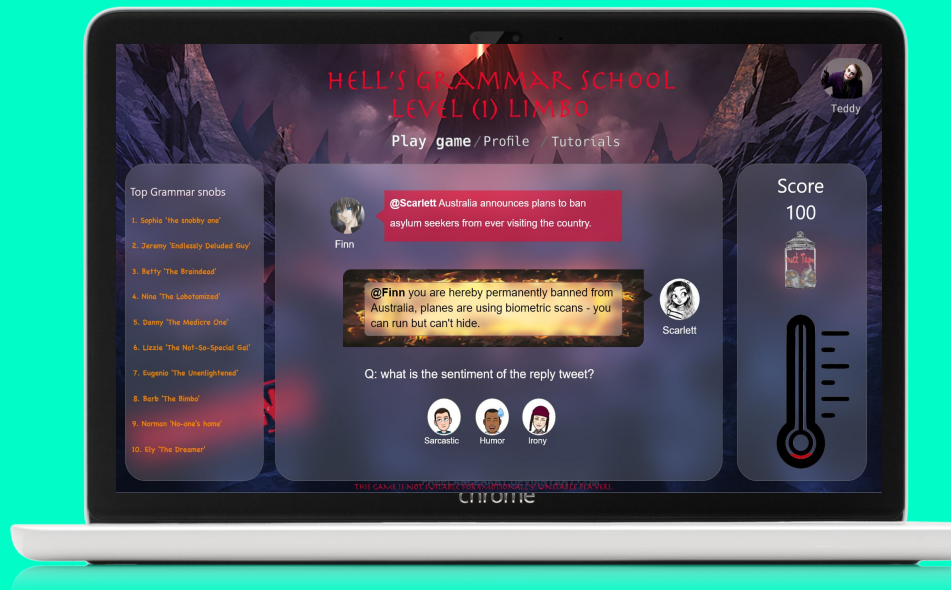


# HELL'S GRAMMAR SCHOOL



GROUP #1 - COMP47580 RECOMMENDER SYSTEMS & COLLECTIVE INTELLIGENCE

# OUTLINE



**I.T. guy +  
V.P. of  
Getting-Stuff-  
Done**



**Creative Director +  
Head of Coffee Affairs**



**Lead Dreamer + Head of  
Finding-Quiet-Corners-on-Campus**

1. Introduction to our GWAP
2. Sentiment Analysis
3. Challenges for sarcasm, irony and humour
4. Our proposed solution
5. Demo - sample gameplay
6. GWAP Mechanics
7. Evaluation techniques

# INTRODUCING HELL'S GRAMMAR SCHOOL



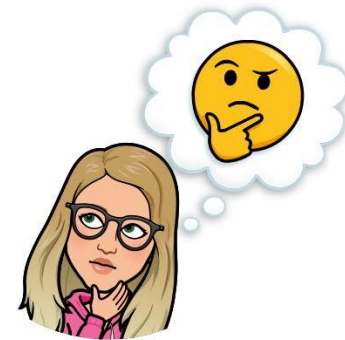
- Using crowdsourcing to hand-annotate the tone of tweets
  - Interested in accuracy of transmission between author and subject
  - Creation of a novel dataset for machine learning to help automatically detect sarcasm, irony and humour
-

# SENTIMENT ANALYSIS

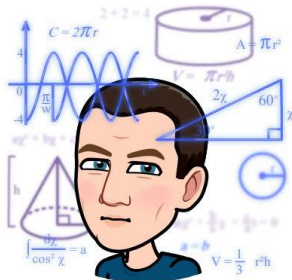
- Automatic detection of sentiment
- Web 2.0 – overflowing with data
- Tone-checkers could become as common as spelling and grammar checking tools
- Applications in reputation analysis, customer service management, consumer satisfaction of products/services



# SARCASM, IRONY, AND HUMOUR - HOW HARD CAN IT BE?



- Hard for humans, nevermind machines!
- Sarcasm - **polarity reversal** in certain conditions
- Irony - **conflated with sarcasm, usually negative, highly correlated with slang, incongruity, allusions to T.V. shows**
- Humour - **highly subjective**



# HOW TO PLAY THIS GAME LIKE A BOSS



HELL'S GRAMMAR SCHOOL  
LEVEL (7) VIOLENCE

Play game / Profile / Tutorials

**CONTEXT TWEET**

Top Grammar snobs

1. Sophia 'the snobby one'
2. Jeremy 'Endlessly Deluded Guy'
3. Betty 'The Braindead'
4. Nina 'The Lobotomized'
5. Danny 'The Medicare One'
6. Lizzie 'The Not-So-Special Gal'
7. Eugenia 'The Unenlightened'
8. Barb 'The Slimbo'
9. Norman 'No-one's home'
10. Ely 'The Dreamer'

**REPLY TWEET**

40

rusty Tapes

Q: what is the sentiment of the reply tweet?

