Humour, Irony and Sarcasm: Often Lost in Translation

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Joint work with (former) PhD and MSc students:
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JokeR Lab @ CLEF 2022

Outline

- **Humour vs irony**

- Irony vs sarcasm

- Hurtfulness of sarcasm, irony, and humour

- Cross-language irony detection

- Cross-language humour recognition

Humour vs irony: some patterns

Ambiguity:

- Change is inevitable, except from a vending machine

Unexpectedness:

- I'm on a thirty day diet. So far, I have lost 15 days

Syntactic ambiguity:

- Children in the back of the car cause accidents, but accidents in the back of the car cause children

Opposition:

- Love is blind, but marriage is a real eye-opener [irony]

Incongruity:

- Sometimes I need what only you can provide: your absence [irony]

Mihalcea R. Strapparava C., **Computational laughing: Automatic recognition of humorous one-liners**. Proc. 27th Ann. Conf. Cognitive Science Soc (CogSci 2005), 2005.

Humour vs irony: any pattern?

- Jesus saves, and at today's prices that's a miracle!
- Drugs may lead nowhere, but at least it's a scenic route

- Become a computer programmer and never see the word again

- My soft never has bugs, it just develops random features

- Sex is one of the nine reasons of reincarnation, the other eight are unimportant
- Don't worry about what people think. They don't do it very often

- I have a body of a god...unfortunately is Buddha

Gibbs R.W., Bryant G.A., Colston H.L. **Where is Humor in Verbal Irony?** Humor 27(4):575-595, 2014
Reyes A., Rosso P., Buscaldi D. **From Humor Recognition to Irony Detection: The Figurative Language of Social Media**. Data & Knowledge Engineering 74:1-12, 2012

Humour vs irony: any pattern?

- Jesus saves, and at today's prices that's a miracle! [ambiguity]
- Drugs may lead nowhere, but at least it's a scenic route [human weakness]
- Become a computer programmer and never see the word again [topic / community]
- My soft never has bugs, it just develops random features [topic / community]
- Sex is one of the nine reasons of reincarnation, the other eight are unimportant [language]
- Don't worry about what people think. They don't do it very often. [irony]
- I have a body of a god...unfortunately is Buddha [irony]

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Irony vs not irony (humour?)

1. Is good to hear other people's problem .. Because you will realise that your problems are small compare to them

2. When did I realize I was God? Well, I was praying and I suddenly realized I was talking to myself.

3. Lawyer: Do you drink when you're on duty?; Witness: I don't drink when I'm on duty, unless I come on duty drunk.

4. @pwr: Want to make your computer go really fast?? - Throw it out a window!:)

5. @delprado: Without losers, where would the winners be?

6. They keep talking about diversity and every single one of the 500 people here is white....

7. The girl with the alternative hair & alternative boyfriend & a rucksack with 'FUCK THE SYSTEM' tippexed on is drinking a Starbucks.

8. Vegetarian roommates talking about pulling the plug if they're in a coma because they don want to be vegetables.

9. Want to say thank you to my husband for giving me this annoying head cold. I love you.

10. @sugayiffer Buy more RAM, girl :P

11. I love coming home from a long vacation to dog shit all over my room..

12. Get the feeling of getting ignored just great
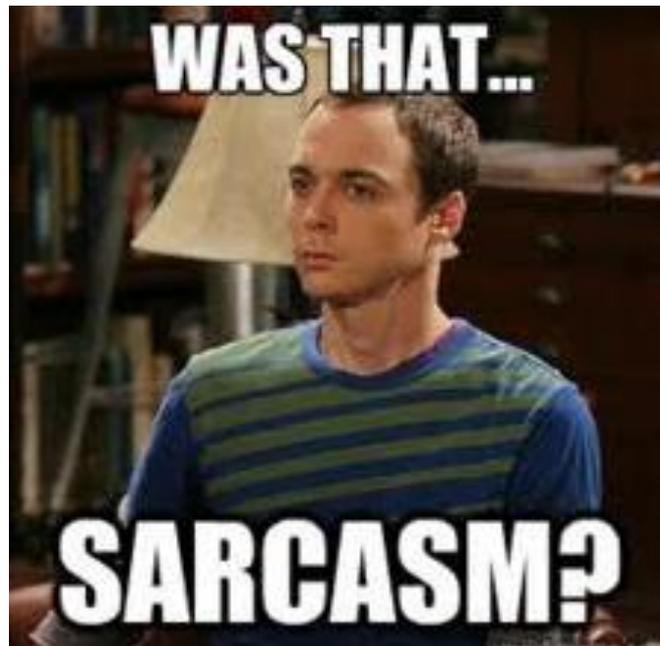
Irony vs not irony (humour?)

1. **Is good to hear other people's problem .. Because you will realise that your problems are small compare to them**
2. **When did I realize I was God? W** ~~suddenly realized I was talking to myself.~~
3. **Lawyer: Do you drink when you're o** ss: I don't drink when I'm on duty, unless I come on duty drunk.**
4. **@pwr: Want to make your comp** ~~really~~ hrow it out a window!:)**
5. **@delprado: Without losers, where** uld the wir ers be?**
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- **Irony vs sarcasm**

- Hurtfulness of sarcasm, irony, and humour

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- Cross-language humour recognition

Irony vs sarcasm

- My mother never saw the irony in calling me son of a bitch

- If you find hard to laugh at yourself, I would be happy to do it for you

Irony vs sarcasm

1. Is good to hear other people's problem .. Because you will realise that your problems are small compare to them

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Irony vs **sarcasm**

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10. **@sugayiffer Buy more RAM, girl :P [Hate Speech: misogyny]**

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Irony vs sarcasm

- Irony : more subtle, may be positive (i.e. non-critical) while sarcasm is usually not

- Sarcasm: more aggressive and offensive than irony

- Tweets with more aggressive intention should be sugar coated with more positive words

Giora R. and Attardo S. **Irony. Encyclopedia of Humor Studies**, SAGE, pp. 397–401, 2014.

Wang A. P. **#irony or #sarcasm — A Quantitative and Qualitative Study Based on Twitter**. In Proceedings of the 27th Pacific Asia Conference on Language, Information, and Computation, pages 349–356. National Chengchi University, 2013.

The EmotIDM model

EmotIDM: IDM + affective information (78 features)

