

Crowdsourced Explanations for Humorous Internet Memes

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Introduction

The subculture of humorous images is a pervasive phenomenon on the Internet. Some social media websites (e.g. 9GAG¹, Reddit and 4chan) provide platforms for people to share their images and comments. These websites are often occupied by experienced users, and most of the newcomers have trouble fitting in such communities.

Among all the types of humorous images, Internet memes are relatively hard for newcomers to understand. Compared to LOLCats, face swapping or pun images, more implicit background knowledge is included in memes. Details about memess can be found in (Bauckhage 2011).

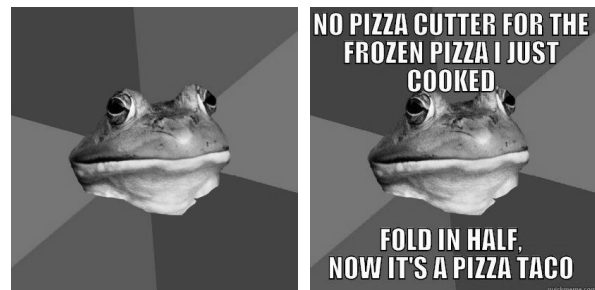
Here, we define three components to form an Internet memes: meme template, set-up, and punchline. A meme template is the underlying image. Set-up and punchline are the captions superimposing on the upper and lower position of the meme template, respectively. Fig. 1 shows a meme template named “Foul Bachelor Frog” and an instance of it.

In this work, we develop a system leveraging crowdsourcing technique to generate explanations for meme images. We claim that people who are not familiar with meme subculture can still quickly pick up the gist of the memes through reading the explanations.

Related Work

Computational humor recognition is a hard natural language processing problem. One of the generally accepted humor theories is incongruity theory, which states that humor can occur in the resolution of two concepts with incongruity. Some approaches leverage this idea to recognize humorous punchlines by evaluating the semantic incongruity (Mihalcea, Strapparava, and Pulman 2010). However, the resulted model is a black box and hard to find out why a chosen punchline is funny.

Additional methods like finding the keywords and sentence structure in the joke domain were considered. Some approaches identified the “that’s what she said” jokes by searching for sexually explicit nouns and sentence structures in erotic domain context (Kiddon and Brun 2011). Even



(a)

(b)

Figure 1: (a) An Internet meme template named “Foul Bachelor Frog” and (b) an instance of it. The captions on this meme template usually describe lazy or disgusting behaviors of single men.

though the main elements were found, the system was still not aware why the whole text is related to the joke.

While existing approaches were all trying to recognize humor without dealing with the reasons why people laugh, we manage to discover and comprehend the incongruity behind the joke.

Approach

To help newcomers understand an Internet meme, we leverage crowdsourcing to find an explanation which illustrates the incongruity between normal situations and a scenario the meme presented. The explanation is adopted in a 4-move template. It is described below.

1. *Meme template introduction*: A meme template represents the main characteristic in the joke. This is hidden background knowledge to newcomers.
2. *Set-up*: In this move, the upper caption in the meme is repeated. The set-up provides the context and premise in the joke.
3. *Anti-punchline*: This is the most important move in the explanation. A normal reaction to the set-up is here to illustrate the incongruity to the punchline.
4. *Punchline*: The lower caption in the meme is the punchline which completes the joke.

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¹Website: <http://9gag.com/>

The first move can be automatically achieved by recognizing the meme template by digital image processing techniques and retrieving introductions from online resources like Know Your Meme². In addition, we can optical character recognition algorithms to extract captions in the memes to generate the second and fourth move.

Semantic Script Theory of Humor

Semantic Script Theory of Humor (SSTH) was proposed to implement incongruity theory (Raskin 1985). SSTH claimed that a text can carry a single joke if (1) the text is fully or partially compatible with two different scripts and (2) the two scripts are opposite.

According to SSTH, the anti-punchline in the 4-move explanation is the alternative script opposite against the original punchline. The trait basis of the oppositeness is determined by the characteristic in the meme template.