Sarcastic Humor Irony

**SENTIMENT SELECTION**

How ya feelin'?



# HELL'S GRAMMAR SCHOOL LEVEL (9) TREACHERY

Play game / Profile / Tutorials

Tedd

## Top 10 grammar snobs

1. Snob: "The snobs are!"
2. Snob: "The snobs are!"
3. Snob: "The snobs are!"
4. Snob: "The snobs are!"
5. Snob: "The snobs are!"
6. Snob: "The snobs are!"
7. Snob: "The snobs are!"
8. Snob: "The snobs are!"
9. Snob: "The snobs are!"
10. Snob: "The snobs are!"

@Hudson Dr. in jerry you are getting big.

SRSLY?!

...too before it's to late.

@Garmen Mar. know!

Q. What is the s... wce?

Score  
20



How in your tiny  
mind is that  
humorous !!?  
Wake up, you  
donut!



# GAME MECHANICS

PERSONALIZATION



HUMOUR

PERFORMANCE  
FEEDBACK

COMPETITIVE  
INCENTIVE

HELL'S GRAMMAR SCHOOL  
LEVEL (9) TREACHERY

Play game / Profile / Tutorials

Teddy

Top Grammar snobs

1. Philip 'the snobby one'
2. Jeremy 'Endlessly Deluded Guy'
3. Betty 'The Braindead'
4. Nina 'The Lobotomized'
5. Danny 'The Medocre One'
6. Lizzie 'The Not-So-Special Gal'
7. Eugenio 'The Unenlightened'
8. Barb 'The Bimbo'
9. Norman 'No-one's home'
10. Ely 'The Dreamer'

Carmen

@Hudson Damn jerry you are getting big, time to lose it bro before it's to late.

@Carmen Man, I'm glad this guy told me. I didn't know!

Hudson

Score 20

Rock Tape

Q: what is the sentiment of the reply tweet?

Sarcastic Humor Irony

THIS GAME IS NOT SUITABLE FOR ADDITIONAL CHILDREN PLAYERS.

PROGRESSION  
TO GOAL



# EVALUATION

## Evaluation of Data Quality

- How reliable is the label?
- General agreement among voters on the label of a tweet, or general disagreement.
- Avoid tweets without a general consensus.
- Calculate level of agreement with Fleiss Kappa coefficient

POPULATION  
DISAGREEMENT  
 $K = 0$



POPULATION  
AGREEMENT  
 $K = 1$



## Evaluation of GWAP

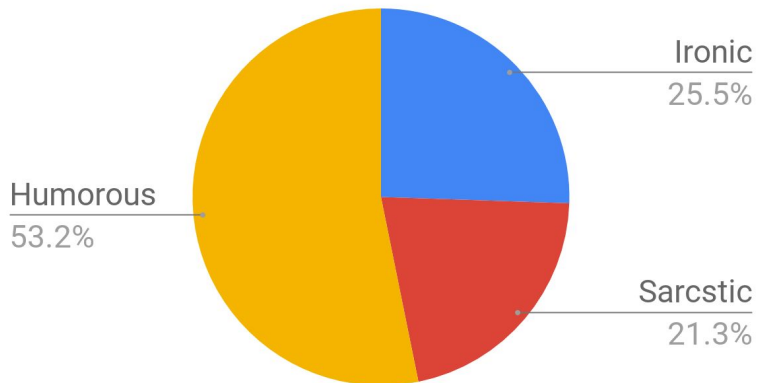
Benchmark with other GWAP's using following comparison metrics:

- Throughput
- Average Lifetime Play
- Expected contribution

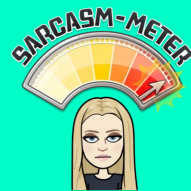
# USEFUL CORPUS



Perception of Tweet



# SENTIMENT ANALYSIS



## ACCURACY OF TRANSMISSION CORRELATION MATRIX

		PERCEIVED		
INTENDED		Irony	Sarcasm	Humor
	Irony	.34	.58	.12
	Sarcasm	.56	.78	.37
	Humor	.23	.56	.94

QUESTIONS?

THANKS!



# OUR PROPOSED ARCHITECTURE

let's  
**DISCUSS**

