ComAIdian Report

April 5, 2018

1 Goal

The attempted goal is to create a deliverable joke recommendation system that takes as input a set of joke and user features, and outputs from a database of jokes the jokes users will be most satisfied with.

The goal for this specific week was to come up with a survey and joke dataset for Amazon's Mechanical Turk.

2 Progress

In order to use Mechanical Turk to generate useful data, we needed to come up with data that correlated joke features and user features. An extreme example would be that of racist jokes eliciting emotions from people of different backgrounds - the joke feature here is a racial stereotype, and the user feature it correlates with is ethnicity.

We briefly discussed three approaches to the data construction problem last meeting:

- Sociological approach (strong approach): Find correlations via sociological research.

- Common sense approach: Simple speculation of joke features that might correlate with user features. i.e. racist joke example above

- Shotgun approach (weak approach): No research or speculation at all, just designing a survey that asks for a lot of user features and hoping that in feature selection/elimination the model will find some meaningful relationship(s).

The approach we took is an amalgamation of the first two items, with a bit of the third.
Some definitions:

1. Incongruity Resolution - the punchline completely resolves the incongruity of the build up

2. Nonsense - jokes that are nonsensical, impossible to "get"

3. Aggression/Hostile - humor that involves put-downs or insults targeted towards individuals

4. Self-enhancing - Humor that involves laughing at oneself, trying to find humor in everyday situations, and making yourself the target of humor in a good-natured way

5. Self-defeating - Putting oneself down in an aggressive or "poor me" fashion, making oneself the butt of the jokes

6. Affiliative - jokes about things everyone might find funny, humor in everyday life, jokes that bring people together, creating a sense of fellowship, happiness, and well-being.

7. Generation - Jokes belonging to different eras/generations

    - Generation X: 1965 - 1980
    - Millennials: 1980 - 1995
    - Generation Z: 1995 onwards

2.1 Sociological Research

We went through many papers and compiled a list of useful papers that found meaningful correlations between user traits and humor.

Paper/Book	Relevant Points	Notes
Gender Differences in Humor Appreciation	3 Humor Types: sexual, hostile, nonsense Sexual: males rated jokes higher than females Hostile: males rated jokes higher than females Nonsense: no meaningful difference	
A cross-cultural study of humor appreciation: Italy and Germany	Italian: appreciated sexual humor more and nonsense humor less than Germans	Only ranks between Italian/German but a similar correlation between country (cultural identity) and humor types. We use this finding as it applies similarly to different cultural identities in the United States (East Coast, South, West Coast, Midwest)
Psychology of humor	Incongruity-resolution humor increased in funniness and nonsense humor decreased in funniness among older subjects after late teens (pg 67). Age differences in humor appreciation strongly correlated with age differences in conservatism; Appreciation of resolvable types of humor changes when degree of conservatism changes (i.e. the need for closure and stability), which also changes with age (pg 67)	Age correlates with humor type changes but it may be age correlates with more conservative mindset which correlates with humor differences; another feature we could use is conservatism (not as in politically but as in a personality sense (i.e. the need for closure and stability, as stated in paper))
Humor appreciation and sensation seeking	Older participants considered incongruity-resolution humor funnier, and nonsense humor more aversive than younger ones (pg 436). Nonsense humor was judged funnier by the younger (pg 439)	Duplicates the same research as the study above in Psychology of humor in terms of age correlation
Sense of Humor across Cultures: A Comparison of British, Australian and American Respondents	US: more affiliative, aggressive, self-defeating than MEX, which use for self-enhancing. Hungarian: prefer jokes of ethnic stereotypes more than English speakers. US: appreciate aggressive humor more than Belgian or Hong Kong. Men: more likely to prefer aggressive humor. Senegalese, JPN: less likely to prefer aggressive humor. CHN: use more aggressive than US but reported less sexual humor. Nation, region-specific differences in humor appreciation	Supports correlation of national/regional origin/culture and humor appreciation

