

# Computational Humour

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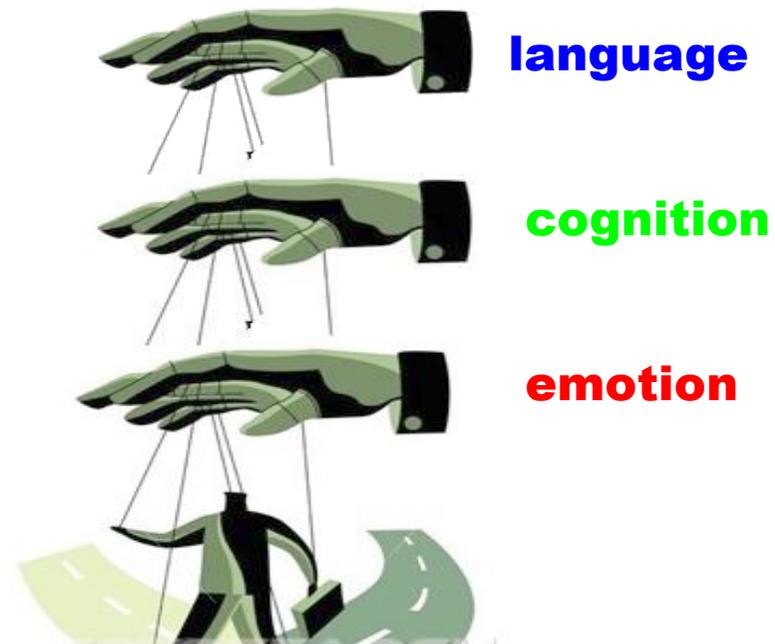
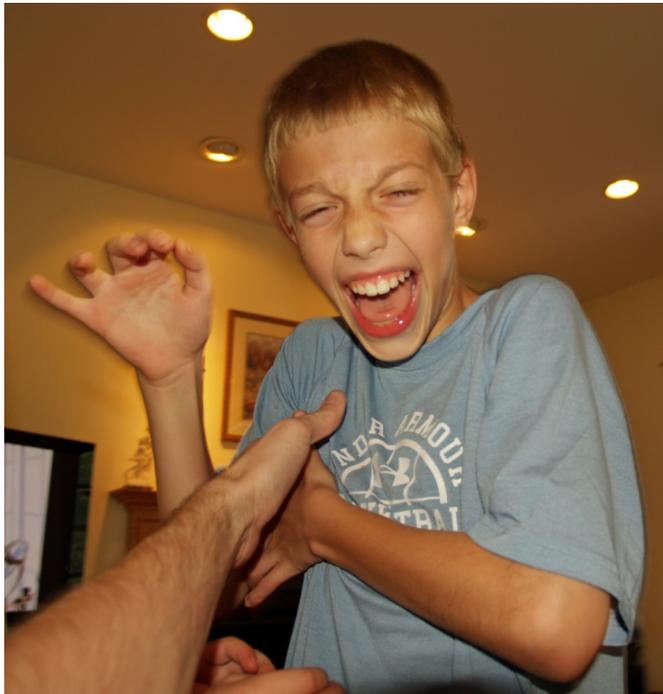
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# Outline

- Humor and Computational Treatment
- Humor and Ambiguity
- Double-Edged WordNet
- Research Directions



# Humor: tickling through the language



# Work Context

- **Emotion** (mirth)
- **Causality** (emotional induction – humorous effect)
- **Intentionality** (intentional humor)
- **Verbal** modality (verbal humor)
- **Word** level (lexical humor)
- **Non-Interactivity** (modeling of expectations from common sense knowledge)



# Humor in Computers (1)



## Well, this is embarrassing.

Firefox is having trouble recovering your windows and tabs. This is usually caused by a recently opened web page.

You can try:

- Removing one or more tabs that you think may be causing the problem
- Starting an entirely new browsing session



Start New Session

Restore

# Humor in Computers (2)

Google Maps interface showing a search for directions from New York to England. The search results list a route that includes a step: "Swim across the Atlantic Ocean" (3,462 mi), which is highlighted in red. The map shows a blue line connecting New York City to London, with a green pin in New York and a red pin in London. The interface includes search bars, navigation controls, and a list of search results.

Google Maps interface showing a search for directions from New York to England. The search results list a route that includes a step: "Swim across the Atlantic Ocean" (3,462 mi), which is highlighted in red. The map shows a blue line connecting New York City to London, with a green pin in New York and a red pin in London. The interface includes search bars, navigation controls, and a list of search results.

