, aburrida, malos... http://t.co/ZBQQu6ER
[RETWEET COUNT]: 0
[TWEET LIFETIME]: 164 seconds
[TWEET KEYWORDS]: ['review for The Twilight Saga', 'review', 'The Twilight Saga', 'Breaking', 'Part 2 on Rotten Tomatoes', 'Part 2', 'Rotten Tomatoes', 'Rotten', 'Tomatoes', '1/2 stars-Lenta', 'stars-Lenta', 'aburrida', 'malos']
[TWEET SEARCH PRECISION]: 1.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.0
[TWEET COSINE]: 0.65
[TWEET KEYWORD COSINE]: 0.7284

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 95
[AUTHOR FRIENDS]: 308
[AUTHOR AGE]: 1229.0 days
[AUTHOR EST SCORE]: 3.99025974026
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 0
[AUTHOR REACH SCORE]: 113.025169409

[TWEET INTEGRITY SCORE]: 106.6
[TWEET INTEREST SCORE]: 1.0
[AUTHOR INTEGRITY SCORE]: 379.074675325
[AUTHOR INTEREST SCORE]: 113.025169409

[TWEET]: @hanseebundee oh strawberries and tomatoes you have been busy you all settled in?
[RETWEET COUNT]: 0
[TWEET LIFETIME]: 177 seconds
[TWEET KEYWORDS]: ['hanseebundee', 'strawberries', 'tomatoes']
[TWEET SEARCH PRECISION]: 1.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.0
[TWEET COSINE]: 0.7588
[TWEET KEYWORD COSINE]: 0.7533

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 2949
[AUTHOR FRIENDS]: 2143
[AUTHOR AGE]: 1372.0 days
[AUTHOR EST SCORE]: 0.640223985068
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 111
[AUTHOR REACH SCORE]: 213.240645093

[TWEET INTEGRITY SCORE]: 134.3076
[TWEET INTEREST SCORE]: 1.0
[AUTHOR INTEGRITY SCORE]: 1888.02053196
[AUTHOR INTEREST SCORE]: 23669.7116054

[TWEET]: RT @ilovenissa_: Tomatoes are so disgusting.
[RETWEET COUNT]: 1
[TWEET LIFETIME]: 193 seconds
[TWEET KEYWORDS]: ['ilovenissa_', 'Tomatoes']
[TWEET SEARCH PRECISION]: 1.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.0
[TWEET COSINE]: 0.696
[TWEET KEYWORD COSINE]: 0.6594

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 299
[AUTHOR FRIENDS]: 208
[AUTHOR AGE]: 629.0 days
[AUTHOR EST SCORE]: 3.02403846154
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 0
[AUTHOR REACH SCORE]: 33.9969269704

[TWEET INTEGRITY SCORE]: 134.328
[TWEET INTEREST SCORE]: 1.0
[AUTHOR INTEGRITY SCORE]: 904.1875
[AUTHOR INTEREST SCORE]: 33.9969269704

[TWEET]: "I mix up tomatoes and potatoes" @Khummel21
[RETWEET COUNT]: 1
[TWEET LIFETIME]: 196 seconds
[TWEET KEYWORDS]: ['mix', 'tomatoes', 'Khummel21']
[TWEET SEARCH PRECISION]: 1.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.0
[TWEET COSINE]: 0.6508
[TWEET KEYWORD COSINE]: 0.6193

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 162
[AUTHOR FRIENDS]: 188
[AUTHOR AGE]: 984.0 days
[AUTHOR EST SCORE]: 5.23404255319
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 0
[AUTHOR REACH SCORE]: 545.917808219

[TWEET INTEGRITY SCORE]: 127.5568
[TWEET INTEREST SCORE]: 1.0
[AUTHOR INTEGRITY SCORE]: 847.914893617
[AUTHOR INTEREST SCORE]: 545.917808219

[TWEET]: @WhatTheFFacts I make all the bitches look like tomatoes!!!
[RETWEET COUNT]: 0
[TWEET LIFETIME]: 200 seconds
[TWEET KEYWORDS]: ['WhatTheFFacts', 'make', 'bitches look', 'bitches', 'look', 'tomatoes']
[TWEET SEARCH PRECISION]: 1.0
[TWEET USER TIMELINE PRECISION]: 0.0106951871658
[TWEET HOME TIMELINE PRECISION]: 0.00322580645161
[TWEET COSINE]: 0.5988
[TWEET KEYWORD COSINE]: 0.7218