Paper/Book	Relevant Points	Notes
Sex of subject and gender identity as factors in humor appreciation	(On college students) Males: preferred sexual humor over absurd humor. Females: preferred absurd humor over sexual humor. Gender identity related to humor appreciation but only for females. (Using Bem's sex role inventory of masc, fem, andro, undifferentiated). Feminine females: preferred absurd humor more than sexual humor. Masc, andro, undifferentiated females: appreciated sexual humor more. Masc, fem, undiff men and masc, andro females: appreciated sexual humor portraying females as sex object / brunt of joke	Supports correlation between sex and humor appreciation. Also supports correlation between gender identity and humor appreciation, but this is a little racy.
Changes in Humor Appreciation of College Students in the Last Twenty-Five Years	Modern: no difference between men/women found in humor appreciation, but compared to the 1963 study many changes observed	Supports correlation between joke generation and age
The Sense of Humor: Explorations of a Personality Characteristic	Higher intelligence correlates to the appreciation of nonsense and an aversion to incongruity-resolution humor, perceptual intelligence measures correlate positively with nonsense appreciation (pg 144)	Supports correlation between intelligence (which we could maybe measure as level of education) and nonsense appreciation / incongruity-resolution aversion

Off of this research, we decided on the following user features and their joke feature correlations:

- Intelligence/level of education: the more "intelligent" a user was the more nonsense humor was appreciated and the less incongruity-resolution humor was appreciated.

- Sex/gender: Aggressive humor (males), affiliative humor (females)

- National/regional origin/culture**: Because we are using only a sample of US citizens when submitting to MTurk (this makes constructing survey easier and may make it easier for model to analyse trends), we are interpreting the research behind differing cultures and their correlations to humor appreciation a bit vaguely, insofar as we are stating that such findings apply because of proximity. (i.e. the same correlations that make japanese people less likely to prefer aggressive humor than Americans can be scaled down and applied when analysing West Coast v. East Coast). We were unable to find any research to back a coast-based argument of the US as it is a very specific claim, but we can say with higher confidence that one such correlation exists.

- Conservative Mindset: the more conservative a user was, the more incongruity-resolution humor appreciation increased and nonsense humor appreciation decreased.

- Age: Generation of joke appreciation

2.2 Survey

To build the survey, we targeted the user features above, and split the survey into six different parts:

- Sex/Gender identity questions

- Nationality Questions

- Conservative Questions

- Intelligence Questions

- Miscellaneous Questions

- Jokes

2.2.1 Sex/Gender Identity Questions

We ask a simple question about gender: Male, Female, or Other, and we modified Bem's Sex Role Inventory (BSRI), which breaks down gender identity into 40 questions:

As defined by BSRI, males adhere strongly to ten qualities: willing to take risks, willing to take a stand, defends own beliefs, independent, assertive, leadership ability, dominant, strong personality, forceful, and aggressive, while females adhered strongly to another ten qualities: understanding, warm, tender, affection, eager to the needs of others, loves children, gentle, sensitive to the needs of others, sympathetic, and compassionate. In the survey, we will be using a slider for each of the 20 questions below to get a float value between -1 and 1, after which we will normalize to find a number which we can feed as input into our models.

Statements: (slider from strongly disagree to strongly agree)

