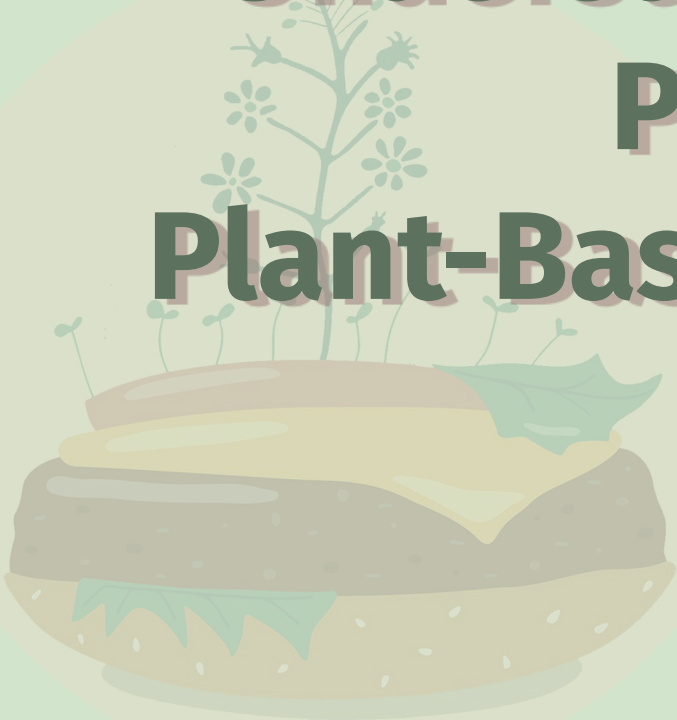


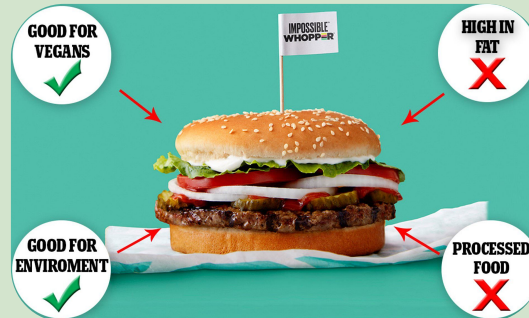
Understanding Twitter Posts on Plant-Based/Vegan Meat



Hannah Kim

Introduction

- More accessible, rising market (brand deals – McPlant, Impossible Whopper)
 - Environmental benefits
- Goal: Formulate marketing strategies for companies interested in launching products related to plant-based/vegan meat
 - Public opinion