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 250
[AUTHOR FRIENDS]: 152
[AUTHOR AGE]: 210.0 days
[AUTHOR EST SCORE]: 1.38157894737
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 1
[AUTHOR REACH SCORE]: 7.61200521966

[TWEET INTEGRITY SCORE]: 119.76
[TWEET INTEREST SCORE]: 1.01395549422
[AUTHOR INTEGRITY SCORE]: 345.394736842
[AUTHOR INTEREST SCORE]: 7.61200521966

[TWEET]: RT @ShawneeeToots: FRIED GREEN TOMATOES AT THE WHISTLESTOP DICK
[RETWEET COUNT]: 13
[TWEET LIFETIME]: 207 seconds
[TWEET KEYWORDS]: ['ShawneeeToots', 'FRIED GREEN TOMATOES AT', 'FRIED GREEN', 'FRIED', 'GREEN', 'TOMATOES AT', 'TOMATOES', 'AT', 'THE WHISTLESTOP DICK', 'THE WHISTLESTOP', 'THE', 'WHISTLESTOP', 'DICK']
[TWEET SEARCH PRECISION]: 1.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.0
[TWEET COSINE]: 0.3778
[TWEET KEYWORD COSINE]: 0.7729

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 97
[AUTHOR FRIENDS]: 260
[AUTHOR AGE]: 1318.0 days
[AUTHOR EST SCORE]: 5.06923076923
[AUTHOR FRIEND?]: 0

[AUTHOR LISTED COUNT]: 1
[AUTHOR REACH SCORE]: 48.2802114804

[TWEET INTEGRITY SCORE]: 78.2046
[TWEET INTEREST SCORE]: 13.0
[AUTHOR INTEGRITY SCORE]: 491.715384615
[AUTHOR INTEREST SCORE]: 48.2802114804

[TWEET]: @zeninmaking Aye fattuuuu! *throws tomatoes* @stupidosaur
[RETWEET COUNT]: 0
[TWEET LIFETIME]: 211 seconds
[TWEET KEYWORDS]: ['zeninmaking Aye fattuuuu', 'zeninmaking Aye', 'zeninmaking', 'Aye', 'fattuuuu', '*throws tomatoes*', '*throws', 'tomatoes*',
'stupidosaur']
[TWEET SEARCH PRECISION]: 0.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.0
[TWEET COSINE]: 0.7262
[TWEET KEYWORD COSINE]: 0.7475

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 1860
[AUTHOR FRIENDS]: 248
[AUTHOR AGE]: 129.0 days
[AUTHOR EST SCORE]: 0.520161290323
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 27
[AUTHOR REACH SCORE]: 12.521657447

[TWEET INTEGRITY SCORE]: 153.2282
[TWEET INTEREST SCORE]: 0.0
[AUTHOR INTEGRITY SCORE]: 967.5
[AUTHOR INTEREST SCORE]: 338.08475107

[TWEET]: @AliyaLoveXOXO you dont like tomatoes?
[RETWEET COUNT]: 0
[TWEET LIFETIME]: 212 seconds
[TWEET KEYWORDS]: ['AliyaLoveXOXO', 'dont like', 'dont', 'like', 'tomatoes']
[TWEET SEARCH PRECISION]: 1.0
[TWEET USER TIMELINE PRECISION]: 0.0
[TWEET HOME TIMELINE PRECISION]: 0.0
[TWEET COSINE]: 0.6421
[TWEET KEYWORD COSINE]: 0.719

[AUTHOR VERIFIED]: 0
[AUTHOR FOLLOWERS]: 1213
[AUTHOR FRIENDS]: 907
[AUTHOR AGE]: 1204.0 days
[AUTHOR EST SCORE]: 1.32745314223
[AUTHOR FRIEND?]: 0
[AUTHOR LISTED COUNT]: 24
[AUTHOR REACH SCORE]: 38.693620178

[TWEET INTEGRITY SCORE]: 136.1252
[TWEET INTEREST SCORE]: 1.0
[AUTHOR INTEGRITY SCORE]: 1610.20066152
[AUTHOR INTEREST SCORE]: 928.646884273

TWEET RANKING

Layer: 1
[119.76, 1.0139554942211488] - @WhatTheFFacts I make all the bitches look like tomatoes!!!
[78.2046, 13.0] - RT @ShawneeeToots: FRIED GREEN TOMATOES AT THE WHISTLESTOP DICK
[153.2282, 0.0] - @zeninmaking Aye fattuuuu! *throws tomatoes* @stupidosaur
[136.1252, 1.0] - @AliyaLoveXOXO you dont like tomatoes?

