Explaining Memes Through The Power of The Crowd and Cloud

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Abstract

Memes have become part of the vernacular of 2019, with many different styles, subcultures, and insinuations having developed over the last decade. With their rise has come an ever increasing amount of distinct subgroups and means of idea dissemination, all of which have different types of subtext and humor that is nigh-impossible for computers in their current state to parse. This provides an interesting opportunity to utilize crowdsourcing to analyze their meanings. We choose an approach closely paralleling "Crowdsourced Explanations for Humorous Internet Memes Based on Linguistic Theories," by generating meme based templates in a similar manner but with more modern memes that rely on more complex formats than the simple two-caption template of the original paper.

Introduction

Modern internet culture has led to the creation of thousands of meme formats, and they are getting increasingly harder to keep up with. As humor evolves and the internet expands, new memes continue to arise and explanations for those memes have continually been thought of as a manual task. However, researchers Chi-Chin Lin and Yi-Ching Huang at National Taiwan University in accordance with Jane Yung-jen Hsu, also at National Taiwan University, researched the possibility of explaining "internet meme subculture" to those who are less familiar with internet memes by reading human-generated explanations. They focused on caption-based memes that often have the exact same format as seen below:

As you can see from this image, there are usually 2 lines of text, one at the top and the other at the bottom, accompanying the main image. The lines of text are often made to shock the viewer or make the viewer laugh, depending on the context of the image. In this specific example, this wolf is popularly known on the internet as 'insanity wolf' and it often accompanies insane or extreme statements such as taking on cancer as a basic challenge to overcome. The aforementioned research conducted at the University of Taiwan solely focuses on memes in this exact format which are associated with certain subcultures on the internet (in this particular case, the 9GAG subculture) and that exclusively are coupled with captioned text at the top and bottom. One of the main reasons we decided to replicate this paper and further research the

topics it brought up was due to the limitations of their original choice to just focus on such a small portion of memes. Modern internet memes span a multitude of templates and formats and giving explanations for these memes is frequently significantly more challenging than those examined in the original paper. For example, the following meme is more modern:

There is a large internet subculture currently dedicated to making light of Shrek's appearance (not in a negative fashion; in fact, many of these meme-creators are avid shrek fans) and posting absurd things accompanied with an image of Shrek. This subculture is much harder to understand without context than the previously pictured 9GAG meme, as it relies on knowledge of multiple in-jokes as well as specific subcultures. By modernizing the approach used in the original paper, we aim to explain a wider variety of memes and to see if memes can be made more accessible to other readers.

Assumptions Made

One of the largest assumptions that we made in the process of analyzing our work was in the choice of peers used to evaluate the suitability of the generated crowd explanations for memes. Whereas Lin, Huang and Tsu had a demographic composed of non-native speakers of English, the demographic that composed our assessing group was all English-speaking, college aged, well-educated individuals; their views of meme culture may not be representative of the average person. While they were also chosen as a result of direct connections to the writers of this paper, we assumed that their social background and social cognition would still be different enough that such a group could somewhat accurately represent the average individual who views memes.

Another critical assumption that we made was in our choice of memes. As mentioned before, modern meme culture has become largely segmented across a variety of different groups, even within the category of template-based memes. As such, there is simply no way to capture all of these different subgroups and form a perfect sampling of modern memes, but we assume that the different channels we chose to source from on Reddit managed to be relatively representative of the status quo. Furthermore, we feel confident that such an assumption is appropriate based off of the popularity of these

The last major assumption made was in our choice of pricing Amazon Mechanical Turk tasks at $0.05. We asked workers to deliver somewhat thoughtful answers, which is inherently difficult given the motivation of many Mechanical Turk workers to optimize their revenue stream through answering as many questions in as short a time as possible. We operated under the assumption that a large amount of tasks priced at $0.05 (for both the initial anti-punchline generation process and the voting process) would incentivize workers to answer quickly, which was key given their role as the center of this crowdsourcing model.