Workflow

Acquire Data
Snsrape



Text
Preprocessing



Topic
Modeling



ScatterText
Visualize Unique
Terms



Sentiment
Analysis

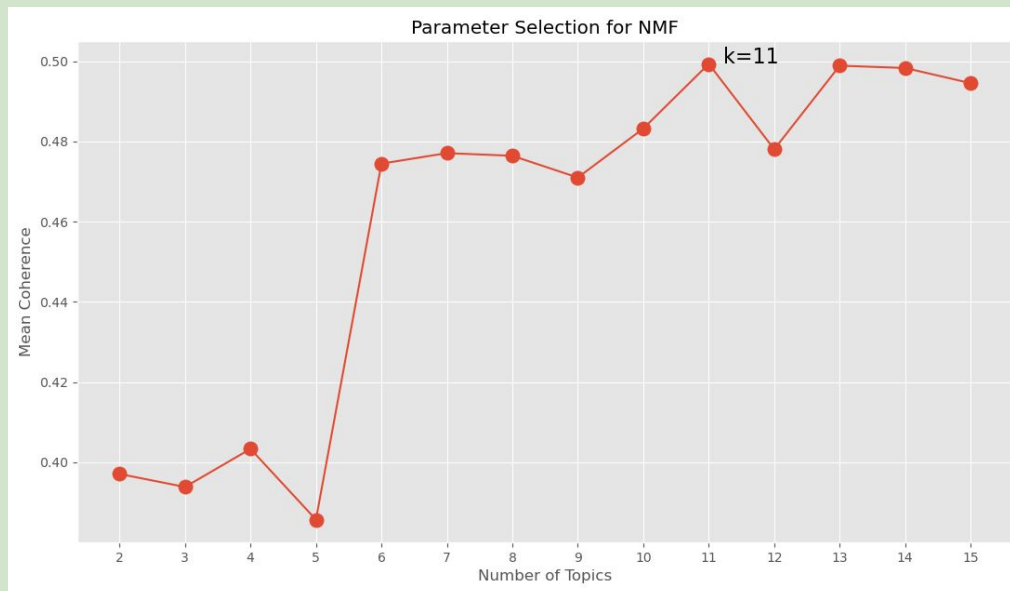


matplotlib



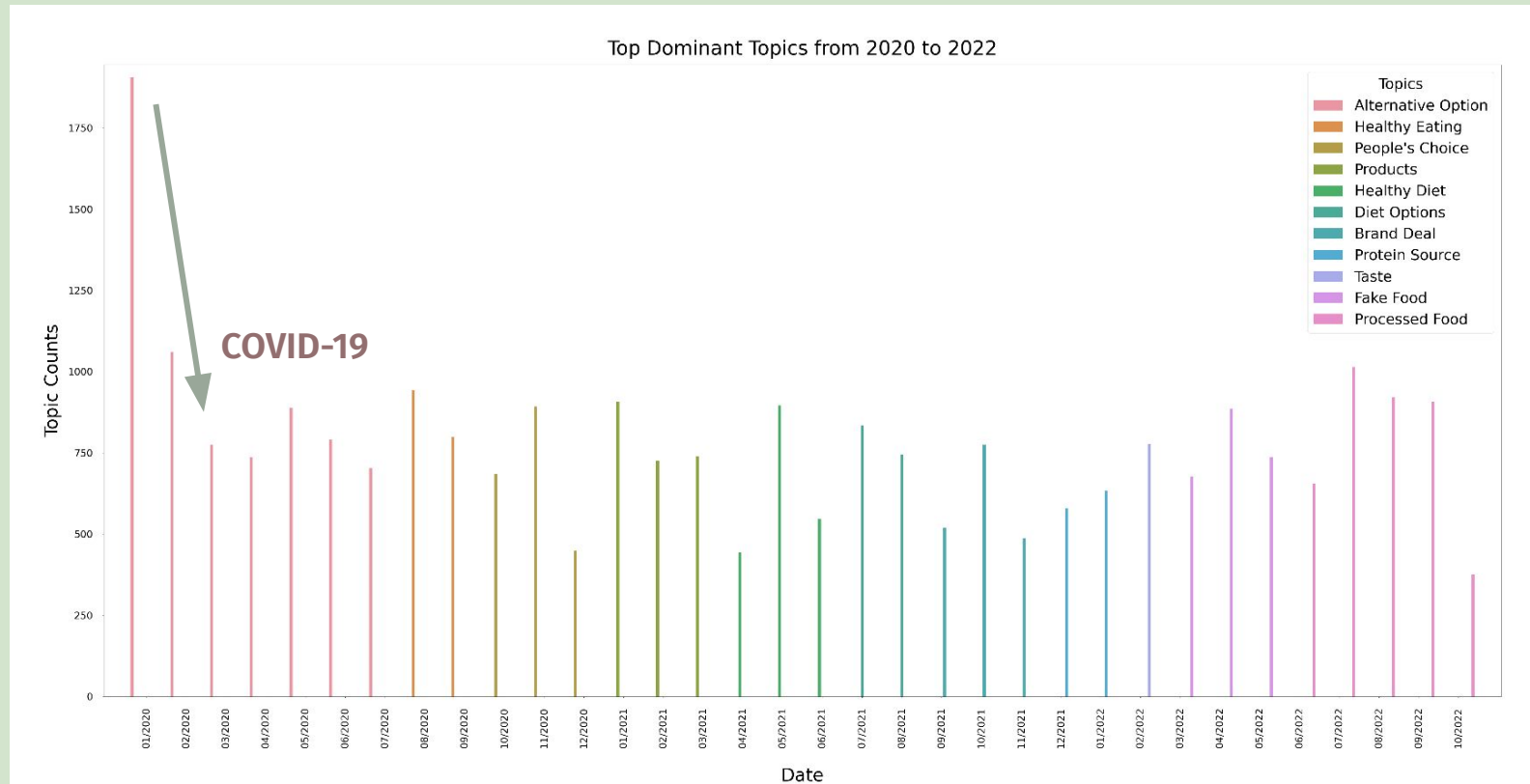
Topic Modeling : Baseline Model

- Compared LSA , NMF models against CountVectorizer & TFIDFVectorizer
 - Selected Model: **NMF & TFIDFVectorizer**
 - 11 Topics, 15 words per topic