- **Structural** features:
  - Punctuation marks, POS tags, Twitter marks, emoticons, lenghtWords, lenghtChars, semantic similarity, …
- **Affective** features:
  1. **Sentiment** features:
     - Lexicons: AFINN, Hu& Liu, SentiWordNet, EffectWordNet, Subjectivity Lexicon, SenticNet, Emolex (polarity)
  2. Finer grained **affective** features (**categorical** model):
     - Lexical resources: Emolex (eight Plutchik's primary emotions), EmoSenticNet (six Ekman's emotions), SentiSense, LIWC
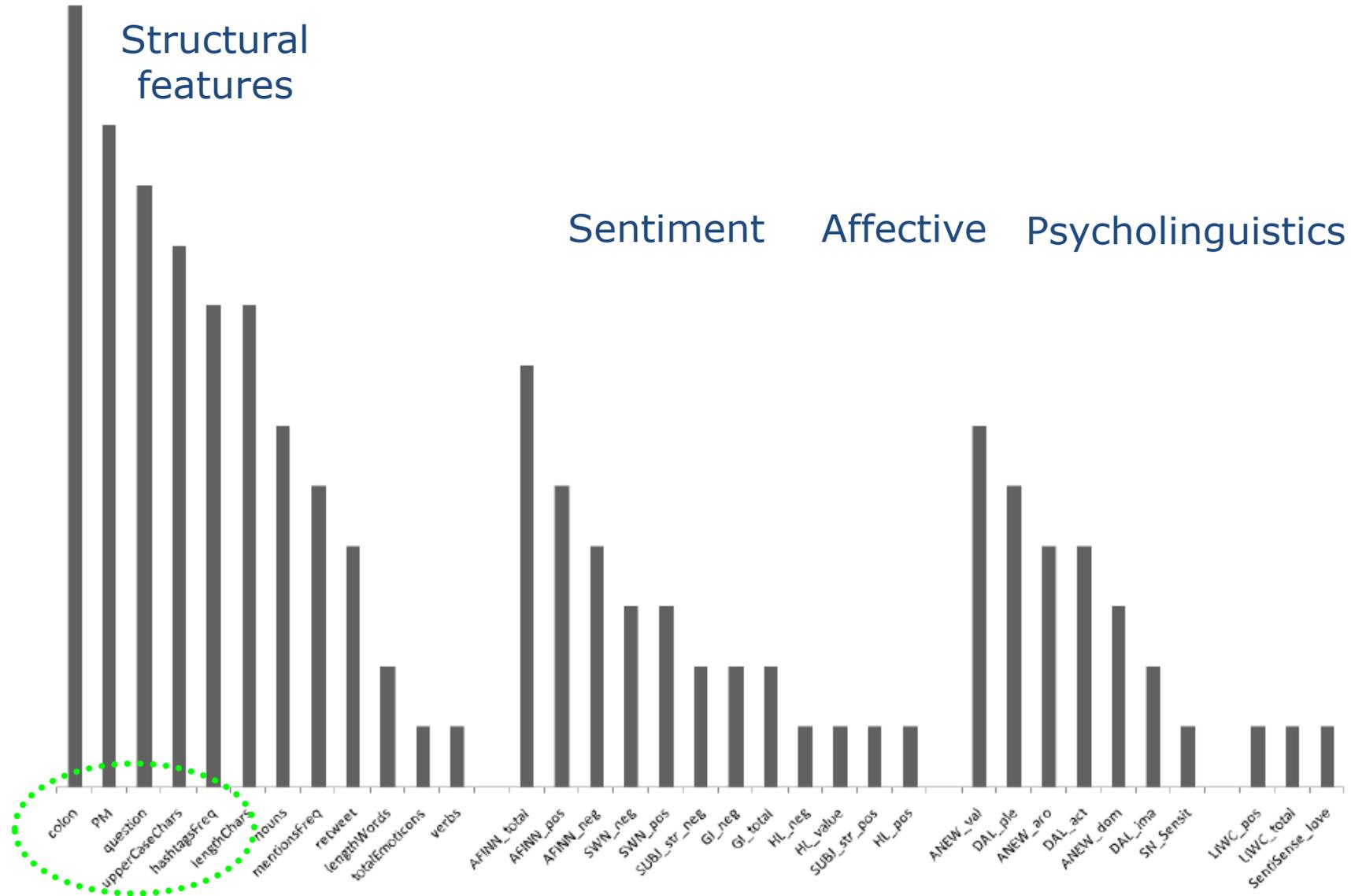 3. Finer grained affective features (**dimensional** models):
     - Lexical resources: DAL (Whissel dictionary), ANEW, SenticNet
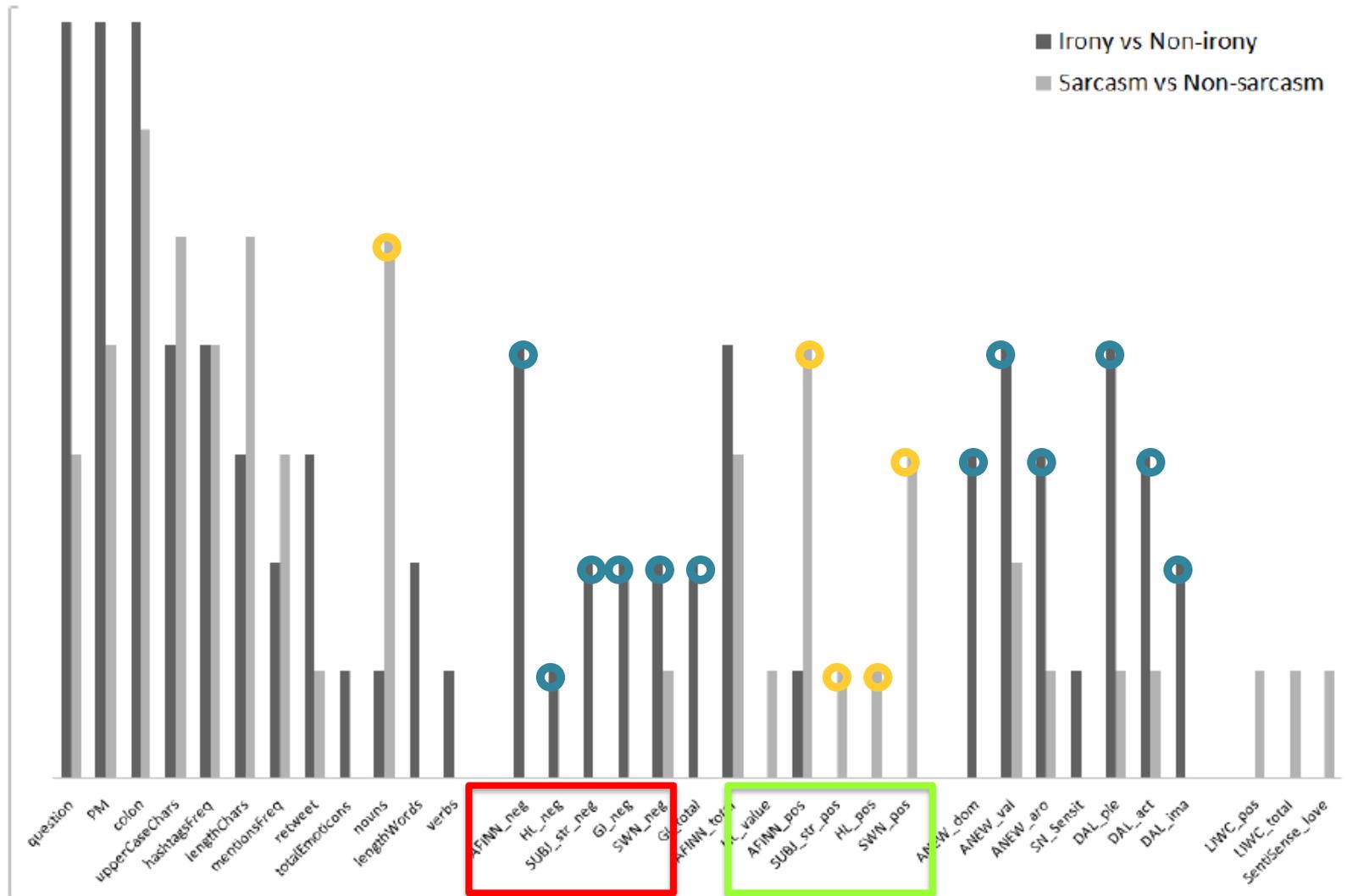
EmotIDM vs. state of the art