Layer: 2
[103.3389, 1.0032258064516129] - @Leah_McNally are you kidding me? pickles & tomatoes are the best two things ever made. #truefact
[134.328, 1.0] - RT @ilovenissa_: Tomatoes are so disgusting.
[134.3076, 1.0] - @hanseebundee oh strawberries and tomatoes you have been busy you all settled in?
[66.381, 1.0053475935828877] - I hate tomatoes no matter where they are

[127.55680000000001, 1.0] - "I mix up tomatoes and potatoes" @Khummel21

Layer: 3
[106.60000000000001, 1.0] - My review for 'The Twilight Saga: Breaking Dawn Part 2' on Rotten Tomatoes: 1 1/2 stars-Lenta, aburrida, malos... http://t.co/ZBQQu6ER
[102.464, 1.0] - RT @wags2013: "I mix up tomatoes and potatoes" @Khummel21
[85.0545, 1.0] - Grilled cheese with a side of tomatoes and #hotcheetos #lime. At least there's a fruit involved. #skinnyfata http://t.co/ll8JCeAR
[101.592, 0.0] - @T_FLYE bring me a chef salad no eggs,tomatoes, or ham

Layer: 4
[91.588, 0.0] - A nice afternoon of salads and Swedes with the spouse (Sweet Tomatoes and IKEA).
[39.1776, 1.0] - #WhenIWasACarrot I used to chill out in summer with tomatoes, potatoes and cucumbers.

Layer: 5
[52.460699999999996, 0.0] - "@AntiJokeApplee: A tomato walks into a bar... Just kidding, tomatoes can't walk..."
[50.094, 0.0] - @HollyFritz A tomato walks into a bar... Just kidding tomatoes can't walk

Layer: 6
[45.9234, 0.0] - RT @AntiJokeApplee: A tomato walks into a bar... Just kidding, tomatoes can't walk...

Layer: 7
[37.6278, 0.0] - RT @AntiJokeTyrone: A tomato walks into a bar... Just kidding, tomatoes can't walk.

Layer: 8
[14.0733, 0.0] - RT @AntiJokeApplee: A tomato walks into a bar... Just kidding, tomatoes can't walk...

AUTHOR RANKING

Layer: 1
[8258.610071942447, 12322.244682353607] - Grilled cheese with a side of tomatoes and #hotcheetos #lime. At least there's a fruit involved. #skinnyfata http://t.co/ll8JCeAR
[1888.0205319645358, 23669.711605354696] - @hanseebundee oh strawberries and tomatoes you have been busy you all settled in?

Layer: 2
[1610.2006615214993, 928.646884272997] - @AliyaLoveXOXO you dont like tomatoes?

Layer: 3
[847.9148936170213, 545.917808219178] - "I mix up tomatoes and potatoes" @Khummel21
[967.5, 338.08475106982576] - @zeninmaking Aye fattuuuu! *throws tomatoes* @stupidosaur
[984.9873417721519, 15.46690518783542] - #WhenIWasACarrot I used to chill out in summer with tomatoes, potatoes and cucumbers.

Layer: 4
[904.1875, 33.9969269703543] - RT @ilovenissa_: Tomatoes are so disgusting.
[379.0746753246753, 113.02516940948694] - My review for 'The Twilight Saga: Breaking Dawn Part 2' on Rotten Tomatoes: 1 1/2 stars-Lenta, aburrida, malos... http://t.co/ZBQQu6ER
[663.75, 59.09379968203498] - RT @AntiJokeApplee: A tomato walks into a bar... Just kidding, tomatoes can't walk...
[47.66666666666667, 143.0] - "@AntiJokeApplee: A tomato walks into a bar... Just kidding, tomatoes can't walk..."
[554.0, 51.125242341993015] - @Leah_McNally are you kidding me? pickles & tomatoes are the best two things ever made. #truefact