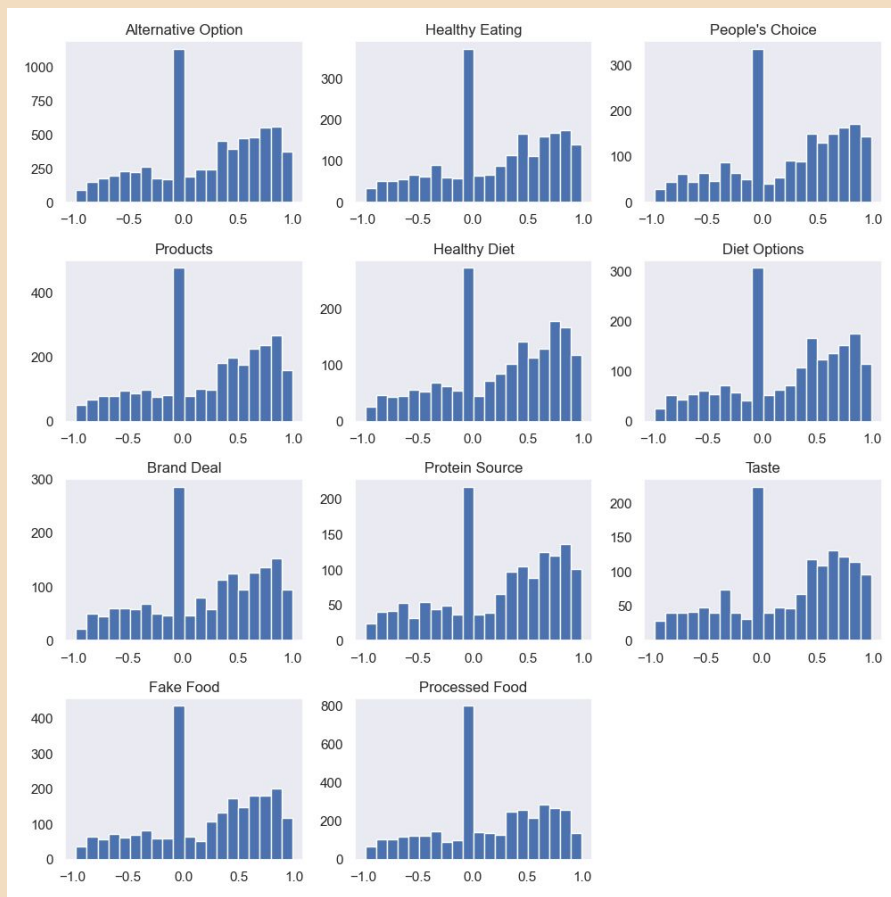
Topic	Terms Associated
Healthy Diet	[diet , healthy , dairy, health, consumption, evidence, beneficial , debate, cookbook, latest, dog, recipe, study, benefit, fish]
Fake Food	[eat , meal , lot, fake , veggie, fish, vegetable, time, fruit, choose, real, day, egg, stuff, point]
Brand Deal	[burger , king , cooked, grill, impossible , patty, whopper , veggie, sausage, beef, suitable, chicken, cook, mcdonald, nugget]
Processed Food	[food, processed , fast , junk, fake, healthy, health, company, impossible, news, eater, living, industry, dairy, lot]
Products	[animal, product , dairy , egg , industry, planet, cruelty, milk , human, save, veganism, health, honey, grown, suffering]
Alternative Option	[alternative , free, cheese, option , dairy, meal, recipe, chicken, year, delicious, day, time, milk, menu, great]
Healthy Eating	[eating , day, health , year , feel, stopped, time, planet, start , week, body, started, healthy, evidence, meal]
Diet Options	[vegetarian , eater, option, year, meal, flexitarian , restaurant, lot, dish, product, pescatarian , love, substitute, grill, cooked]
Taste	[taste , good, real, texture , substitute, smell, stuff, fake, reason, love, bacon, feel, enjoy, shit, beef]
People's Choice	[people , lot, reason , veganism, hate, understand, choice, consumption, industry, reduce, change, turn, live, lifestyle, eater]
Protein Source	[protein , source , substitute, high, bean , pea, body, soy, fat, vegetable, tofu, nutrient, human, rich, nut]

