Multilevel Modeling

* [Wiki](https://en.wikipedia.org/wiki/Multilevel_model)
* Multilevel modeling is like linear regressions, but it is extended to different hierarchies.
* Attributes that we are comparing can be nested in other attributes that we are comparing. For example, we can be comparing political engagement under the hierarchy of geographical locations.
* We use this method when we decide that a current model does not contain independent results, we want to compare groupings

Geographically Weighted Regression

* [Spatial Analysis](https://en.wikipedia.org/wiki/Spatial_analysis#Spatial_regression)
* [A spatial](https://www.mailman.columbia.edu/research/population-health-methods/geographically-weighted-regression) analysis technique that models local relationships between variables and outcomes
* Is basically ordinary least square regression (OLS) but extended to encompass locality (meaning it creates an OLS for each location

Blalock Paper Notes

* Pictoral Models uses arrows and boxes to imply causation
* Variables in boxes and lines were labeled with either (+) or (-)
* I can’t really tell why some lines are dotted while other lines are dark (maybe darker lines imply higher correlation?)
* Arrows can be multi-directional (one box can connect to multiple boxes)
* We can even have loops
* Can label the difference between the main theory and the auxiliary theory

Ideas About How To Interpret Text Language (and what I can do with NLTK)

* Think about how words are grouped together (split sentences into bigrams).
* Look at uncommon words, not just common ones
* Create frequency tables for different hierarchies (frequency under zip codes, businesses, individual reviews)
* Think about different ways to split the string of texts. By sentences? Paragraphs?
* How can I interpret ambiguity in the text? For example, how do I deal with pronouns?
* How can I normalize text? And what are the drawbacks of doing so? Lowercase all the text (but ALL CAPS indicate emotions). Convert all words to the same tense (flew to fly). Remove plurals (cats to cat).
* Tag parts of speech (but not sure how this would help yet)
* Convert words that have the same meaning to the same word (like happy and joyful to happy)
* How to deal with numbers?

Research Questions:

* How do cafes create a scene?
* How can we know what “scene” is in the cafe?
* What values do certain cafes in an area display (like creativity, cosmopolitanism)?
* How can we use that to relate to politics?
* How can I add on to or contradict what has been said in the scenes book?

More Specific Questions:

* Is there a way to distinguish which cafes/bars are more conservative/ liberal?
* How does time intervals of activity (cafes in afternoon vs bars at night) affect how people voice their opinions?
* How can I know what central themes are in certain businesses? (feminism, egalitarianism, peace, gay rights)
* How can location (proximity) of cafes and bars to cultural places affect political expression?
* How can I find cleavages (age, race, gender, religion, class) inside different bars/cafes based on Yelp data?
* Are there connections between what people decide to eat and their political agendas?

Quotes From Scenes Book:

These quotes are for ideas I want to address using the Yelp data. Note that page number is according to PDF.

“Ambitious political programs have emerged around the world, with the character of the scene sometimes taking center stage as a topic of political controversy and target of public policy.” (page 177, Scenes)

Major Claim: “Scenes grow more politically salient in general with (1) the rise of culture, (2) the rediscovery of the urbane, and (3) the new political culture.” (177)

“Democratic votes were correlated with more urbane dimensions like transgression and self-expression; Republican votes, with more communitarian dimensions, like neighborliness and tradition.” (178)

“Styles of political leaders and urban governance have in some cities dramatically changed, adding new cultural and aesthetic sensitivity to their past repertoires” (179)

“Scenes accordingly become a topic of political contestation and a source of political authority” (179)

“Scenes provide cues about the character of a place, which some people find welcoming and others find alien and strange, sorting themselves accordingly.” (182)

“New Social Movements Are Typically Located in Dense, Walkable Areas with Self- Expressive Scenes and Many Artists” (195)

“Where do NSMs thrive? They are usually present in high rent, high crime counties, and there are more of them in Democratic counties. Neighborhoods with any (and many) NSMs are usually in dense, lower rent zip codes with strong cultural employment concentrations, nonwhite residents, and college graduates.” (198)

“When walking and self-expression come together, the result is quite likely to be organizations advocating for human rights, social justice, and the environment.” (202)

“self-expressive scene, for instance, likely indicates a broadly culturally liberal environment” (206)

Scenes have been rising.

Politicians are supporting more arts and scenes. They want to create buzz.

What I Want to Measure (For Both Bars and Cafes)

This is going to based on what the quotes say and what I think might help.

* Conservatism vs liberalism
* Democratic vs Republican
* Rural vs Urban
* Political agendas (feminism, egalitarianism, peace, gay rights)
* Social cleavages (age, race, gender, religion, class)
* The sense of scene (people’s identifications with a particular place, or multiple places)
* “Buzz”

How I Am Going to Measure It

Below, I will indicate the data available on Yelp, and possible ways of using them.

Explicit Political Comments:

Explicit political comments are very rare, but that does not mean that they do not exist. I would need to find some before I decide how to analyze it. Still thinking about this.