1. Willing to take risks: I am willing to take risks.

2. Willing to take a stand: I am willing to take a stand.

3. Defends own beliefs: It is necessary to defend my own beliefs, regardless of the cost.

4. Independent: I value independence

5. Assertive: I firmly believe in asserting my own thoughts and opinions in a given situation

6. Leadership Ability: Others look to me to take charge in difficult situations.

7. Dominant: I believe power over others is important.

8. Strong Personality: I feel like I need to put on a mask when socializing with others.

9. Forceful: It is important to me that others agree and accept my point of view.

10. Aggressive: I believe in pursuing my own goals, regardless of the means by which I do so.

11. Understanding: People think that I am an understanding person.

12. Warm: I believe myself to have a warm personality.

13. Tender: Whenever I can, I like to aid others.

14. Affection: I enjoy taking care of others.

15. Eager to the needs of others: I care a lot about the needs of others, even when inconvenient.

16. Loves Children: Children are a joyous part of life.

17. Gentle: I believe a soft touch to be necessary.

18. Sensitive to the needs of others: I care greatly about the needs of others.

19. Sympathetic: I feel sorrow at others' misfortune.

20. Compassionate: I care greatly for others.

Note: We made the statements as neutral as we could, but I have placed the quality next to the statement for ease of reading. Please let me know if you think these statements are still too positive or negative (will influence a user to pick them based on their wordings).

2.2.2 Nationality Questions

Because the research strictly reports findings for nationality and not ethnicity, we only have two questions here, the ethnicity questions we placed in Misc. Questions.

1. Region of ancestry:

   (a) Africa

   (b) East Asia and the Pacific

   (c) Europe and Central Asia

   (d) Latin America and The Carribean

   (e) South Asia

   (f) Middle East and North Africa

2. In which region of the U.S. do you currently reside?

   (a) East Coast

   (b) West Coast

   (c) The South

   (d) The North

   (e) The Midwest

2.2.3 Conservative Questions

To find "conservative-ness", we used a survey of 10 questions created by a NYU study which accurately predicted the conservative/liberal leanings of 220,000 TIME readers [1]. We will use the same slider/normalization scheme we did in the Sex/Gender Identity survey section here.

In this survey each statement corresponds to a specific political leaning. (the more you agree with an (L) statement the more liberal you are, and likewise for (C) statements)

1. I prefer cats to dogs. (L)

2. I prefer watching documentaries to action/adventure movies. (L)

3. Respect for authority is something all children need to learn. (C)

4. I keep my desk and other workspaces very neat and organized. (C)

5. I believe that self expression is more important than self-control. (L)

6. If I heard that a new restaurant in my neighborhood blended the cuisines of two very different cultures, that would make me want to try it. (L)

7. My government should treat lives of its citizens as being much more valuable than lives in other countries. (C)

8. I wish the world did not have nations or borders and we were all part of one big group. (L)

9. If I were to visit New York City, I would rather go to Times Square than the Metropolitan Museum of Art. (C)

10. I am proud of my country's history. (C)

   We will also ask the political leaning of the user for self-reporting purposes. If you feel this is unnecessary we can remove it.

2.2.4 Intelligence/Education level Questions

The following questions will be used to evaluate "intelligence/education level."

1. Please indicate your highest level of education?

    (a) Doctorate Degree
    (b) Professional Degree
    (c) Master's Degree
    (d) Bachelor's Degree
    (e) Associate Degree
    (f) Trade School
    (g) High School Degree
    (h) Did not graduate high school

2. What is your income?

    (a) Below $10,000
    (b) $10,000 - $30,000
    (c) $30,000 - $50,000
    (d) $50,000 - $70,000
    (e) $70,000 - $90,000
    (f) Above $90,000

3. What work do you do?

    (a) Service Industry, e.g. Farm labor, food service, house cleaner
    (b) Specialist, e.g. technician, carpenter, hairdresser
    (c) White Collar (office) work, e.g. clerk, salesperson, secretary
    (d) Professional, e.g. doctor, lawyer, teacher, executive
    (e) Unemployed
    (f) Retired
    (g) Homemaker
    (h) Student
    (i) Other

4. Please indicate yes or no on the following questions:

    (a) Does your family have a telephone?
    (b) Does your family have a washing machine or electric stove?
    (c) Does your family own a car, van, or truck?