Topic Modeling: Top Dominant Topics from 2020-2022

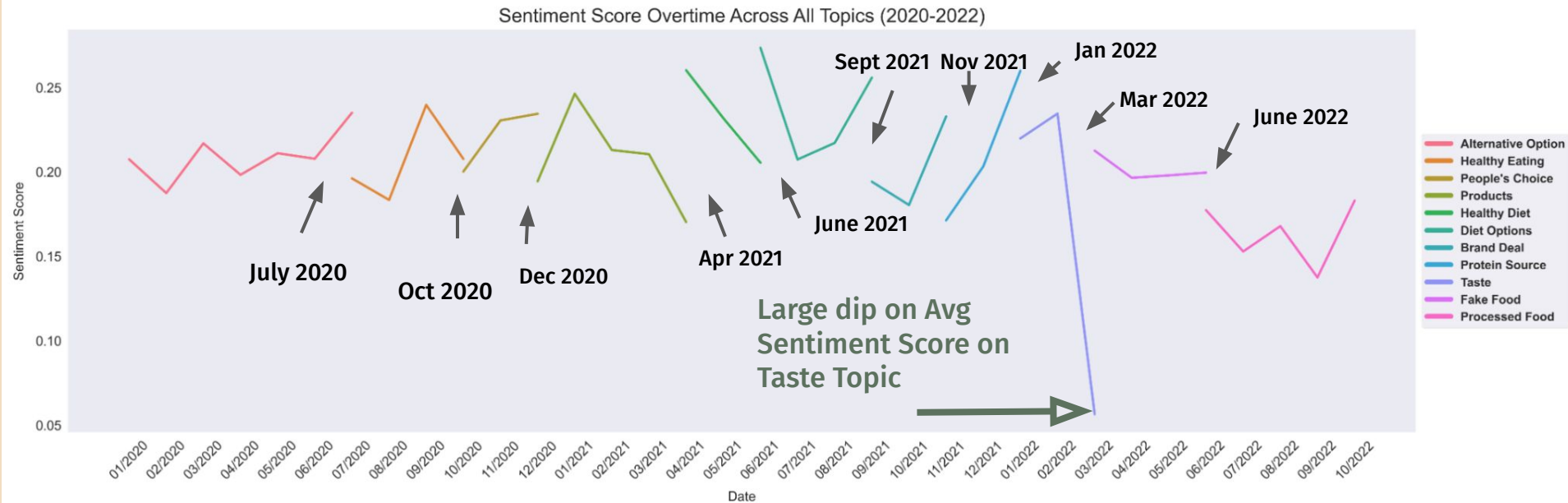


Sentiment Analysis: Sentiment Score Distribution

☰ All topics have overall neutral to positive sentiment



Sentiment Analysis



- Topics are distinct by time
 - overlap occurs between each topic, but not throughout the period of time

Sentiment Analysis: Brand Deal Topic- Beyond Meat

Positive Sentiment on Brand Deal Topic-Beyond Meat



Negative Sentiment on Brand Deal Topic-Beyond Meat



MelissaD 🔥💧🐨🌱❤️🌍🧑🏻
@D_Melissa2

...

Just frying these patties up. Beyond Meat brand from Coles - Beyond Burger 🍔 plant based patties vegan. You buy them from meat department fridge. Great meat substitute! Pea based protein. ❤️❤️ yum yum 😊💕