| Corpus | State-of-the-art | | | Our Results | |
	Reference	Classifier	F-measure	IDM	emotIDM
TwReyes2013					
Irony-vs-Education	[Reyes et al. 2013]	DT	0.70	0.83	**0.90**
	[Barbieri et al. 2014]		0.73		
	[Hernández Farías et al. 2015]		0.78		
Irony-vs-Humor	[Reyes et al. 2013]	DT	0.76	0.81	**0.90**
	[Barbieri et al. 2014]		0.75		
	[Hernández Farías et al. 2015]		0.79		
Irony-vs-Politics	[Reyes et al. 2013]	DT	0.73	0.84	**0.92**
	[Barbieri et al. 2014]		0.75		
	[Hernández Farías et al. 2015]		0.79		
TwSarcasmBarbieri2014					
Sarcasm-vs-Education	[Barbieri et al. 2014]	DT	0.88	0.84	**0.90**
Sarcasm-vs-Humor	[Barbieri et al. 2014]	DT	0.88	0.83	**0.92**
Sarcasm-vs-Politics	[Barbieri et al. 2014]	DT	0.90	0.86	**0.94**
Sarcasm-vs-Newspaper	[Barbieri et al. 2014]	DT	0.97	0.88	0.96
TwRiloff2013					
	[Riloff et al. 2013]	SVM	0.51	0.71	**0.73**
	[Joshi et al. 2015]		0.61		
TwPtácek2014[a]					
	[Ptáček et al. 2014]	SVM	0.90	0.75	0.82

[a]We have selected the imbalanced distribution for evaluation.

Hernández-Farías I., Patti, V., Rosso P. **Irony Detection in Twitter: The Role of Affective Content**. ACM Transactions on Internet Technology 16(3):1-24, 2016

Irony: Info gain and ranking

Structural features

Sentiment   Affective   Psycholinguistics

Sarcasm: Info gain and ranking

Irony vs **sarcasm**

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9. **Want to say thank you to my husband for giving me this annoying head cold. I love you.**

10. **@sugayiffer Buy more RAM, girl :P [Hate Speech: misogyny]**

11. I love coming home from a long vacation to dog shit all over my room..

12. Get the feeling of getting ignored just great

Irony vs **sarcasm** **#not**

1. Is good to hear other people's problem .. Because you will realise that your problems are small compare to them

2. When did I realize I was God? Well, I was praying and I suddenly realized I was talking to myself.

3. Lawyer: Do you drink when you're on duty?; Witness: I don't drink when I'm on duty, unless I come on duty drunk.

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9. **Want to say thank you to my husband for giving me this annoying head cold. I love you.**

10. **@sugayiffer Buy more RAM, girl :P** **[Hate Speech: misogyny]**

11. **I love coming home from a long vacation to dog shit all over my room..**

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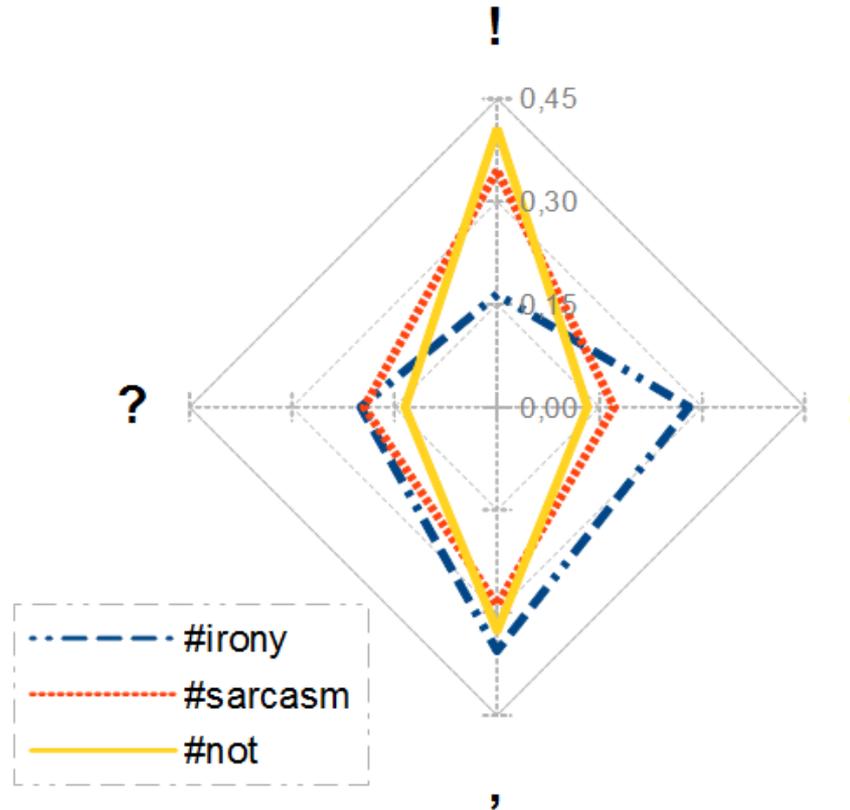
Irony vs sarcasm vs #not

- We used the same EmotIDM model
  - Structural + affective features

- Three different binary classification experiments:
  - #irony-vs-#sarcasm (Iro – Sar)
  - #irony-vs-#not (Iro – Not)
  - #sarcasm-vs-#not (Sar – Not)

- Classifiers: Naive Bayes, Decision Tree, Support Vector Machine, Logistic Regression, Random Forest

- All experiments were conducted in a 10-fold cross-validation setting

#irony #sarcasm #not

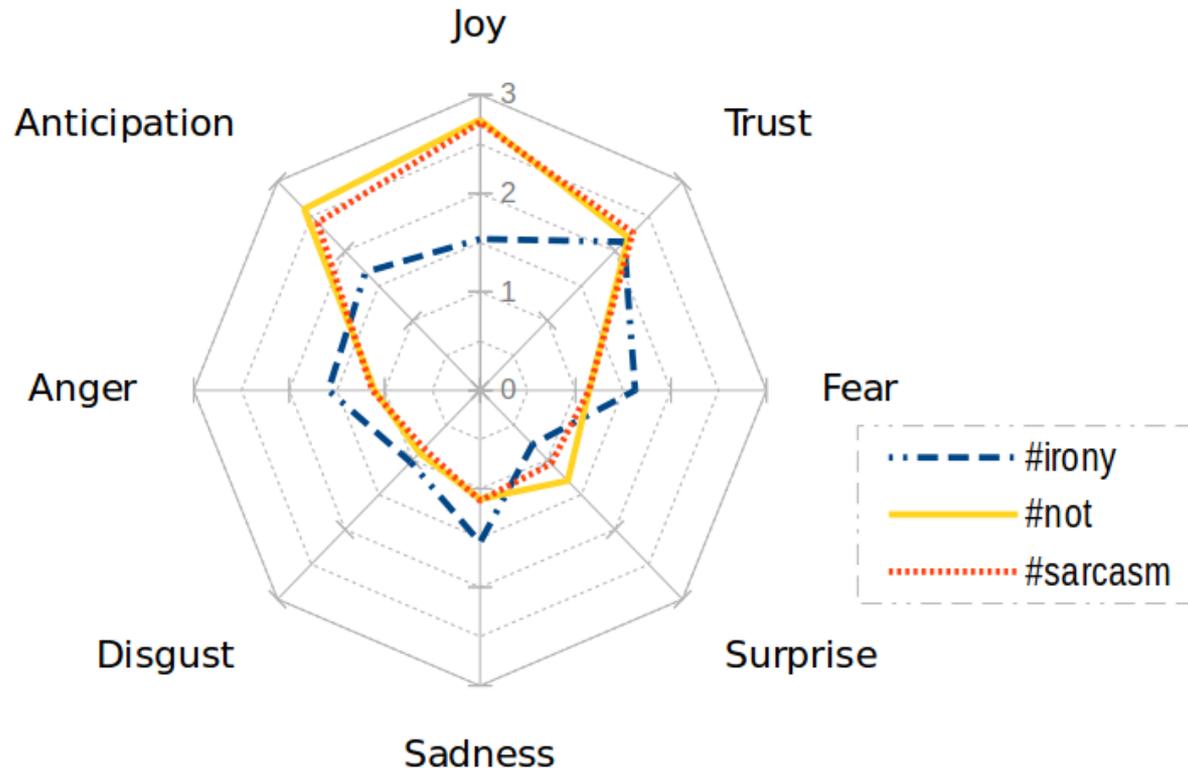| F-1	Iro - Sar	Iro - Not	Sar - Not
Naïve Bayes	65.4	67.5	57.7
Decision Tree J48	63.4	69.0	62.0
Random Forest	**69.8**	**75.2**	**68.4**
SVM	68.6	74.5	66.9
LogReg	68.7	72.4	64.6

