Sentiment Analysis: It's Complicated!
Supplemental Material

Data Collection. Tables 1 and 2 show the filters and keywords used for each topic. Figure 2 presents the 13 tweets with at least *Consensus* agreement for the SMALL CAPS COMPLICATED label.

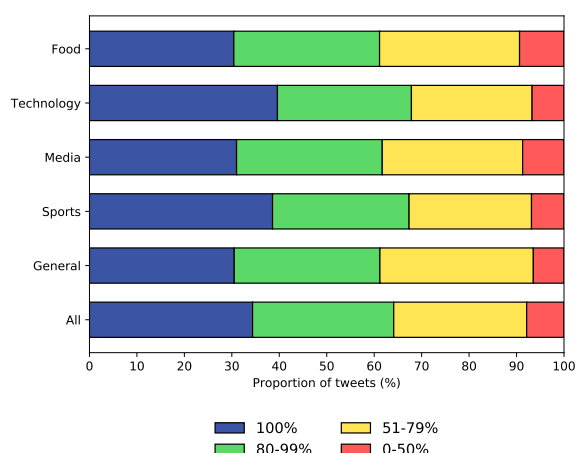| Filter	Description
Topics	Food, Media, Sports, Products
Timezone	Hawaii, Alaska, Pacific Time (US & Canada), Mountain Time (US & Canada), Arizona, Central Time (US & Canada), Saskatchewan, Eastern Time (US & Canada), Indiana (East), Atlantic Time (Canada), Newfoundland.
Length	At least one English token
Links	No external links
Language	English
Duplicates	No duplicate tweets

Table 1: Filters used during data collection.

Figure 1: Distribution of agreement rates across dataset topics. Inter-annotator agreement was very similar across topic subsets.

Preprocessing and Feature Extraction. The dataset was preprocessed in an ordered pipeline as follows: tokenizing, lowercasing, splitting hashtags to most likely words (e.g., #gameofthrones into "#" 'game' "of" "thrones"), auto-correction of words that do not contain special characters, and lemmatizing the words. Punctuation and stopwords were intentionally kept as they can contribute signal to the sentiment in the tweet; e.g., stopwords like "not" and punctuation like "!!!" are sentiment-laden and can be useful features.

N-Grams. We constrained unigrams and bigrams to maximum 5000 features each, where an N-gram had to occur in at least two different tweets to be included as a feature.

Word Embeddings. We used 200-dimensional word embeddings from GLoVE, pre-trained on 2 billion tweets (thus including emoticon embeddings) (Pennington et al., 2014). We take the mean vector of the word embeddings over all the tokens in the tweet.

SentiWordNet Scores. We use the SentiWordNet scores from (Baccianella et al., 2010), using two methods to obtain the scores of an individual word: (1) the scores of the most common synset of a word; (2) the average of all scores over all synsets of a word. Then, for each of the above methods, we include, as features, the average and maximum positive, negative, and objective scores over all the tokens in the tweet.

Topic	Keywords
Food	diet, weight, protein, gluten, additive, nutrient, carbohydrate, carbs, fat, fibre, fruits, burger, ice cream, veggies, vegetable, cereal, chicken, beef, pork, noodles, spaghetti, onion, potato, garlic, fast food, fast-food, seafood, breakfast, lunch, dinner, snack, food, beverage, cooking, cook, vegetarian, pescatarian, gethealthy, get healthy, healthylife, healthy life, eatlocal, eat local, glutenfree, gluten free, cafeteria, yum, yummy, sweet, sour
Media	movie, cinema, album, scene, trailer, video, soundtrack, musician, singer, rapper, classical, reggae, techno, jazz, pop, folk, electro, emma stone, emmastone, emma watson, emmawatson, ryan gosling, ryangosling, johnny depp, johnnydepp, starwars, star wars, narcos, the office, theoffice, ragnarok, bladerunner, blade runner, game of thrones, gameofthrones, mindhunter, riverdale, dynasty, orange is the new black, ozark, sense8, the defenders, daredevil, the oa, dear white people, master of none, madmen, grindelwald, thor, wonderwoman, wonder woman
Technology	iphone, android, iphonex, pixel, pixel2, galaxy s8, galaxy tab, xbox, playstation, wii, android, samsung, google, microsoft, amazon, ea, apps, tablet, laptop, phone, release date, apple, intel, amd, hp, sega, dell, ssd, acer
Sports	championship, olympics, goalie, athlete, sportsman, nhl, habs, canadiens, rangers, bruins, cavs, cavaliers, lakers, spurs, hockey, football, basketball, badminton, skating, gymnastics, nfl, nhl, youth league

Table 2: Keywords used for data collection. The topic-subset of tweets contained at least one keyword.

Content	0	+	−	c
the iPhone 6s is so big and hard to use but I still like it	0	0	0	5
@sparker6583 @notaxation Interesting. I love the game but had the same experience as Colin. Crashed about 6 times on Xbox for me.	0	1	0	4
Cavs getting fucked, but they'll win somehow, just like that knicks game	0	0	1	4
I hate the Lakers, but Lonzo Ball was warming up to "Jesus Walks" by Kanye, so I definitely got respect for that.	1	0	0	5
The nicer you are, the easier it is for you to get hurt.	0	1	0	4
Fuck the spurs tho except pop	0	0	1	4
I keep having really good days but terrible nights	0	0	1	4
@grodriguezlg i despise this video but can never stop watching it when it comes on omg	0	0	1	4
@LizMSutton SWEET! My invite said it was tomorrow night....sorry for my no-show.	1	0	0	4
Man gaining weight sucks, holidays are the worst 😂😂😂 Back to BotW today, I was having so much fun last night!!! Maybe splatoon later 👀👀👀👀👀	0	0	1	4
a sad night for the cville football team. 😔 y'all did good boys. 💛💜	0	0	1	4
#Aquarius is so sweet, but be careful not to hit their bad side or you will see another person.	1	0	0	4
@jupin It wasn't bad but it also wasn't anything special either....just another superhero movie	1	0	0	4

Figure 2: Complicated Tweets with *Unanimous* or *Consensus* agreement.