Layer: 5
[491.7153846153846, 48.28021148036254] - RT @ShawneeeToots: FRIED GREEN TOMATOES AT THE WHISTLESTOP DICK
[244.90909090909093, 23.756613756613756] - A nice afternoon of salads and Swedes with the spouse (Sweet Tomatoes and IKEA).
[408.17241379310343, 11.643714341924062] - RT @AntiJokeApplee: A tomato walks into a bar... Just kidding, tomatoes can't walk...
[79.19327731092437, 16.332755632582323] - RT @wags2013: "I mix up tomatoes and potatoes" @Khummel21

Layer: 6
[233.54430379746836, 13.6767976278725] - RT @AntiJokeTyrone: A tomato walks into a bar... Just kidding, tomatoes can't walk.
[345.39473684210526, 7.612005219660722] - @WhatTheFFacts I make all the bitches look like tomatoes!!!
[244.9770992366412, 8.320456313196784] - @T_FLYE bring me a chef salad no eggs,tomatoes, or ham
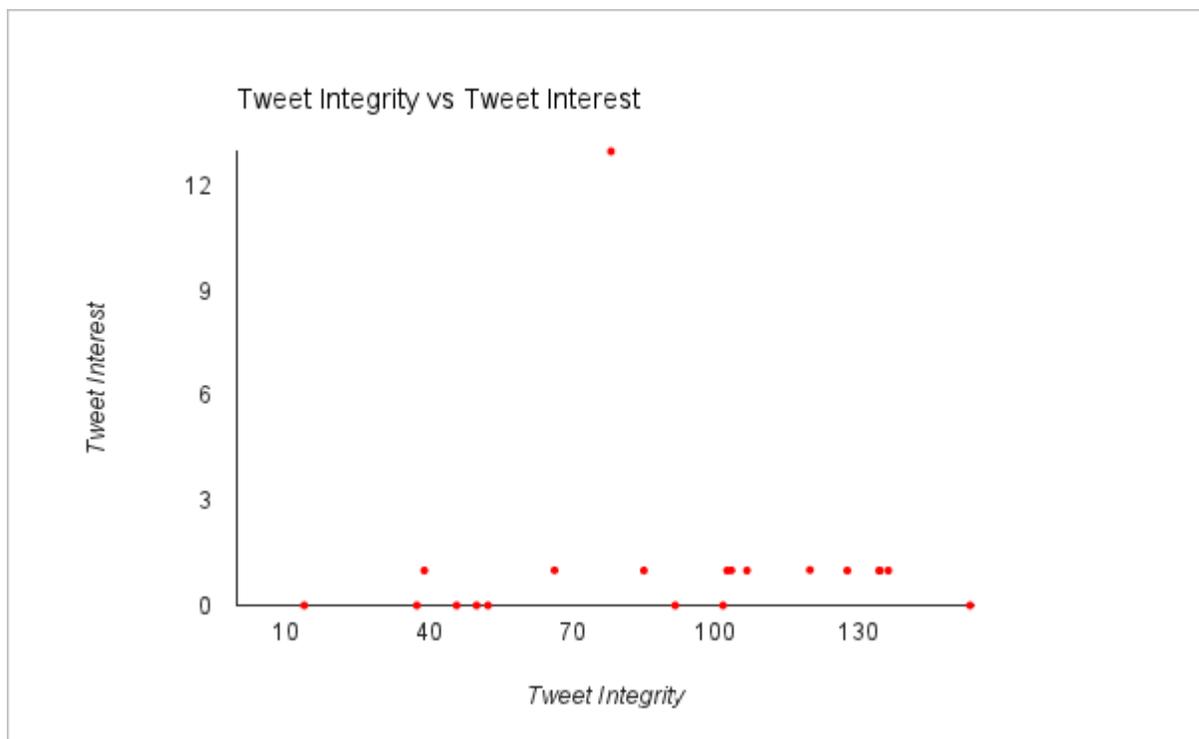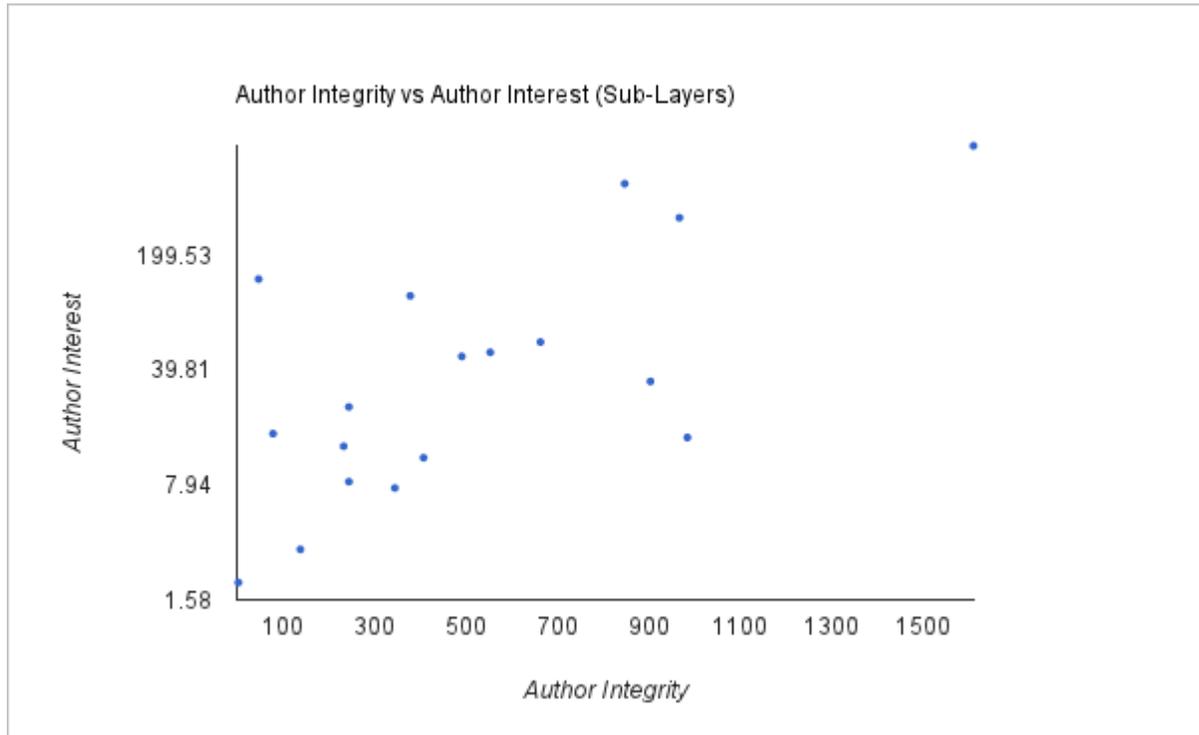
Layer: 7
[138.93536121673003, 3.2157000792044355] - I hate tomatoes no matter where they are

