Punny Captions: Witty Wordplay in Image Descriptions


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Kind of things I do

• Research: make human-AI interactions more natural, more efficient
  • My webpage has more information: http://www.prism.gatech.edu/~arjun9/
• Curious about: philosophy of mind, how humans think
The cake was in tiers.
Pun

Tiers

Tears

Source: http://food.viralcreek.com/

Source: Pinterest

Federer after French Open, 2009

Source: www.winnipegfreepress.com, Reuters

Christiano Ronaldo after Euro 2016
The woman enjoyed to dine and whine.
Why is anything witty?
Why is anything witty?

Incongruity Resolution!
Interpretation 1

The cake was **crying**

Interpretation 2

**Wedding** cake was in tiers (layers)
Ambiguity and Support

Interpretation 1
The cake was crying.

Interpretation 2
The cake was in layers.

The cake was in tiers.
Ambiguity and Support

“The cake was in tiers.”

- tears
- tiers
- wedding cake

Semantic similarity
Phonetic similarity
Approach (generation)

Predict Classes

Predict caption

a woman who is sitting at a bar with a wine glass in front of her.

Puns?

wine, whine
The woman enjoyed to dine and whine.
Generation model
Generation model

Input

Classifier

Image captioning model

Tags

man cell phone
a group of people standing at the side with cell phones

Filter puns

sell (cell) side (sighed)

CNN fRNN fRNN fRNN

people sell their
Generation model

Input

Classifier

Image captioning model

Tags

man cell phone
a group of people standing at the side with cell phones

Filter puns

sell (cell) side (sighed)

CNN

Phones

Cell

Their

At

An

Outdoor

Event

<stop>

18
1. People sell their phones at an outdoor event.
2. Sell phones people at an outdoor event.
3. ....
Re-rank candidate captions

Captions should be relevant to the image and grammatical.

People speaking on their sell phones.

Sell phones people at an outdoor event.

People sell their phones at an outdoor event.

A group of people sell their cell phones.

…
Re-rank candidate captions

Captions should be relevant to the image and grammatical.

People sell their phones at an outdoor event.

A group of people sell their cell phones.

People speaking on their sell phones.

Sell phones people at an outdoor event.
Example

a poll (pole) on a city street at night.

Pun:
- poll,
- origin: caption,
- pun source: pole

Human caption:
- my shining knight (night) came at night.
Generated: a bear that is bare (bear) in the water.

Human: creak (creek) is seen here.
Generated: a bored (board) bench sits in front of a window.

Human: could you pleas (please)e make your pleas (please)!
Baselines

• Regular inference - A group of women in **tears** at a wedding.

• Witty mismatch - The woman enjoyed to dine and **whine**.

• Ambiguous - A group of women in **tiers** at a wedding.
Metric - which is funnier?
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“Turing test”

- Constrained human - our model is witter 55% of the time!

- Unconstrained human - our model is terrible, almost never wittier than human.
Review

Task

What’s a pun?

Why is anything funny?

Implementation

Examples and results
a group of friends got together to celebrate St. [female]’s day.

everyone waited patiently for the food to arrive.

when the food arrived it was all very delicious.

then everyone got together for a group photo.

after that, everyone finished off the night with dancing.
Captions with sentiment

SentiCap: Generating Image Descriptions with Sentiments
A technique and dataset for generating image captions with strong positive or negative sentiment.

posted by Alex Mathews

This is a dog resting on a computer.
A white shaggy beautiful dog laying its head on top of a computer keyboard.

A motorcycle parked behind a truck on a green field.
A beat up, rusty motorcycle on unmowed grass by a truck and trailer.

Project webpage: http://cm.cecs.anu.edu.au/post/senticap/
Neural storyteller

*We were barely able to catch the breeze at the beach, and it felt as if someone stepped out of my mind. She was in love with him for the first time in months, so she had no intention of escaping. The sun had risen from the ocean, making her feel more alive than normal. She's beautiful, but the truth is that I do n't know what to do. The sun was just starting to fade away, leaving people scattered around the Atlantic Ocean. I'd seen the men in his life, who guided me at the beach once more.*
Thank you!

GOOD MORNING!
IT’S TIME TO WAKE UP