The underlined values are not statistically significant (t-test with 95% of confidence value)

Puntuation marks and length

- **!** more frequent for **#sarcasm** and **:** for **#irony**
- Length: #sarcasm tweets are shorter (sarcasm expresses in just few words its negative content)

Distribution of emotions

- **#sarcasm** : words more related to **positive emotions** (e.g. Plutchik: joy, anticipation); also in #not

- **#irony** : more **creative and subtle**; it conveys **implicit** emotions (Imagery dimension of Whissel dictionary) whereas #sarcasm more explicit (Dominance dimension of ANEW)

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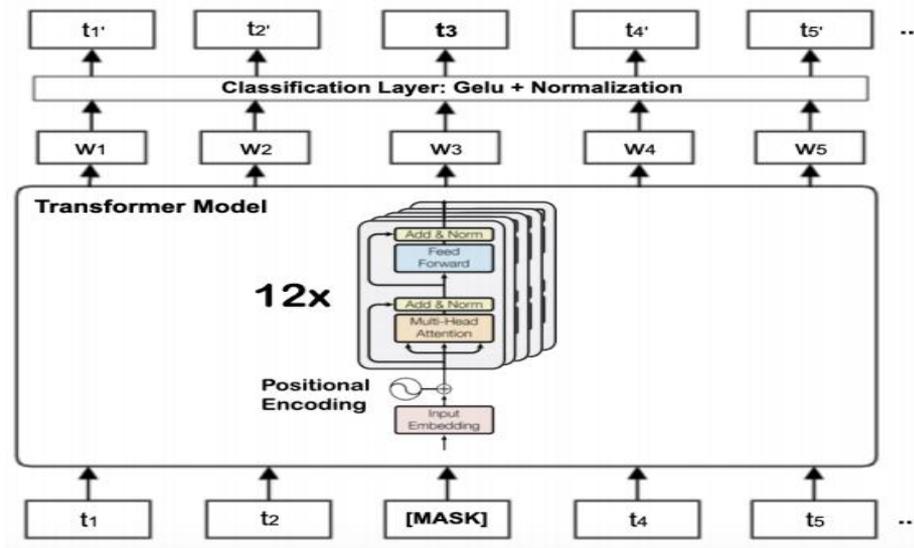
- Cross-language humour recognition

Hurtfulness of sarcasm

Stiamo consegnando l'Italia ai stranieri..... GrazieStato
We're handing Italy over to foreigners..... ThanksState

Dai ragazzi, e Natale! Portiamo un po' di calore al campo nomadi. Io penso alla benzina, voi portate i fiammiferi?
Come on guys, it's Christmas! Let's bring some warmth to the nomad's camp. I'll take care of the gasoline, will you bring the matches?

Frenda S., Cignarella A., Basile V., Bosco C., Patti V., Rosso P. (2022) **The Unbearable Hurtfulness of Sarcasm**. In: Expert Systems with Applications (ESWA), vol. 193

Hurtfulness of sarcasm

Stylistic features

    punctuation

    negation

Syntactic features

    adverbial locutions

    intensifiers

    discourse connections

    mentions

    nominal phrases

Semantic features

    Incongruities and Similarities
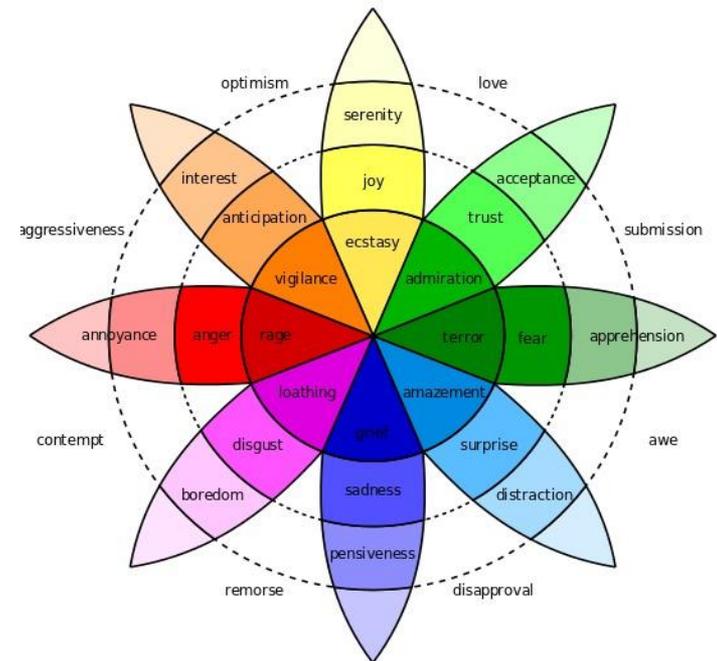
    Affective and Hurtful Language

    Sentix: sentiment and its variation

    HurtLex: categories of hurtful words

    EmoLex: emotions, feelings and their variation

Frenda S., Cignarella A., Basile V., Bosco C., Patti V., Rosso P. (2022) **The Unbearable Hurtfulness of Sarcasm**. In: Expert Systems with Applications (ESWA), vol. 193

Hurtfulness of sarcasm

Category	Description
PS	Ethnic Slurs
RCI	Location and Demonyms
PA	Profession and Occupation
DDP	Physical Disabilities and Diversity
DDF	Cognitive Disabilities and Diversity
DMC	Moral Behavior and Defect
IS	Words Related to Social and Economic advantages
OR	Words Related to Plants
AN	Words Related to Animals
ASM	Words Related to Male Genitalia
ASF	Words Related to Female Genitalia
PR	Words Related to Prostitution
OM	Words Related to Homosexuality
QAS	Descriptive Words with Potential Negative Connotations
CDS	Derogatory Words
RE	Felonies and Words Related to Crime and Immoral Behavior
SVP	Words Related to the Seven Deadly Sins of the Christian Tradition

Frenda S., Cignarella A., Basile V., Bosco C., Patti V., Rosso P. (2022) **The Unbearable Hurtfulness of Sarcasm**. In: Expert Systems with Applications (ESWA), vol. 193

Hurtfulness of irony

- Irony as umbrella term
- Author profiling perspective: Profiling **irony and stereotype** spreaders
- Usage of irony and stereotypes for (implicitly) conveying hurtfulness, although… not always
- **PAN** subtask on Profiling **stereotype stance** of ironic authors
-

How wonderful a **Jew** actually said something bad about Israel. I'm sooo impressed.