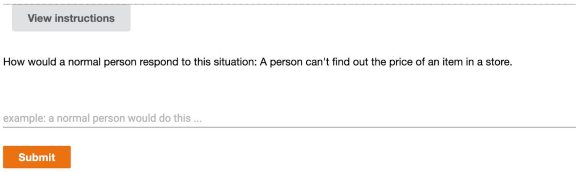
Study-Design / Approach

The biggest difference between our approach and that of Lin, Huang and Tsu has to do with our choice of sourcing memes. While the original writers chose to source from 9GAG - a platform far more popular at the time their article was written than today - we chose to source from Reddit (including channels such as r/Memes and r/adviceAnimals), which houses a variety of different meme styles and subcultures given its broad range of users and continued expansion. Another reason we focused primarily on memes generated by Reddit users is the average demographic of the Reddit user: they tend to be younger and more in touch with the internet.

The choice of design and framework following this sourcing process directly parallels the choices Lin and Huang made in their original paper. We still incorporate three different elements into our definition of a meme: the meme template itself, the set-up, and the punchline. We also still incorporate an explanation for the meme and the context that a worker is reading, which allows Mechanical Turk workers to build an idea of the context and purpose of the anti-punchline.

Furthermore, we replicate the final meme explanation by repeating the same steps of composing meme template and anti-punchline. This results in a final synthesis of meme template introduction (meant to represent the core of the joke, and when combined with the other elements be the basis for our meme), the set-up repetition (we utilize the same upper caption across our meme template to provide a similar context to different workers), an anti-punchline (created by developing a normal reaction to the set-up in question, and then appending to the bottom of our meme to diverge from the punchline and ultimately form the humor behind the meme) and the repetition of our punchlines (meant to complete the joke, located at the bottom of the meme template).

Similar to the paper, the anti-punchline stands as a pivotal part of our research. An anti-punchline in this case is meant to diverge from punchline expected from the given setup; the juxtaposition between this and the punchline of the joke is meant to express the humorous premise of the meme. To generate the anti-punchlines, three different crowd workers were presented with questions in the following format:



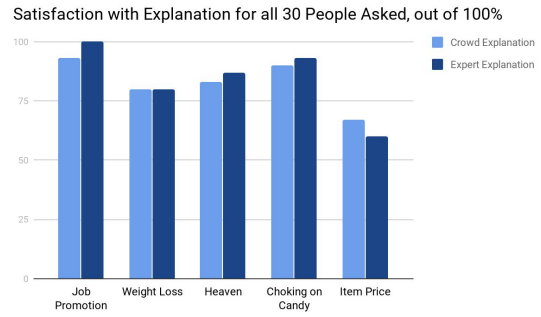
This allowed us to source various "expected" reactions that would serve as the basis of the anti-punchline. After enough expected reactions were gathered, three crowd workers were then used to evaluate the best reaction, which was chosen by majority (crowd workers vote for the best one). Expected reactions that could not reach a consensus majority had a second round of voting with two additional crowd workers was used to choose the final anti-punchline that would then be integrated into the template.

Evaluation Methodology

In order to evaluate our results, we surveyed our peers in-person regarding their satisfaction levels with various explanations for the 10 different memes we selected, each of which had three crowd worker-generated explanations, and one explanation generated by us (to serve as an "expert" explanation). We asked them the following binary question: Are you satisfied with the explanation of this meme, meaning you feel

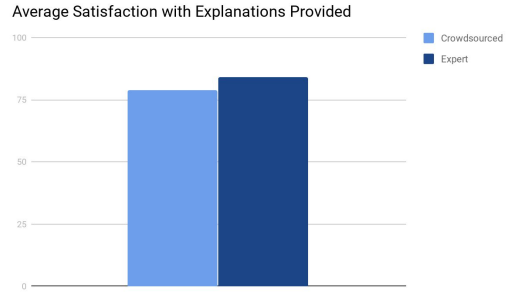
like you now understand the meme? They were allowed to answer either yes or no.

Given that we produced our own expert explanations for the memes, we also asked if that explanation would be satisfactory for a comprehensive understanding of the meme. The evaluation methodology naturally follows: we compared the two results, regarding explanation satisfaction, for each meme out of the 10 that we found for this research. The results are for several of the 10 are graphed below. The lighter blue represents the crowd explanation, while the darker blue represents the expert explanations that we provided.



