TheRiddlerBot
A next step on the ladder towards computational creativity

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Different Twitter users

• People

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Different Twitter users

- Organizations
Different Twitter users

• Bots

TheRiddlerBot
@TheRiddlerBot

Guess the person/character described in the riddle! Created by @verhoevenben, @1vangro, @fvancesco, @pedrojmmartins at #codecampcc
We present

TheRiddlerBot

• Interactive Twitter bot
• Creates riddles
• Strives to be considered creative
Riddles

• Text fragments that employ ordinary language restricted by semiotic, aesthetic and grammatical constraints
  (Pepicello & Green, 1984)

• Language game, initiated by a question, with the goal to mislead the guesser
  (Weiner & De Palma, 1993)

• What has no beginning, end or middle?
Creativity

• To be creative usually relates to the generation of something novel and interesting, not only to oneself, but also to partners sharing a common background (Mayer 1999)
Twitter bots

• Automatic Twitter users

Different types of bots (Cook 2015)
• feeder bots, which create tons of Tweets for their followers (mere generation);
• watcher bots: constantly looking for specific texts to extract information;
• interactive bots: which ask followers for specific ways of communication and information sharing
Feeder bots
Feeder bots

SF QuakeBot
@earthquakesSF

I am a robot that live-tweets earthquakes in the San Francisco Bay area. Built by @billsnitzer. Data is from the USGS. Get prepared: amzn.to/PayjDo

San Francisco, CA
eqbot.com
Joined May 2009

Tweets
FOLLOWING
FOLLOWERS
6,998
6
107K

Tweets
Tweets & replies

A 2.0 magnitude earthquake occurred 7.46mi ENE of Yountville, California. Details: eqbot.com/VSS Map: eqbot.com/VSQ

A 1.3 magnitude earthquake occurred 3.73mi SSW of Calistoga, California. Details: eqbot.com/VSU Map: eqbot.com/VS5
Watcher bots

With algorithms subtle and discrete / I seek iambic writings to retweet.

Stratford-upon-Internet

pentametron.com

Joined March 2012

Pentametron retweeted
ideaSN @lakkulord · 48m
jet fuel something something something beams

Pentametron retweeted
Sara @swwyzeesara · 2h
My night consisted of the weirdest dreams 😞

Pentametron retweeted
Hannah @hannah_cerie · 12h
Extremely happy at the moment tho 😊
Watcher bots

Hug Bot
@HugsToTheRescue
Everyone needs a hug now and then. A bot by @sachawheeler

Tweet to Hug Bot

Tweets

58.5K
1,060
1,511
5,661

Tweets
Tweets & replies
Photos & videos

Hug Bot retweeted
24 @Jayy_Von24 · 11m
Give yo grandmother a hug today

Hug Bot @HugsToTheRescue · 11m
{{hugs}} RT @ChadCross23 What up love I need a hug cause drugs been taking ocer

Hug Bot @HugsToTheRescue · 11m
{{hugs}} RT @spiderman1 I need a hug.
Interactive bots

how 2 sext
@wikisext

sexting bot. learned everything it knows from wikihow. tweets hourly. // idea:
@rumpnogg, implementation:
@thricedotted

sex place

Tweet to how 2 sext

TWEETS FOLLOWING FOLLOWERS
12.7K 7568 6880

how 2 sext @wikisext

sext: you wipe both marks away with my lint free cloth or micro fiber
while i follow my package instructions

x0.

1acson @Doug_AG keep going. i lift weights for at least 30 minutes
3 days my week and perform 1 repetition every 2 seconds

x0.

how 2 sext @wikisext

sext: you give it your rinse while i choose my kiwano that is fully
ripened

x0.
More on bots?