If Australia doesn't "DEPORT" 100K **Muslims** a year, what do you propose? Concentration camps?

Didn't you know if they rub against you that you can become **gay**?! Talk about sharing a foxhole!!!

Ortega-Bueno R., Chulvi B., Rangel F., Rosso P., Fersini E. (2022) **Profiling Irony and Stereotype Spreaders on Twitter (IROSTEREO)**. Overview for PAN at CLEF 2022. In: Faggioli, G., Ferro, N., Hanbury, A., Potthast, M. (eds.) CLEF 2022 Labs and Workshops, Notebook Papers, CEUR-WS.org, vol. 3180, pp. 2314-2343

Hurtfulness of humour

Disclaimer

I have collaborated with a few Russian colleagues and I have some Russian friends: the following examples of hurtful humour **of course** are not meant to hurt all Russians, (maybe) **just one** and his followers...

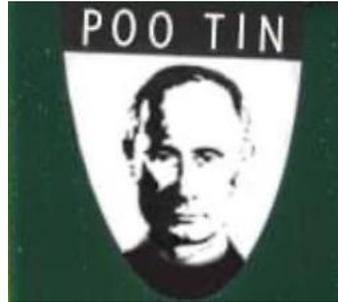vs   the witty weapon of **humour**!

Hurtfulness of humour

Hurtfulness of humour

Example of **wordplay** as **homophony**:
identical sound but different spelling

Delabastita D. (1996) **Introduction to the Special Issue on Wordplay and Translation**. The Translator: Studies in Intercultural Communication 2, pp. 1–22

Ermakova L., Regattin F., Miller T., Bosser A.G., Araújo S., Borg C., Le Corre G., Boccou J., Digue A., Damoy A., Campen P., Puchalski O. (2022) **Overview of the CLEF 2022 JOKER Task 1: Classify and Explain Instances of Wordplay.** In: Faggioli, G., Ferro, N., Hanbury, A., Potthast, M. (eds.) CLEF 2022 Labs and Workshops, Notebook Papers, CEUR-WS.org, vol. 3180, pp. 1641-1665

Hurtfulness of humour

Tweet

Diego de Torres
@bechoch

Fuerzas aerotransportadas rusas toman el aeropuerto militar de Hostomel, a 15 km de Kiev.
Si esto no es el inicio de la #TerceraGuerraMundial se le parece mucho…
#HijoPutin

Example of **wordplay** as **portmanteau** (word formed by merging the sounds and meaning of two different words) + **paronymy** in the case of the 2nd word (a slightly difference in both spelling and sound):

#HijoPutin = hijo (son) + puta (bitch)

Ermakova L., Miller T., Boccou J., Digue A., Damoy A., Campen P. (2022) **Overview of the CLEF 2022 JOKER Task 2: Translate Wordplay in Named Entities**. In: Faggioli, G., Ferro, N., Hanbury, A., Potthast, M. (eds.) CLEF 2022 Labs and Workshops, Notebook Papers, CEUR-WS.org, vol. 3180, pp. 1666-1680

Hurtfulness of humour

Examples of **wordplay** as **portmanteau** + **paronymy** (2nd word):
#FiglioDiPutin = figlio di (son of) + puttana (bitch)

Ermakova L., Miller T., Boccou J., Digue A., Damoy A., Campen P. (2022) **Overview of the CLEF 2022 JOKER Task 2: Translate Wordplay in Named Entities**. In: Faggioli, G., Ferro, N., Hanbury, A., Potthast, M. (eds.) CLEF 2022 Labs and Workshops, Notebook Papers, CEUR-WS.org, vol. 3180, pp. 1666-1680

(Hurtfulness of) humour often lost in translation

Ermakova L., Regattin F., Miller T., Bosser A.G., Borg C., Jeanjean B., Mathurin É., Le Corre G., Hannachi R., Araújo S., Boccou J., Digue A., Damoy A. (2022) **Overview of the CLEF 2022 JOKER Task 3: Pun Translation from English into French.** In: Faggioli, G., Ferro, N., Hanbury, A., Potthast, M. (eds.) CLEF 2022 Labs and Workshops, Notebook Papers, CEUR-WS.org, vol. 3180, pp. 1681-1700

Hurtfulness of humour
often lost in translation

Español ▼	⇄	Inglés ▼
HijoPutin	✕	SonPutin

Italiano ▼	⇄	Inglés ▼
FiglioDiPutin	✕	Son of Putin

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- **Cross-language irony detection**

- Cross-language humour recognition

An on-going work of **Reynier Ortega-Bueno**, PhD student at UPV

Datasets 🇬🇧

TwSemEval18 (irony)
> hashtag-based retrieval
> manually curated
> **2396** iro/**2396** non-iro (**4792**)

TwRiloff13 (sarcasm)
> hashtag-based retrieval
> manually curated
> **742** iro/**2558** non-iro (**3200**)

TwBarbieri14 (sarcasm)
> hashtag-based retrieval
> irony, sarcasm
> education, politics, news, humor
> self-tagging
> **20000** iro/**40000** non-iro (**60000**)

TwMohammad (irony)
> hashtag-based (political elections)
> crowdsourcing
> **532** iro/**1397** non-iro (**1929**)

TwPetácek14 (irony)
> hashtag-based retrieval
> self-tagging
> **19026** iro/**51860** non-iro (**70886**)

Datasets 🇪🇸

TwIroSvA19-mx (irony)
   topic-based retrieval
   manually curated
   1000 iro/**2000** non-iro (**3000**)

NewsIroSvA19-cu (irony)
   manual selection (controversial news)
   manual curated
   1000 iro/**2000** non-iro (**3000**)

TwIroSvA19-es (irony)
   topic-based retrieval
   manually curated
   1000 iro/**2000** non-iro (**3000**)

MixIroSvA19 Full (irony)
   topic-based retrieval
   manually curated
   3**000** iro/6**000** non-iro (**9000**)

Ortega-Bueno R., Rangel R., Hernández I., Rosso P., Montes-y-Gómez M., Medina, J.E. (2019) **Overview of the Task on Irony Detection in Spanish Variants**. In: Proc. of the Iberian Languages Evaluation Forum (IberLEF 2019), co-located with 34th Conference of the Spanish Society for Natural Language Processing (SEPLN 2019). Bilbao, Spain, 24 Sept., CEUR Workshop Proceedings. CEUR-WS.org, vol. 2421, pp. 229-256

Datasets 🇮🇹

TwIronItaTwittiro18 (irony)

topic-based retrieval
manually curated
1454 iro/**1432** non-iro (**2866**)

TwIronItaOther18 (irony)

topic-based retrieval
manually curated
1005 iro/**958** non-iro (**1963**)

TwIronItaFull18(irony)

topic-based retrieval
manually curated
3000 iro/**6000** non-iro (**4849**)