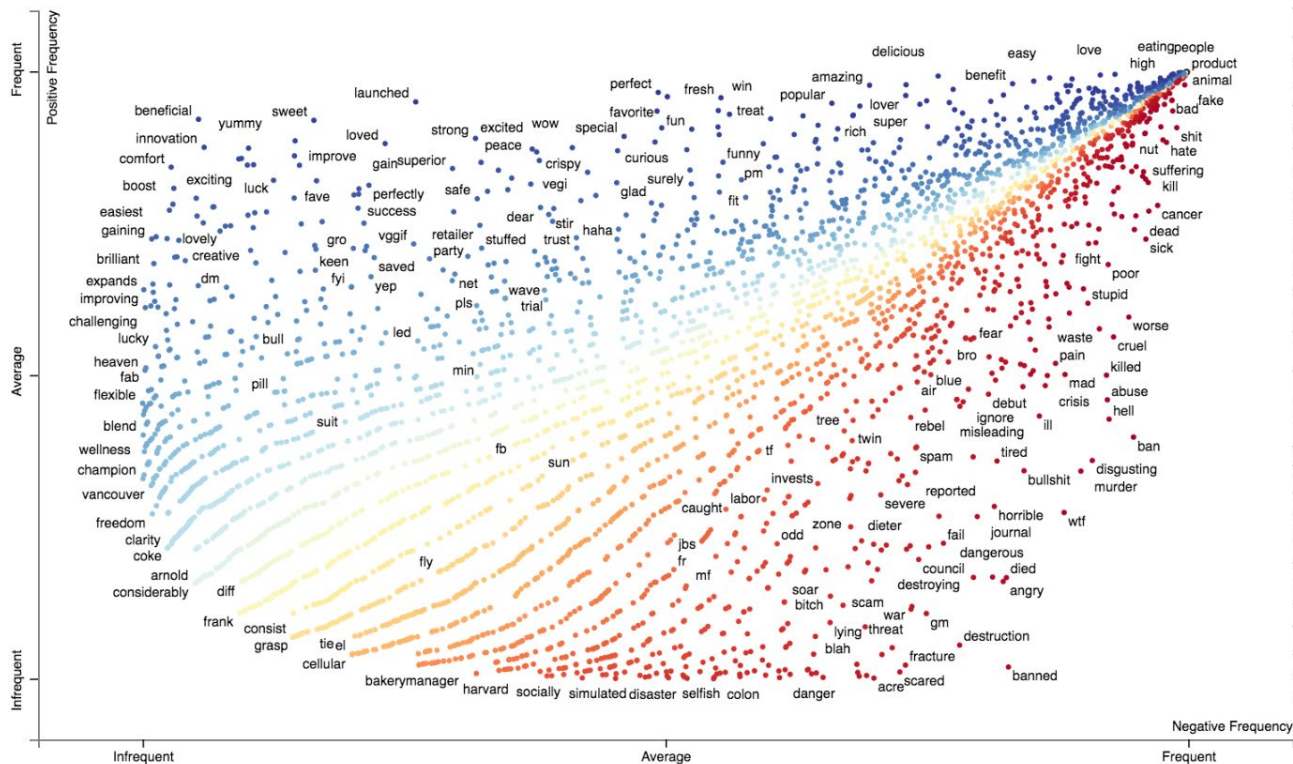


AlphaBronze
@Alpha Bronze

...

Beyond Meat shares headed toward 17-month low after revenue warning! It said COVID impact, trouble with a Canadian distributor, **labor shortages** and water issues **hurt revenue** in Q3! [\\$BYND](#) [#vegan](#) [#plantbased](#)

ScatterText



Positive document count: 16,560; word count: 582,215
Negative document count: 12,313; word count: 390,104

Search the chart

Top Positive Characteristic

delicious	plantbased
great	veganism
love	eater
easy	burger
enjoy	veggie
friend	meatless
happy	omnivore
amazing	vegeconomist
benefit	whopper
perfect	flexitarian
pretty	vegetarian
growing	covid
save	carnivore
favorite	veganuary
	maqazinelink

Top Negative

shit	dairy
hate	jackfruit
cancer	meatball
fake	seitan
cruelty	pesccatarian
risk	flexitarians
kill	tofu
sick	sausage
unhealthy	legume
ban	veg
wrong	chickpea
suffering	lentil
bad	medialink
launch	idk

ScatterText

Term: burger

Positive frequency:
259 per 25,000 terms
80 per 1,000 docs
Some of the 1698 mentions:

vegan cheese plant milk fishless chippies plant based **burger** meatless hotdog soya meat eggless scramble mix the name don't matter animal meat lover unreasonable accusation

happy new year a veganuary begin many food giant have started introducing plant based treat such a vegan steak bake vegan **burger** and pepperphoni pizza have you signed up to a meat free month

there is a lot of plant based meat that surprisingly taste like the meat it's trying to be i had a **burger** once at a vegan take out and i legit could not tell the difference

being a vegan amp just looking at these turn my stomach amp even more when i see what they represent meat **burger** but really it's people's personal preference what they eat amp how it look but i do congratulate the store's that are selling them for using plant based meat

day of being vegan amp i had these incredible **burger** on the grill with kale salad of course thanks to i'm eating food that meat lover would envy but it's all plant based y'all now tell me that this doesn't look tasty

new year new improved menu check out our tasty new addition including a delicious plant based 'beyond meat' **burger** here

is taking off stopped off in iceland to get some gluten free vegan "no bull" **burger** and "no porkies" sausage yum they have a separate freezer for vegan meat free i wa looking at the basket of those in front of me everyone of them had plant based milk