• A brief history of the future on Twitter bots
  Michael Cook (2015) - @mtrc

• http://www.gamesbyangelina.org/talks/codecamp.pdf

• Also check: #botally on Twitter
Computational Creativity

• First generation Twitter bots: Tweet-generating systems that autonomously perform useful and well-defined services (Veale 2014)

• Second generation bots: supposed to be creative on purpose instead of hit-and-miss. High curation coefficient: evaluate outputs before posting. (Veale 2015)
Our system: TheRiddlerBot

Specific task:
• Create a riddle about a famous person/character
• Use both structured and poorly-structured real-world resources
• Evaluate its own output where possible
• Interact with Twitter users
Our model

- Five modules that each have the same three layers in it
Character selection

• Non-Official Character (NOC) list (Veale, 2015)
  > 800 characters
  > 20 attributes, e.g. gender, profession, adjectives, …

• Select one, possibly taking public relevance into account (~Google News)

• Expand from Wikipedia: persons that have a page in at least 50 languages
Feature extraction

Information Retrieval
- Gathers attributes from NOC list
- Combine with information (hypernyms) from common sense knowledge bases, e.g. Perception in NodeBox, ConceptNet
- Also poorly-structured sources, e.g. Wikipedia

Processing
- Select three attributes

Evaluation
- Evaluate attributes on uniqueness and interestingness
  - Subset of features is unique when refers to 1 person
Perception (NodeBox)

www.nodebox.net/perception
Analogy generation

• Comparisons with different characters
  – Fictional world
    • E.g. Doc Emmett Brown is like Walter White but in Back to the Future
  – Group affiliation
    • E.g. Lisa Simpson is the Timothy McGee of The Simpsons Family
Natural language generation

• Retrieval of different types of phrasal templates for parts of the riddle
  – Initial phrase
  – Clues
  – Final question

• Phrasal template: previously-known sentence with slots to be further filled by specific words

• Different templates exist for each type to have a wider variety of generations.
Example phrasal templates

| Profession attribute | -be/VB `<value>`  
|                      | -be/VB `<value>`, `<pos_adj>`  
|                      | yet `<neg_adj>` |
| Opponent attribute   | -do/VB not like `<value>`  
|                      | -be/VB definitely not a close friend of `<value>` |
User interaction

• Twitter users can guess the answer to the riddle
• The bot will check if the answer is correct with the official name and all Wikipedia aliases
• The bot replies: correct or false, also with different templates.
Sample riddles generated

• Who is a basketball player, fast yet smug, lives in USA, wears clown shoes?
• Who is a sultry actress, loves starring in Hollywood movies, likes wearing a tight dress?
• Who can be found in Germany, wears an SS uniform, is the Colonel Kurtz of The Nazi Party?
Evaluation

• Metadata of the bot (number of retweets, favorites, answers, …) could be used for evaluation?

• Some statistics:
  – 57 followers
  – 285 riddles generated
  – 10 different users with 34 correct answers
Evaluation

• Crowd-sourced quality-control
• 86 people evaluated 5 riddles each
Evaluation

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Best riddles generated

• Who is a creative professional, pretty yet superficial, can be found in USA, enjoys monetizing celebrity status?
• Who is a religious leader, loves spreading Christianity, likes wearing sandals?
• Who is a creator, can be found in Italy, wears a paint-stained smock?
To conclude

- We built an interactive Twitter bot that generates riddles and posts responses to guesses.
- The novelty and creativity is in
  - The combination of well-structured and poorly-structured information sources.
  - The creation of analogies
- The fun is in the gamification.
- Entire code available online: https://github.com/ivangro/theriddlerbot
Let’s play!

TheRiddlerBot @TheRiddlerBot · 3h
I am known as a creative professional, live in UK, like creating dictionaries. Who am I?

9:17 AM - 9 Jun 2015 · Details

Reply to @TheRiddlerBot

Ben Verhoeven @verhoevenben · 19m
@TheRiddlerBot Samuel Johnson

TheRiddlerBot @TheRiddlerBot · 19m
@verhoevenben You did it! The answer was indeed Samuel Johnson.