Topics, Administration

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Overview

- Background
- Motivation
- Topics
- Administration

Overview

Figurative Language Definitions

"Les Tropes sont des figures par lesquelles ont fait prendre à un mot une signification qui n'est pas précisément la signification propre de ce mot"

DuMarsais,Cesar Chesneau and Douay-Soublin, Françoise (1730): Des Tropes où des Différents Sens

"**Trope**: *[. . .] jede Form der Rede, die das Gemeinte nicht direkt und sachlich durch das eigentl. Wort ausspricht, sondern [. . .] durch e. Anderes, Naheliegendes, e. ""ubertragenen" Ausdruck wiedergibt."*

Gero von Wilpert (1989): Sachwörterbuch der Literatur

Different Types

- **Metaphor:** Transferral via Similarity. Establishing a comparison. *sweet child*
- **Metonymy:** Transferral via world knowledge relations. *traumatised by Vietnam*
- **Idioms:** fixed, conventionalised and non-compositional multiword phrases. *break the ice*
- **Irony/Sarcasm:** Say opposite of what you mean but mark it for the hearer to recognise. *I love being woken up at 5am by drilling*
- **Hyperbole:** *He told me that a million times.*

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Conventionality

Figurative Language can be very innovative or pretty conventionalised.

Conventionalised:

> *"I didn't know it at the time, but behind the scenes Evan had to pull strings in order to hire me. "*
>
> *Stone (2014): Things a little bird told me*

or is it ?

> *"I didn't know it at the time, but behind the scenes Evan had to pull strings in order to hire me. Actually they were more like ropes. Or cables — the kind that hold up suspension bridges. "*
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Vehicle/Tenor or Source/Target

Vehicle/Source: Domain from which the transferral takes place. *sweet* or the domain of taste in *sweet child*.

Tenor/Target: Domain to which you transfer. *child* or the domain of character/personality in *sweet child*.

Mostly applicable to metaphor (and metonymy)

Conceptual Metaphors

Up to now: **linguistic metaphors**

But categorisation is essential for metaphors (and metonymies)

> *"Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphoric in nature."*
>
> *Lakoff und Johnson (1980): Metaphors we live by*

Conceptual metaphors

Relate two cognitive domains systematically

ARGUMENT IS WAR is a conceptual metaphor between source domain WAR and target domain ARGUMENT. Instantiated via linguistic metaphors such as

- *He attacked my position.*
- *They bombarded me with counter-arguments*
- *Ich habe aber gleich zurückgeschossen.*

More in the Berkeley Master Metaphor List: `http://araw.mede.uic.edu/~alansz/metaphor/METAPHORLIST.pdf`

Conceptual Metaphor

Leads to structural analogies such as

- argumentative positions = positions in a war
- people who argue = soldiers
- counter-arguments = weapons
- making up = peace

Seminarfocus

- Metaphor recognition (focus of most work)
  - Approaches on short phrases (abstractiveness, multlilingual, multimodal ...)
  - Neural approaches on metaphors in full context
- Metaphor interpretation. Can we just paraphrase? *sweet child* $\longrightarrow$ *kind child/friendly child*
- Applications: MT, educational applications, sentiment mining
- Recognition and interpretation of metonymies
- Recognition of irony: social networks, world knowledge, context

Overview

1. Background
2. Motivation
3. Topics
4. Topics: Metaphor Recognition

Why do we care about figurative language: Inference

Inferences and *entailment* vary between literal and metaphorical meanings

- *They attacked our houses* $\longrightarrow$ probably property and/or person damage
- *They attacked my arguments* $\longrightarrow$ no physical damage

Most extreme for irony!

Why are we interested in figurative language: Cognition

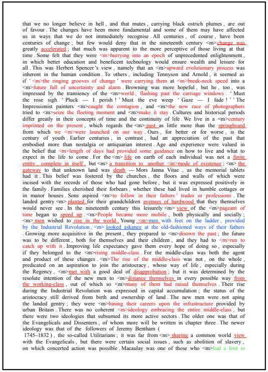
Thibeadeau und Boroditzky (2013, 2011):

Beispiel

Crime is **a beast/virus** ravaging the city of Addison. Five years ago Addison was in good shape, with no obvious vulnerabilities. Unfortunately, in the past five years the citys defense systems have weakened, and the city has succumbed to crime. Today, there are more than 55,000 criminal incidents a year - up by more than 10,000 per year. There is a worry that if the city does not regain its strength soon, even more serious problems may start to develop.

- Increase street patrols that look for criminals.
- Increase prison sentences for convicted offenders.
- Reform education practices and create after school programs.
- Expand economic welfare programs and create jobs.
- Develop neighborhood watch programs and do more community outreach.