Humor Tasks Design

We design 2 humor tasks to find the anti-punchline. The first task is to collect anti-punchline candidates while the second task is to select the best anti-punchline out of the candidates.

Task 1: collecting anti-punchline candidates. The workers are asked to imagine themselves in given situations and fill in their reasonable reactions. Each given situation is the set-up caption that is transformed into a first-person pronouns sentence and we collect 3 reactions for the selection task.

Task 2: selecting the best anti-punchline from the candidates. The workers are asked to choose the best opposite reaction against the punchline in respect to given trait basis. The trait basis is determined by the meme template and the provided choices are from the collection task. When two workers agree with a specific reaction, it will become the anti-punchline in the explanation.

Pilot Study

Since 9GAG is one of the most popular websites for funny images, we chose it as our meme source and crawl 39447 posts from it. From the posts, we automatically recognize 3051 memes in 38 unique meme templates. Among them, 5 memes are randomly selected and used in our pilot study³.

After we went through the task process and received 30 responses of the tasks, we generated explanations for each of the 5 memes. As Fig. 1(b) is chosen in our pilot test, the following describes how we generate an explanation for it.

The collection task generated from the set-up caption in Fig. 1(b) will be:

You are a normal person, and you have no pizza cutter for the frozen pizza you just cooked.

Your reasonable reaction would be: _____

After receiving 3 responses from the collection task, we can continue publish the selection task shown in Fig. 2.

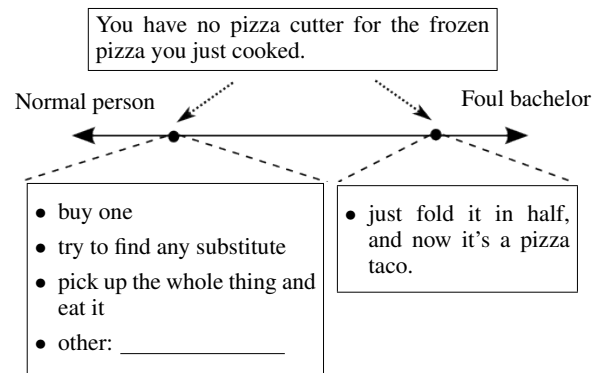


Figure 2: The selection task for Fig. 1(b) in our pilot study.

After 2 workers agree “try to find any substitute” to be the best opposite reaction, it is the anti-punchline. Therefore, the 4-move explanation is completed and shown below.

1. *The background image is called “Foul Bachelor Frog”. The images captions often depict lazy, disgusting and hedonistic behaviors associated with single men.*
2. *The upper caption said that he has no pizza cutter for the frozen pizza he just cooked.*
3. *We may expect that he would try to find a substitution.*
4. *However, in the lower caption, it turned out that he just fold it in half, and now it's a pizza taco.*

Conclusion & Future Work

Humorous Internet memes can be seen in many image-based online forums. However, steep learning curves are observed for the newcomers to fit in this subculture. In this paper, we propose a template-based explanation approach to extract the incongruity in memes. With crowdsourcing technique, we are able to generate such explanations. In our pilot study, acceptable explanations for 5 unique memes are generated.

For further research in artificial intelligence, developing a computational system to produce explanations for general jokes using our explanations as training data is possible.

References

Bauckhage, C. 2011. Insights into internet memes. In Adamic, L. A.; Baeza-Yates, R. A.; and Counts, S., eds., *ICWSM*. The AAAI Press.

Kiddon, C., and Brun, Y. 2011. That’s what she said: Double entendre identification. In *Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics*, 89–94.

Mihalcea, R.; Strapparava, C.; and Pulman, S. 2010. Computational models for incongruity detection in humour. In *Computational Linguistics and Intelligent Text Processing*, volume 6008. Springer Berlin Heidelberg. 364–374.

Raskin, V. 1985. *Semantic Mechanisms of Humor*. Studies in Linguistics and Philosophy. D. Reidel.

²Website: <http://knowyourmeme.com/>

³Complete datasets and results are in <http://www.csie.ntu.edu.tw/~r01944018/meme-explanations/>