meat sale are plunging plant based option are growing greggs vegan steak bakes are selling out kfc s vegan **burger** are selling out veganism rising

i ate a vegan plant based **burger** and fry afterwards could barely walk now experimenting with high fat carb day so clear calm pain free meat is better than painkiller maybe this is why want u to be vegan

i tried the vegan kfc **burger** and it wa spectacular it might just be the best plant based meat substitute i've ever had

found meat free here on love me a veggie **burger** for

someone told me they don't understand vegetarian vegan eating plant based "meat" since the whole thing of vegetarianism is not eating meat i'm so like yeah i don't want to eat a cow but that doesn't mean i don't like a good veggie **burger**

Negative frequency:
233 per 25,000 terms
63 per 1,000 docs
Some of the 1010 mentions:

plant based meat take center stage at kroger pbfa vegan **burger** sausage deli slice roast seitan and even jackfruit are moving to the meat department for a trial run

i would never eat at a fast food outlet purely because they make million from killing chicken amp other animal however if a vegan **burger** raise the awareness of plant based eating with meat eater then it ha to be a good thing who know they may even turn vegan

it s not fair i cant go into a vegan spot and say i m sellin meat based plant **burger** but they can come into our shit pushin this fake meat and prollly fake pla t agenda

also nobody fill threatened by plant based **burger** just the way vegan veggie keep telling telling everyone they are evil for not dropping meat out of their diet dont believe me just look at social medium tv and paper

promoting and paying uni lab to come up with crap such a fake meat **burger** this and that a the healthiest for the future why not promote genuine wfpb whole food plant based i'd be dammed if vegan and vegetarian will support such rubbish

no such thing a a vegan **burger** in a meat orientated establishment it s a plant based burger plant based amp vegan are not the same thing if you can t even get your basic terminology right i somehow doubt your burger will even really be plant based it definitely isnt vegan

why is it acceptable to trick meat eater into eating a plant based **burger** but not acceptable to trick vegan into eating meat

burger king s plant based burger is not suitable for vegan can you believe these guy cooking vegan burger on a meat grill

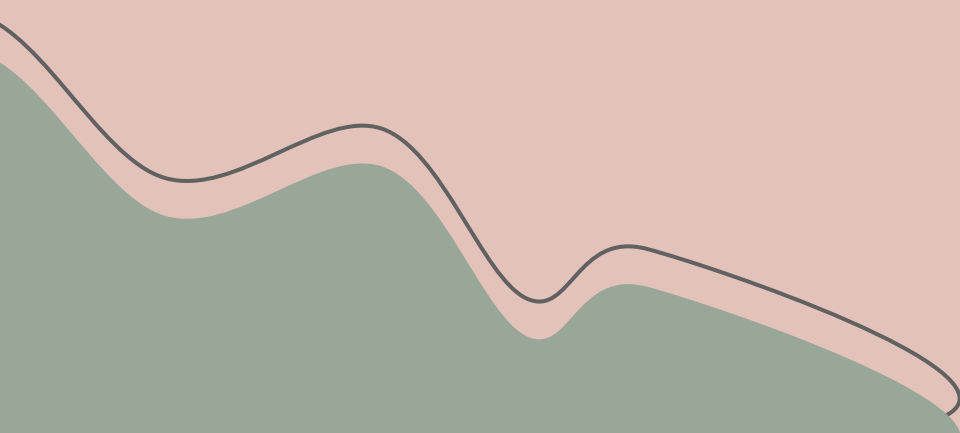
burger king s new plant based burger is **not suitable** for vegan cooked on meat grill your choice

plant based doesn't have to be processed just because it's vegan vegetarian doesn't make it healthier this is trap lot people fall into see you tried kfc vege option are you trying the new vegan **burger** king out if you order on app today cooked on meat grill

rebel whopper plant based **burger** king whopper will be available in uk from today not suitable for vegan or vegetarian **because of cooking but aimed at flexitarians people** who eat meat but are cutting down on the animal based food they eat

morning and today see the online launch of the rebel whopper available in store from wednesday at **burger** king although it is completely plant and soy based it cannot be called either vegan or vegetarian a it is cooked in a meat broiler

Future Work

- ◆ spaCy to pre-process text
 - ◆ Corex model for topic modeling
 - ◆ Gather more data from previous years
 - ◆ Streamlit App that allows users to interact: topic selection and word count frequency
- 
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Appendix