Cignarella A., Frenda S., Basile V., Bosco C., Patti V., Rosso P. (2018) **Overview of the EVALITA 2018 task on irony detection in Italian tweets (IronITA)**. In: Proc. of the Sixth Evaluation Campaign of Natural Language Processing and Speech Tools for Italian. Final Workshop (EVALITA 2018), co-located with the Fifth Italian Conference on Computational Linguistics (CLiC-it 2018), Turin, Italy, December 12-13, CEUR Proc., vol. 2263

Bias in datasets

Weirdness Index

$$WI^{(s,g)}(w) = \frac{w_s}{t_s} \bigg/ \frac{w_g}{t_g}$$

Polarized Weirdness Index

$$PWI^{(c,\overline{c})}(w) = \frac{w_c}{t_c} \bigg/ \frac{w_{\overline{c}}}{t_{\overline{c}}}$$

Background datasets

- BNC
- SBW
- ItWAC

$$PWI *^{(c,\overline{c},g)}(w) = \frac{w_s}{t_s} * \frac{|PWI^{(c,g)} - PWI^{(\overline{c},g)}|}{MaxDiff}$$

Our proposed measure for bias

Poletto, F., Basile, V., Sanguinetti, M., Bosco, C., & Patti, V. (2021). **Resources and Benchmark Corpora for Hate Speech Detection: A Systematic Review**. In Language Resources and Evaluation, vol. 55, pp. 477–523

Bias in 🇬🇧 datasets

Words	PWI*
love	0.270
great	0.154
day	0.149
#irony	0.144
#sarcasm	0.138
fun	0.106
people	0.100
work	0.096
today	0.084
#not	0.082
thanks	0.078
via	0.070
well	0.065
really	0.063
would	0.063
way	0.062
wait	0.061
start	0.059
morning	0.056
good	0.053

TwSemEval18

Words	PWI*
love	0.474
day	0.228
lol	0.174
great	0.160
school	0.148
class	0.138
fun	0.135
like	0.135
today	0.135
:)	0.127
going	0.120
sleep	0.118
work	0.116
really	0.106
get	0.105
time	0.100
start	0.095
wait	0.090
getting	0.089
back	0.089

TwRiloff13

Words	PWI*
#obama	0.210
like	0.185
romney	0.182
barack	0.160
#4moreyears	0.151
obama	0.149
#election2012	0.143
mitt	0.136
speech	0.121
today	0.118
#republicans	0.106
know	0.102
president	0.102
#president	0.091
#election	0.090
campaign	0.087
get	0.080
going	0.075
#romney	0.073
hope	0.072

TwMohammad15

Words	PWI*
love	0.195
via	0.176
:)	0.167
#acakfilm	0.152
poin	0.134
#peopleschoice	0.133
new	0.123
like	0.122
castle	0.108
get	0.108
great	0.103
benar	0.103
day	0.094
video	0.094
please	0.088
really	0.087
people	0.085
know	0.082
good	0.081
follow	0.077

TwPtácek14

Words	PWI*
politics	0.184
funny	0.175
:)	0.174
news	0.174
new	0.172
shorty	0.168
award	0.167
nominate	0.149
tcot	0.148
obama	0.146
love	0.144
like	0.133
people	0.115
day	0.113
humor	0.112
education	0.106
get	0.101
technology	0.100
via	0.098
gop	0.081

TwBarbieri14

Models

Monolingual Models

- TweetBERT 🇬🇧
- BETO 🇪🇸
- ALBERTo 🇮🇹

Multilingual Model

- mBERT

- **10-fold cross-validation**
- **Hyperparameters**
  optimizers (Adam, Rmsprop)
  learning rate: static vs dynamic increasing (Howard & Ruder, 2018)
  early stopping, patience 15
  batch 32
  epoch 50
  maxleng 50

Howard J., Ruder S. (2018) **Universal Language Model Fine-tuning for Text Classification**. Proc. of the 56th Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers), ACL, Melbourne, Australia, pp. 328–339

Monolingual evaluation: best fine-tuning

DATASET	Pr_i	Rc_i	$F1_i$	Pr_{ni}	Rc_{ni}	$F1_{ni,}$	$F1_{Macro}$
BERTweet							
TwPtcek14	0.877	0.83	0.856	0.938	0.955	0.946	0.895
TwBarbieri14	0.972	0.975	0.974	0.987	0.985	0.986	0.980
TwSemEval18	0.799	0.733	0.764	0.771	0.827	0.797	0.780
TwRiloff13	0.711	0.694	0.700	0.915	0.918	0.918	0.808
TwMohammad15	0.569	0.477	0.515	0.814	0.864	0.838	0.676
BETO							
MixIroSvA19Full	0.595	0.467	0.519	0.760	0.840	0.797	0.658
NewsIroSvA19cu	0.671	0.519	0.580	0.785	0.869	0.823	0.701
TwIroSvA19es	0.643	0.484	0.548	0.771	0.864	0.814	0.681
TwIroSvA19mx	0.518	0.388	0.437	0.726	0.811	0.765	0.601
ALBERTo							
TwIronItaFull18	0.770	0.795	0.781	0.784	0.755	0.768	0.774
TwIronItaOther18	0.750	0.824	0.783	0.798	0.706	0.745	0.764
TwIronItaTwittiro18	0.795	0.794	0.791	0.792	0.785	0.785	0.788

Cross-domain evaluation:datasets 🇬🇧

Train/Test	*TwSemEval18*	*TwRiloff13*	*TwMohammad15*	*TwBarbieri14*	*TwPtcek14*
	BERTweet				
TwSemEval18	×	0.655	0.561	0.712	0.791
TwRiloff13	0.613	×	0.472	0.561	0.688
TwMohammad15	0.451	0.499	×	0.490	0.527
TwBarbieri14	0.412	0.327	0.292	×	0.487
TwPtcek14	0.604	0.578	0.478	0.775	×

Cross-domain evaluation: datasets 🇪🇸🇮🇹

Train/Test	TwIroSvA19es	TwIroSvA19mx	NewsIroSvA19cu
BETO			
TwIroSvA19es	×	0.552	0.523
TwIroSvA19mx	0.553	×	0.582
NewsIroSvA19cu	0.527	0.578	×

Train/Test	TwIronItaTwittiro18	TwIronItaOther18
ALBERTo		
TwIronItaTwittiro18	×	0.604
TwIronItaOther18	0.686	×

Cross-language evaluation

Train/Test	*MixIroSvA19Full*	*TwSemEval18*	*TwIronItaFull18*
mBERT			
MixIroSvA19Full	×	0.461	0.557
TwSemEval18	0.486	×	0.498
TwIronItaFull18	0.498	0.516	×

Outline

- Humour vs irony

- Irony vs sarcasm

- Hurtfulness of sarcasm, irony, and humour

- Cross-language irony detection
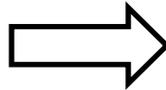
- **Cross-language humour recognition**

An on-going work of **Roberto Labadie-Tamayo**, MSc student at UPV

Tasks on humour

- **Assessing Humor in Edited News Headlines** @ Semeval-2020

- **Hahackathon**@Semeval-2021: Detecting and Rating Humor and Offense

- **Haha**@Iberlef-2021: Humor Analysis based on Human Annotation

- **JokeR**@CLEFF-2022: Automatic Pun and Humour Translation

Assessing humor in edited news headlines

AHR > 2.5
HR ∈ [0;5]

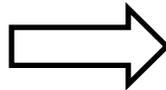President Trump 's first year <anniversary/> report card , with grades from A + to F

⟹

President Trump 's first year Kindergarden report card , with grades from A + to F

Chinese national arrested trying to photograph restricted US military

⟹

Chinese national arrested trying to photograph restricted US military supermodel

There 's a Strategic Reason for Trump 's <Tweets/>

⟹

There 's a Strategic Reason for Trump 's hair

Hahackathon
Detecting/rating humor and offense

My wife and I laugh at how competitive we are. But I laugh more.