2.2.5 Miscellaneous Questions

These are shotgun approach questions, meaning there is no particular reason that we chose these questions (with the exception of age) other than some hunch that the model might interpret some relationships:

1. Which of the following ethnicities do you most strongly identify with?

    (a) Caucasian
    (b) Black
    (c) American Indian or Alaskan Native
    (d) Middle Eastern
    (e) Asian

    (f) Native Hawaiian or Pacific Islander

    (g) Hispanic or Latino

We also found a survey done by Stanford [2] we could include that describes the cultural orientation of users, and assesses the relationship between cultural orientation and various outcome measures. This may be going a bit too in-depth for a not even valuable result, so I have chosen to exclude it, but we have this option should you think we should explore it.

1. What genres of music would you say define your musical taste?

    (a) Pop

    (b) Rock

    (c) Rap

    (d) Hip-Hop

    (e) R&B

    (f) Metal

    (g) Techno

    (h) Classical

    (i) Punk

    (j) Blues

2. What types of movies do you like? (select all that apply)

    (a) Romance

    (b) Horror

    (c) Comedy

    (d) Drama

    (e) Historical

    (f) Animation

    (g) Documentary

    (h) Adventure

    (i) Fiction

3. Which age group are you in?

    (a) Under 20 years of age

    (b) 20 - 30 years of age

    (c) 30 - 40 years of age

    (d) 40 - 50 years of age

    (e) 50 or more years of age

4. What is your marital status?

    (a) Single

    (b) Married

    (c) Divorced

    (d) Widowed

    (e) In a relationship

5. How many children do you have?

    (a) I do not have children

    (b) 1

    (c) 2

    (d) More than 2

6. What is the average number of hours that you spend on the Internet per day?

    (a) less than 1 hour

    (b) 1-3 hours

    (c) 3-4 hours

    (d) 4 or more hours

2.2.6 Jokes

We are planning a joke dataset of around 300 jokes (100 from each generation), but wanted to okay the joke format with you before generating the entire dataset. Below is an example of the type of jokes and how the jokes will be stored in the database:

The jokes themselves are curated from various sites and books, referenced below. For the Gen X jokes we pulled them from a book on jokes from the 1970s -1980s [3]. For Millennial jokes there are a variety of sites that offer jokes from the 80s and early 90s. Gen Z jokes are a bit more difficult to find, as this was the age the Internet took off, so we are considering having more visual jokes such as pictures. We plan to have an even distribution of jokes from each generation. We are also trying our best to pull jokes that users across generations will understand, avoiding blatant references to events and people of those respective generations.

Note: If you are uncomfortable with the idea of using generation as the primary joke feature by which we are splitting our dataset, we can definitely ditch it and pivot to one of the other joke features to split our dataset on. I understand that there is not really a clear parameter to decide when a joke originated, but we decided to run with it because the research supports a correlation and there is a strong intuitive sense that these jokes would elicit the age user feature.

3 Problems

- We are keeping the jokes very PG-rated, which while difficult, is appropriate for academic purposes. But by doing this, I feel like we are losing a large proportion of users who appreciate jokes for their ability to be extreme and rash. Not sure how to deal with this.

- The survey itself is quite long, considering the user would have to rate 300 jokes and fill out all the user info. We can cut down user feature questions and our joke dataset, if you think this would be better.

4 References

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Joke	Incongruity-Resolution	Nonsense	Aggressive, Hostile	Self-Enhancing	Self-Defeating	Affiliative	Generation
"Two fish in a tank. One turns to the other and says: "Do you know how to drive this?"	1	0	0	0	0	0	Gen X
Woman walks into a bar with a duck on a leash. Bartender says, "Where'd you find the pig?" Woman says, "This isn't a pig, you idiot, it's a duck." Bartender says, "I was talking to the duck."	1	0	1	0	0	0	Gen X
Whats 2+2? 5 ha-hahahahahahahaha	0	1	0	0	0	0	Millennial
Where does a politician go to check out books? The lie-brary!	1	0	1	0	0	1	Millennial
Him: It's coming up on your birthday and I'd like some idea of what you would like for your birthday. Her: I want a divorce!! Pause– Him: I'm really sorry, but I hadn't planned to spend that much.	1	0	1	0	0	1	Gen Z

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