**Search Results**

Step	Instruction	Distance
20.	Take exit 24 A-D-C on the ten toward I-93 N/Concord NH/S Station/I-93 S/Quincy	0.4 mi
21.	Merge onto Atlantic Ave	0.8 mi
22.	Turn right at Central St	0.1 mi
23.	Turn right at Long Wharf	0.1 mi
24.	Swim across the Atlantic Ocean	3,462 mi
25.	Slight right at E05	0.5 mi
26.	At the traffic circle, take the 2nd exit onto E05/Pont Vauban	0.1 mi
27.	Turn right at E05	5.7 mi
28.	Take the exit onto A29/E44 toward Amiens Toll road	27.8 mi
29.	Take the exit toward Dieppe/Amiens/Calais/A151/Rouen Toll road	1.1 mi

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# Computational Humor

1. Humor studies, computational simulation of human humor
2. Computer-aided humor creation
3. Machine humor
  - Automatic humor recognition
  - **Automatic humor generation**



# Computational Humor Generation

- Ritchie, Binsted
  - linguistic analysis of jokes [2004]
  - punning riddle [Binsted and Ritchie, 1994]
  - e.g.: “What do you call a murderer with fibre? A cereal killer.”
- Stock, Strapparava
  - large scale lexical resources, semantic relations, creative variations
  - funny hacronyms [2003]
  - e.g.: “MIT = Mythical Institute of Theology”
- Nijholt, Tinholt
  - humorous agents: interaction, appropriatedness, humorous acts
  - anaphorical puns [2004]
  - e.g.: “Mary asked Susan a question, and she gave the answer” “Did Mary give the answer?”



# Familiar Expression Variation (FEV)

- **Familiar** expressions are sentences or phrases from the common sense knowledge (e.g. proverbs, movie titles, idioms).
- The **variation** consists of the **substitution** of a word in the original expression with a phonetically similar word.
- The pun generation is reduced to **lexical selection**.



# Examples of FEV

crash → Saturday Fright Fever

surgery → Back to the Suture

dentist → Fatal Extraction



# Research Questions

1. To what extent it is possible to **control the humorous effect** through **lexical manipulation**?
2. To what extent it is possible to model people **expectations** through **common sense** knowledge extracted by corpora?
3. To what extent data mining and **link discovery** strategies allows us to **improve lexical humor**?



# Key Claims

1. Humor creation starts from the discover of a **funny connection** (humorous “seed”)
2. There are two types of creativity in humor generation: **heuristic** and **narrative** creativity
3. Most of humorous seeds are based on some form of linguistic **ambiguity**
4. The first step for taking control of verbal humor generation is in the manipulation of **lexical ambiguity**



MOSES, MEET STEVE.  
HE'S GONNA UPGRADE  
YOUR TABLETS...



**FORTUNE -- The morning after the announcement that the legendary innovator and former Apple CEO, Steve Jobs, had died, crowds at all four of New York City's Apple Stores**

The shop must go on.

# Raining cats and dogs



# Double-Edged WordNet (1)

A **double-edged word** is defined by the following conditions:

1. Word with **two or more** meanings
2. The meanings have different weights (at least a **default** and a **hidden**/secondary meaning)
3. The default meaning is not **funny**/relevant
4. The hidden/secondary meaning is funny/relevant



# Double-Edged WordNet (2)

- Items are defined according to three different possible types of **lexical ambiguity**:
  - **Homonymy** is defined as the relation between words that share the same spelling and pronunciation but have different meanings (e.g. **tablet**)
  - **Homophony** is defined here as the relation between words that are phonetically identical (complete homophones) or similar (partial homophones) but with different spelling (e.g. **show/shop**).
  - **Idiomatic ambiguity** is a specific type of ambiguity between literal and figurative language. Idioms are defined here as multiword expressions whose meaning cannot be inferred by the meaning of the component words. The idiomatic meaning of a word is the meaning associated to the idiom in which the word is included. (e.g. **cat/rain**)



# Applicative Examples

- Punning riddles:

- *What is a pig? It is a stout-bodied short-legged omnivorous policeman.*
- *Who is a working girl? A young streetwalker who is employed.*

- Funny acronyms:

- *CPU = Central Processing Unit*  
    ➔ *Celibate Professing Untied*

- Variation of familiar expressions

- *A chapel a day keeps the malefactor away.*
- *(An onion a day keeps everyone away.)*



# Conclusions

- Exploration of the connection between computational humor and automatic discovery
- Distinction between heuristic creativity and narrative creativity
- Definition of a model of lexical ambiguous terms
- Development of a lexical resource of ambiguous terms, indexed according to semantic dimensions “relevant” for creative/humorous generative tasks.
- Integration of existing humor generators



# Future Work

1. Data mining and discovery of ambiguity
  - Background Knowledge Graph
  - Bisonet
  - NLP tools for Word Sense (Dis)ambiguation
2. Propagation to higher levels:
  - Phrase
  - Sentence
  - Pragmatics
3. Interactivity
4. Multimodality
5. Humor generation as a form of creative design



# Possible Application

Idiosyncratic misunderstander

- Dialogue system
- Word spotter
- Auto-completion



*The secret to creativity is knowing how to hide your sources. – Albert Einstein*