Offensive

Why do Jews get circumcised?
Because Jewish women won't touch anything that's not at least 10% off.

Haha
Humor analysis based on human annotation

Soy virgen, lo juro por mis dos hijos!

I'm virgin, I swear it on my two sons!

Amor, ¿estoy gorda?
No, para nada mi buda... digo mi vida!

Honey, ¿am I fat?
No, not at all my Buddha... I mean, my love!

JokeR
Automatic pun and humour translation

Permutation

Dormitory = dirty room

Similiarity

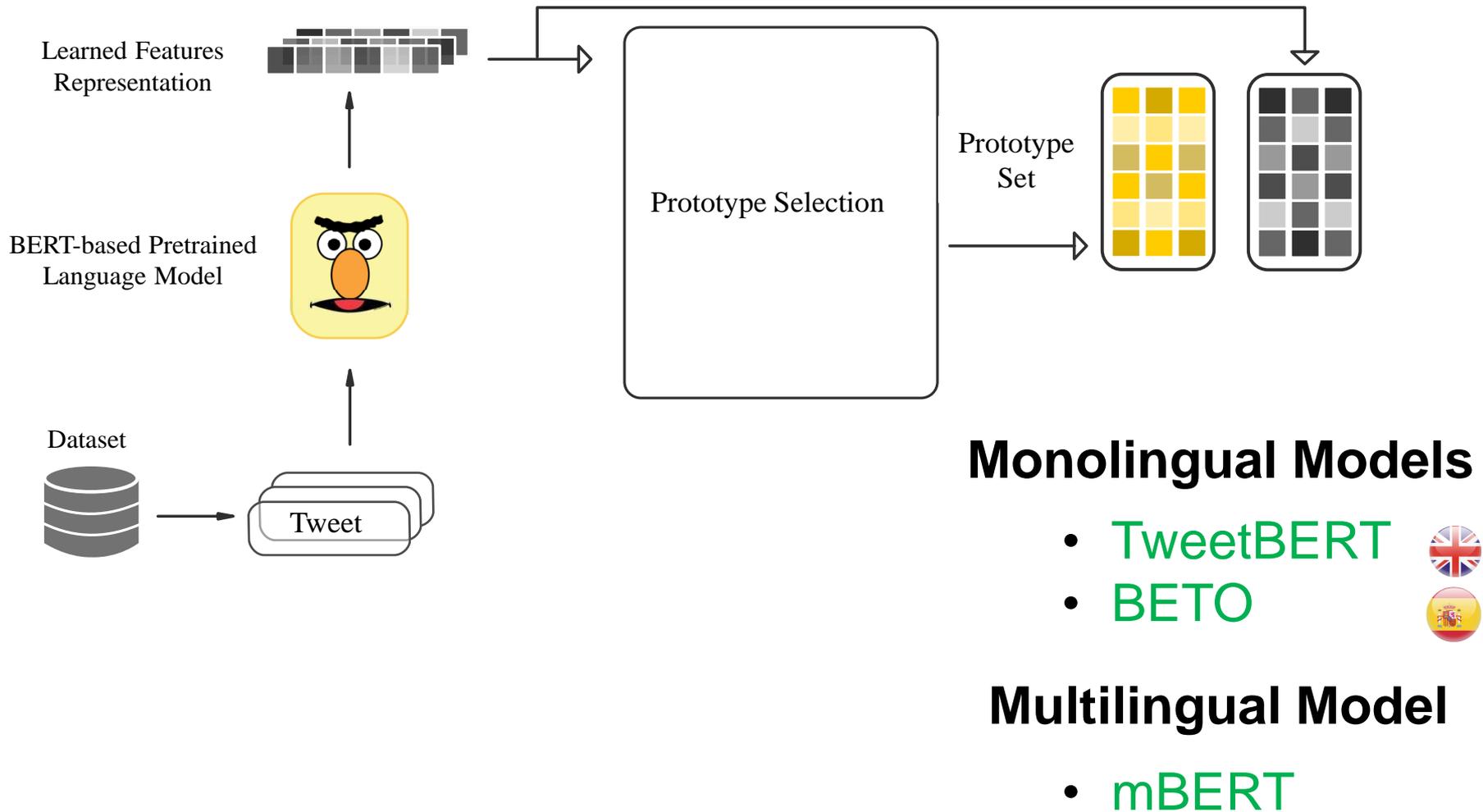They're called *lessons* because they *lessen* from day to day

Identity

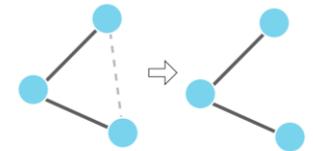How do you make a cat drink? Easy: put it in a liquidizer

Datasets

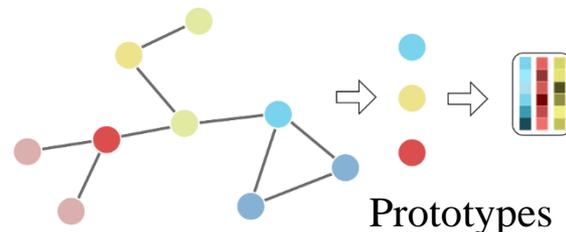| Dataset		Train (T)	Test (D)	Total
Hahackathon	Humor	3436	385	3821
	No-Humor	5564	615	6179
Jocker	Humor	531	4516	5047
	No-Humor	0	0	0
headlines	Humor	890	88	978
	No-Humor	890	88	978
Haha	Humor	11595	3000	14595
	No-Humor	18405	3000	21405
Overall	Humor	18580	8219	26799
	No-Humor	22731	3473	26024