The way people write:

It is possible to draw a connection between how reviewers structure their reviews and the type of person they are. And we can look at the connection between the types of people who reviewed and the businesses they review in. For example, maybe a certain cafe have reviewers who sound more educated than the reviewers in other cafes. And we can draw connections between cafes and politics. There are many ways to figure out attributes about people based on what they say. For example, look at how often they refer to themselves in the first person singular (using I), first-person plural (we), or third person. People who use “I” are more self-centered and individualistic. Reviewers who use “we” imply that they are visiting a bar with friends. We can also look at how educated a person sounds. Some people use very technical, possibly pretentious, words to describe their meal, while others use slang. Others are very careful about their punctuation and grammar while others aren’t.

Or we can directly relate the words that users use to the business itself. For example, look at punctuation, especially (!). (!) hints at excitement, passion. Other ways reviewers display their feelings about a business is through the use of ALL CAPS.

Connection Between Business Information and the Cafe’s culture:

Look at the price range, hours opened, days opened, and specific business information. Price range can indicate class demographics. Hours opened can indicate age demographics (businesses that stay open late until at night are geared more for younger people) and culture (night life culture).

|  |  |
| --- | --- |
| **More Business Information Labels (note that this is not comprehensive)** | **What this Can Indicate** |
| Takes Reservations |  |
| Accepts Credit Cards |  |
| Accepts Apple Pay |  |
| Parking |  |
| Bike Parking |  |
| Good for Groups | Social gatherings for people to discuss ideas |
| Noise Level |  |
| Alcohol |  |
| Outdoor Seating |  |
| Has TV |  |
| Take-out |  |
| Attire | More formal attire can indicate that a certain place is for those with higher classes |
| Good for Kids |  |
| Ambience |  |
| Wi-Fi | More millenials |
| Good for Working |  |
|  |  |
|  |  |
|  |  |
|  |  |

Special Features of Yelp:

There are features that users can use (but are optional). This includes the number of check-ins (number of times that Yelp reviewer says to have visited the business) and the number of people who voted for a specific review (users can vote useful, funny, or cool). Possibly, reviews with more votes should be weighted more because more people agree with that review. We can also think about why a certain person would check in multiple times.

[Note that some reviews are filtered by Yelp](https://www.youtube.com/watch?time_continue=71&v=PniMEnM89iY). Basically, only ¼ of the reviews are not recommended (this does not mean one can not see the reviews, it is just not in plain sight). The reviews are filtered by Yelp’s algorithms, and their intent is to filter fake reviews, rants, and unknown people without credibility. The reviews that are filtered do not affect review count or the average stars of a business. The algorithm is also constantly running, so a review that has been filtered can be unfiltered, and visa versa.

It is possible to comment on a Yelp review. Many business owners do this to address issues that reviewers have with a business (many times, the business owner apologizes and promises better service).

Who is reviewing:

We can look at information relating to who is reviewing. Many of the people who review in cafes and bars have a lot of friends in Yelp (over 100) and have reviewed other things. For example, look at [Christopher](https://www.yelp.com/user_details?userid=hT2Mw5m_SXBDVBuvA3KY-w) V. , who I found since he reviewed [Plein](https://www.yelp.com/biz/plein-air-cafe-and-eatery-chicago-2?osq=cafe) Air Cafe & Eatery, a cafe in zip code 60637. Looking at his profile, he seems to love reviewing bars, cafes, restaurants. These reviewers can be a great asset for deciding how to connect different businesses.

Some reviewers take pictures of things other than food (like a painting on the wall). Other reviewers also comment about things other than food (like how a cafe feels like the 80’s.)

Cafes vs. Bars

Look at the time ranges of reviews. Are there certain time periods where the number of new reviews increases/ decreases? This may correspond to times of major political movements, like an election of a new council or president.

Compare words that are tied to emotions.

Look into other reasons why people say they attend a bar or cafe other than the food. For example, what do people say about their purpose of being in a bar or cafe? What emotions do they feel (relaxed, at ease, “high”, happy)?

What cultures do bars/cafes provide? What do the cafe/bars express in terms of art, music, etc. How does this say anything about politics?

Look at the number of new bars/cafes that appear every year. This may indicate something about the new political atmosphere.

Are there any indications on political issues (like acceptance of Africans, gays, feminists,)

What are cafes and bars surrounded by (what restaurants, other bars, or museums, etc surround this location)?

These rhetorical questions will be answered when I can get a larger dataset.

Problems That I’ve Encountered or Expect to Encounter

How to normalize everything:

Dealing with plurals: (cats vs cat)

Dealing with contractions (I’ve vs I have)

Spelling errors

What information am I losing when normalizing?

How to deal with word groups:

If we only consider words by themselves, “I do not like this place” would be interpreted in the same way as “I like this place.”

Embedding

Possible Ideas for Analysis

Compare clusters of words to the standard cluster (the one made by google).