

# Producing Puns through Pun-etics

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## I. INTRODUCTION

Puns are usually met with an eyeroll and a quicker than usual exhale through the nose. However, puns can be considered a form of humor and humor has its uses in a variety of social situations. Being able to generate puns and add the facade of humor to machines is nothing new, however there is a wide range of what a pun could be or how to create a joke. According to [1], there are about 5 types of puns however only three types can be understood through a verbal medium while the other two must be read or seen to be understood. One class of puns which spans over these types is a category called paronomasiac puns.

Paronomasiac puns involve a phonologically similar sounds in a word. One example would be:

“That flight was so Boeing”

The ‘target’ word, the word which would otherwise be said if no attempt at a pun occurred is ‘boring’, but instead, another word was used in its place ‘Boeing’, as they sound the same. These types of puns are often confused with homographic puns and homophonic puns. Homographic puns that play off double meanings of words:

“I used to be a banker, but then I lost interest”

whereas homophonic puns are those that sound the same but have different meanings:

“I am a board... certified diagnostician” [2]

One thing to note is that part of what makes a good pun is its relevancy. That is the target word and the pun word have similar meaning, or the very least, the pun word is related to the topic at hand. For the purpose of this paper, this fact will be ignored, and only paronomasiac and homophonic puns will be considered. This is for a few reasons: mainly meaning and context analysis is not the focus of this paper. Instead, the main focus of this paper is on the generation of potential words which could be made into a pun.

## II. BACKGROUND

Understanding and modeling puns is nothing new and there have been a variety of ways to handle the creation or analysis of a pun [6]. In [3], pun generation is approached by way of homophones, that is, 2 words that for all intents and purposes, sound the same. These types of puns are usually great for written media as the different spelling of each word indicates that pun was made. To use the example pun given in [3], “I *dyed* a little inside”, is a great written pun. Replacing “*died*” with “*dyed*” can come across because of the difference in spelling, however if I said this pun aloud, it would be difficult to know that I was swapping the two words. Regardless, [3] proposes that making a good pun is dependent on surprising the reader with a word they were not expecting and does this by performing doing context analysis via machine learning.

Another approach is to just look at the context and meaning of the words in a sentence and looking for connections. While [8] also looks at homophones, they also propose a method of finding definition based puns like: *Chemistry jokes get tons of reactions*. Here the word *reaction* could mean a chemical change. These types of puns are called *homographic* and [8] contextualizes a sentence to determine if a pun is present.

The last approach is the focus here: phonological analysis. Using the phonetics of a word, [5] trains a model to produce words that are similar to see if they can achieve the production of a pun. One example of such a pun would be *Lettuce eat food*. This model however, assumes that the pun is given and also uses a neural network to learn puns.

We want to do something less machine learning oriented and so we look at other words as our basis. Our background started in [9], where analysis was done on what phonemes were most usually changed and what they were substituted for. Their conclusion was based on the sounds which were most likely to be substituted. This was then contested in [7] where the focus was on what types of phonemes were regularly substituted, and

it was put forth that vowels are more important to pun generation than consonants. We then come to [4] where analysis was done on the relationship between the target and the pun word, focusing more on how these words were related in meaning or association rather than in makeup.

The work done here will be focusing mostly on these last 3 works, with a focus on related phonemes and production of words and sounds that flow. Due to the fact contextual and meaning analysis is not done, we will mostly be leaving out [4] use of word relation, but will reference his idea to create a score based on how similar phonetically, the target and the pun are.

### III. QUESTION

For the purpose of this paper I want to ask: what type of phonological pun can a machine produce given a word and a set of known words.

This question does not consider puns that involve context nor does it assume that a “easy“ or “simple pun“ exists. That is, I consider that if a person is given the target word: *Boeing*, it is possible they may not remember the word *boring* and will have to produce a different pun. I assume that most humans do not have perfect recall and decided to include this attribute into my model.

### IV. METHOD

I plan on using a simplified pronunciation dataset allowing me to look up a word’s phonetic makeup which will be used in comparisons. I will need to make a mechanism to compare two words phonetic makeup which will return a score to determine how good a merging or swapping of these words would be (*lettuce* and *let us* are closer than *blew up*). This mechanism would need to have parameters to refine how well a match would be (I foresee rhyming words like ‘run’ and ‘fun’ not being a good match). I would then judge how well the generator produced the pun and update the aforementioned parameters to try and produce ‘good’ puns. After that, the generator is on its own and its output will again be judged by me to see how well it performed. Essentially, crude machine learning without actual machine learning.

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