Architecture Enc

Learned Features Representation

BERT-based Pretrained Language Model

Dataset

Tweet

Prototype Selection

Prototype Set

Monolingual Models

- TweetBERT
- BETO

Multilingual Model

- mBERT

Prototype selection

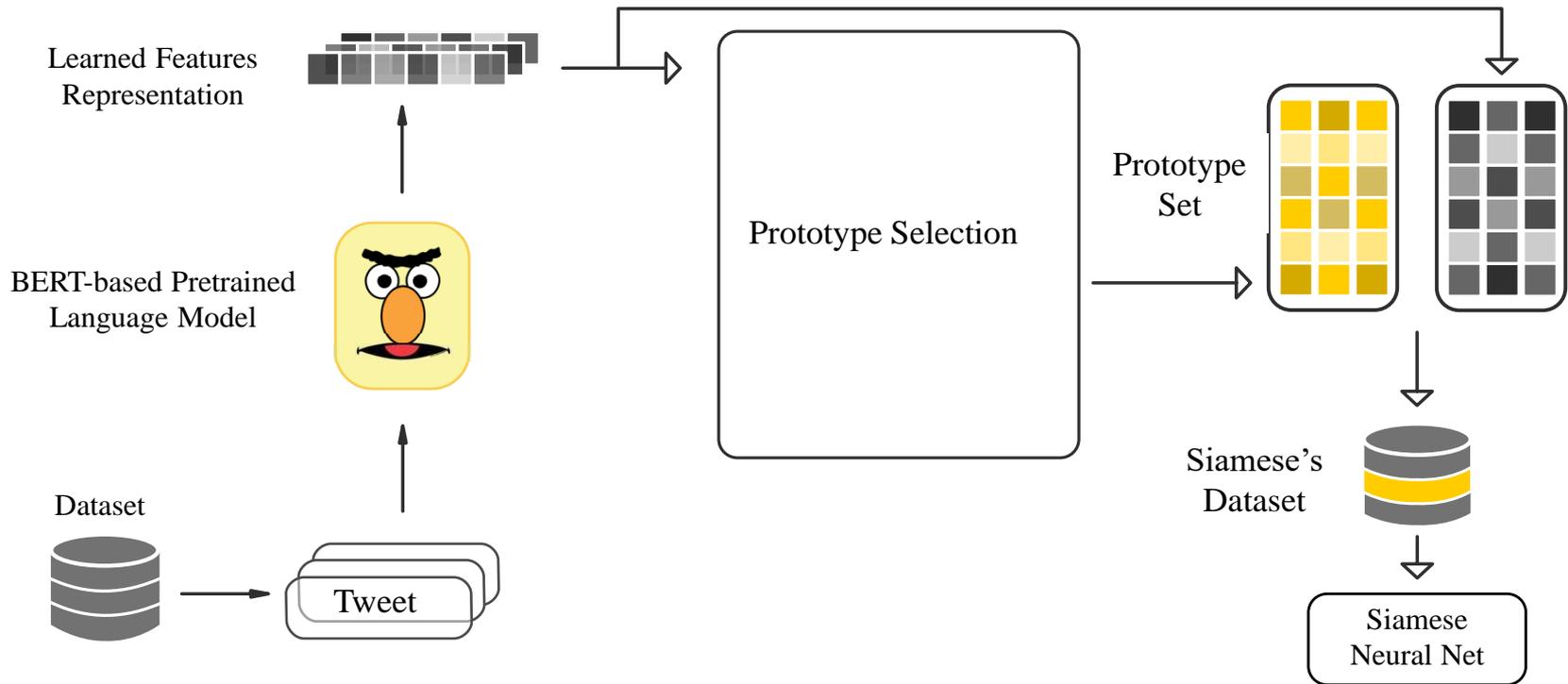- Two β−**distance graphs** are constructed from the whole **training set**, one for **humor** class and another for the **non-humor** examples.

- The **nodes** in those graphs, represent **tweets from the training set** and **edges** joining two nodes are weighted with the **Euclidean distance** between their representations.

- In the β−distance graphs, **edges with weight greather than β are removed**; hence, tweets with similar semantic information remain within the same connected component.

- Communities are refined employing the **InfoMap algorithm**. For each of them, the **nodes with highest flow value** are selected as **prototypes**.
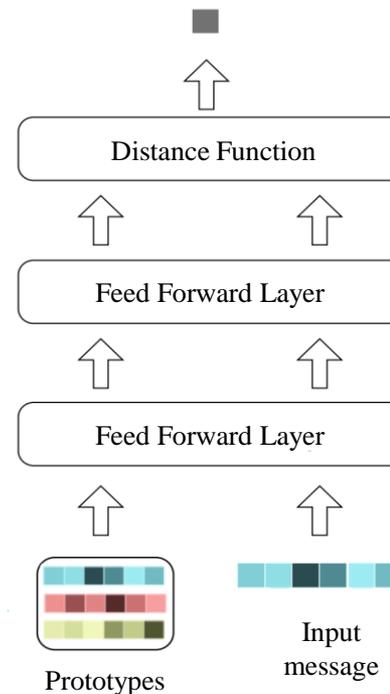
Prototypes

Architecture Siam

Learned Features Representation

BERT-based Pretrained Language Model

Dataset

Tweet

Prototype Selection

Prototype Set

Siamese's Dataset

Siamese Neural Net

Siamese neural network

- The network architecture consists of two input messages and outputs a value indicating how distant they are according to their representation.

- For detecting humor, given a message, it is **paired with each prototype** and is classified as the nearest one.
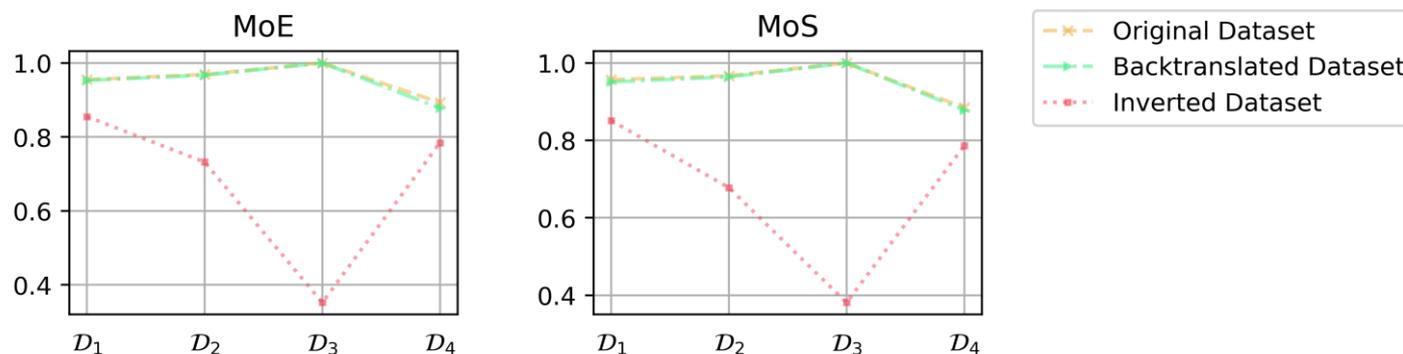
Labadie R., Rodriguez M., Ortega-Bueno R., Rosso P. (2021) **RoMa at SemEval-2021 Task 7: A Transformer-based Approach for Detecting and Rating Humor and Offense**. In: Proc. of the 15th Int. Workshop on Semantic Evaluation (SemEval-2021), co-located with CL-IJCNLP 2021, pp. 297-305

Results

Model	Dataset				
	Hahackathon	JokeR	headlines	Haha	$\mathcal{D}$
Mono-Enc	0.955	0.969	1.0	0.893	0.940
Mono-Siam	0.957	0.967	1.0	0.885	0.923
Mult-Enc	0.930	0.951	0.994	0.872	0.920
Mult-Siam	0.921	0.941	0.994	0.867	0.913

Results for monolingual models

Model	Dataset		
	$\mathcal{D}$	$\mathcal{D}^*$	$\mathcal{D}^{**}$
Mono-Enc	0.940	0.753	0.933
Mono-Siam	0.923	0.738	0.920

Overall results over original test sets (D),
translated test sets (D*) and back-translated test sets (D**)

Results for multilingual models

Test sets: Hahackathon (D_1), JokeR (D_2), headlines (D_3), Haha (D_4).
Inverted dataset (translated dataset)

Wrap-up

- The **creativity** used in humour, irony, and sarcasm makes their detection difficult, especially in case of **translation**

- Often **cross-language models** fail also because **trained on specific genres/domains** and are **not able to generalise**

Last but not least

- After the 24th February (beginning of war and invasion of Ukraine) we bought an Irish Setter:

Last but not least

- He grew up in the meantime…

Last but not least

- And we started also contributing to give generously…

(hurtful case of humour, irony, or sarcasm?)

Thanks!
Any question?

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