Discussion of Results

The following graph represents the average percentage of satisfying explanations generated among all the memes explored:



While the expert explanations we generated were slightly superior on average in terms of overall results, the difference between the two was not significant. As a result, we believe that the crowdsourcing strategy for anti-punchlines works relatively successfully for any meme that fits well with the template introduction-set up-anti punchline-punchline explanation format.

Some of the more abstract meme explanations generated had a lower level of satisfaction than the average; for example, the results of the “Item Price” explanations were less satisfactory than most other explanations. There are several possible reasons for this-- it may be that the generated templates do not correspond as well to the displayed meme, or that the quality of the templates are lower since they do not adequately explain certain in-knowledge that cannot be explained easily through a short text blurb.

In addition, the results we received showed a significant improvement in explanation satisfaction over those in the original paper. This is likely due to factors in our evaluation, rather than an intrinsic improvement of meme explanations as a result of our project. While the Lin, Huang and Tsu paper reviewed the explanations with non-native speakers of English, our surveyed group consisted of college-aged individuals who are mostly internet savvy and likely have previous exposure to memes. As a result, some of their previous exposures may have filled in the gaps of knowledge that non-native speakers who are not familiar with memes may not have had.

Limitations of the Work

The approach used in this study may encounter difficulties scaling into a larger system. While manually generating meme templates and MTurk human intelligence tasks was feasible for the small scale of this study (30 meme explanations), further expanding the amount of meme explanations generated would require additional work such as implementing similar OCR systems as the ones used to generate the templates in the original Lin, Huang and Tsu paper.

While the restrictions on the types of memes that were explained in the original paper made them conducive to OCR generation of templates, the additional variety of memes that we attempted to explain makes OCR interpretation of meme formats significantly more complicated. This is especially true when the meme formats diverge from the standard two-caption template used in the original paper; many of the more abstract memes used would likely be hard to parse into one consistent format without some level of human intervention.

In addition, some level of subjectivity was involved in generating the templates for the explanations that may introduce inconsistencies in the final results; when multiple explanations for a meme were presented on KnowYourMeme, the subjectively "most consistent' explanation with the experts' opinions on the meme were chosen. While this selection process may be feasible for the relatively small body of memes sampled in this paper, a larger pool of memes would eventually have more variance in the quality of the generated templates as a result. This was also difficult for memes that did not adhere to a consistent format (and as a result were not explained on KnowYourMeme); many memes in modern culture do not have a standardized template underlying them, and are one-offs that reference pop culture or current events. There may be no way at all to systematically generate templates for these without significant amounts of human intervention. Crowd-sourcing templates is a possibility to circumvent these limitations, but it may be more effective at that point to directly source meme explanations from the crowd.

Implications of the Work

As the internet continues to expand, so will the different subcultures associated with it. One of the original intentions of making the internet public was to allow for the increased spreading of information between DARPA and other military personnel/researchers. Included in this information is, quite obviously, our different tastes for comedy. Therefore, as the meme culture of the public society evolves, it is interesting and challenging to explore different ways of keeping up with it; otherwise, it would be impossible to keep up with the thousands of new memes and joke contexts created every single day. Crowdsourcing is a relatively new, powerful tool that can be quite useful in explaining and capturing the most inexplicable aspects of internet culture - who better to answer questions about the internet and the humor lying deep underneath it than those who often participate in it? Crowdsourcing, as shown by our study and the one conducted by the University of Taiwan researchers is quite effective in explaining the gist of comedy to new internet browsers.

This can extend far past senses of humor and possibly be modified in order to include the understanding of different social phenomena - dramas, romances, thrillers, etc. Humans have always been exceptional at sharing our senses of humor and unique comical perspectives with each other, but now we can look further with new crowdsourcing technologies. We can pick up on trends quicker and broadcast information more efficiently than ever - we may be entering a new era of technological globalism that could never have been dreamt of 20 years ago.

References

Chi-Chin Lin; Yi-Ching Huang; and Jane Yung-jen Hsu 2014. Crowdsourced Explanations for Humorous Internet Memes Based on Linguistic Theories. In *Proceedings of the Second AAAI Conference on Human Computation and Crowdsourcing.*