Layer: 8
[3.4000000000000004, 2.01980198019802] - @HollyFritz A tomato walks into a bar... Just kidding tomatoes can't walk

Project Meeting Notes - Week 10

- Graph results of tweet ranking with fast non dominated sort.

- Investigated a suitable technology for creating a cross platform primary front-end client.

- Explored several modern technologies including Node.js, Backbone.js and the potential for a Django front-end as well as a Back-end.
  - A Node.js application whilst designed to be lightweight, is designed to be used as a complete solution, I.e. a back-end and custom server as well.
  - Backbone.js on the other hand is far more suitable at creating a front-end for a Json based API back-end. Whilst exploring numerous blogs of industry developers, Backbone + Django was a popular choice at creating effective web apps. The use of the TastyPie framework with Backbone was strongly favoured if this approach was to be adopted, mostly due to ease of intergration and maintainability, with Django being used to model the data and for caching and backbone being used for the control layer and views (MVC). (Academic reference needed?). The connection between the two is achieved through AJAX. With the intention to use tastypie in creating an API structure, backbone seems that most effective. However, there are some minor compatibility issues in translating data from Django to backbone, solutions to these issues have been released by community developers however. Jquery can compliment backbone with manipulation of DOM objects.
  - Using Django view templates as a template would provide ease integration with the Django based back end, but is considered relatively slow in comparison to JavaScript based alternatives; especially if the fromt-end is hosted seperately to the back-end.

- Researched into potential touch gesture javascript libraries. There appears to be an abundance, however found a lightweight (2kb) standalone or jQuery plugin called Hammer.js which supports multi-gesture touch.

- Previously presented plan has been expanded to include complete details of the interim report at paragraph level.