Potential Applications



that we no longer believe in hell , and that mutes , carrying black ostrich plumes , are out of favour . The changes have been more fundamental and some of them may have affected us in ways that we do not immediately recognise . All centuries , of course , have been centuries of change ; but few would deny that in the nineteenth century <m>change was greatly accelerated ; that much was apparent to the more perceptive of those living at that time . Some felt that they were <m>hurrying into an epoch of unprecedented enlightenment , in which better education and beneficent technology would ensure wealth and leisure for all . This was Herbert Spencer 's view , namely that an <m>upward evolutionary process was inherent in the human condition . To others , including Tennyson and Arnold , it seemed as if ' <m>the ringing grooves of change ' were carrying them at <m>break-neck speed into a <m>future full of uncertainty and alarm . Browning was more hopeful , but he , too , was impressed by the transiency of the <m>world , flashing past the carriage windows : ' Must the rose sigh ' Pluck — I perish ! ' Must the eve weep ' Gaze — I fade ! ' ' The Impressionist painters <m>caught the contagion , and <m>the new race of photographers tried to <m>seize the fleeting moment and <m>make it stay . Cultures and historical periods differ greatly in their concepts of time and the continuity of life . We live in a <m>century imprinted on the present , which regards the <m> past as little more than the springboard from which we <m>were launched on our way . Ours , for better or for worse , is the century of youth . Earlier centuries , in contrast , had an appreciation of the past that embodied more than nostalgia or antiquarian interest . Age and experience were valued in the belief that <m>length of days had provided some guidance on how to live and what to expect in the life to come . For the <m> life on earth of each individual was not a finite entity , complete in itself , but <m> a transition to another <m>mode of existence ; <m> the gateway to that unknown land was death — Mors Janna Vitae , as the memorial tablets had it . This belief was fostered by the churches , the floors and walls of which were incised with the records of those who had gone before , but it was expressed positively in the family . Families cherished their forbears , whether these had lived in humble cottages or in manor houses . Sons aspired <m>to follow in their fathers ' trades or professions . The landed gentry <m> planted for their grandchildren avenues of hardwood that they themselves would never see . In the nineteenth century this leisurely <m> view of the <m>pageant of time began to speed up . <m>People became more mobile , both physically and socially ; <m> men wished to rise in the world . Young <m>men with feet on the ladder , provided by the Industrial Revolution , <m> looked askance at the old-fashioned ways of their fathers . Growing more acquisitive in the present , they prepared to <m>disown the past ; the future was to be different , both for themselves and their children , and they had to <m>run to catch up with it . Improving life expectancy gave them every hope of doing so , especially if they belonged to the <m>rising middle-class . For the middle-class was both the agent and product of these changes . <m>The rise of the middle-class was not , on the whole , predicated on an aspiration to join the aristocracy , whose way of life , especially during the Regency , <m>met with a good deal of disapprobation ; but it was determined by the resolute intention of the new men to <m>distance themselves in every possible way from the working-class , out of which so <m>many of them had raised themselves . Their rise during the Industrial Revolution was expressed in capital accumulation ; the status of the aristocracy still derived from birth and ownership of land . The new men were not aping the landed gentry ; they were <m>basing their careers upon the infrastructure provided by urban Britain . There was no coherent <m>ideology embracing the entire middle-class , but there were two ideologies that subsumed its more active sectors . The older one was that of the Evangelicals and Dissenters , of whom more will be written in chapter three . The newer ideology was that of the followers of Jeremy Bentham (1745–1832) , the so-called Utilitarians ; it was far from <m> sharing a common world view with the Evangelicals , but there were certain social issues , such as abolition of slavery , on which concerted action was possible . Macaulay was one of those who <m>had a foot in

- Metapher in every third sentence! 11% of Tokens (*Corpus studies*)

- Information Retrieval
- Machine Translation
- Sentiment Analysis
- Educational applications
- Text Simplification

Overview

8th of May: Cognition Background (Markert)

- More background on definition
- Background on metaphor and inference as well as metaphor and cognition

Thibodeau und Boroditsky (2013): *Natural Language Metaphors covertly influence reasoning.* In PloS ONE.

TSV - Tsvetkov et al (2014)

Around 2000 adjective noun-pairs with train-test split

Metaphor	Literal
deep thought	cold weather
green energy	empty can
empty promise	dry skin

MOH - Mohammad et al. (2016)

647 Verb/subject/object pairs (10-fold CV)

metaphor	literal
absorb cost	attack village
breathe life	breathe air

Annotation and Datasets. Metaphor in Context

Main dataset VU Amsterdam Metaphor Corpus. Ca 238K tokens of which 25K are metaphoric. Most conventional.

http://www.vismet.org/metcor/search/showPage.php?page=start and http://metaphorlab.org/.

Example

he has become involved **in** a row **over** his **attack on** the **Pharisees** of British society

- Annotation Methodology: binary, best/worst . . . . Emphasis on methodology you can use for other seminars/theses as well.
- Innovative vs. Conventional (?)
- Can we annotate metaphors with high agreement?

Student Presentations

Start 29th of May!

Overview

T.I.1: Abstractness for metaphor recognition (Basis)

Potential Papers: Turney et al (2011), Koeper and Schulte im Walde (2016), Koeper and Schulte im Walde (2017)

Main ideas

- Lakoff/Johnson (1980): concrete domain to abstract domain: ARGUMENT IS WAR, BADNESS IS DARKNESS
- Calculate abstractness of a word
- Metaphoricity results from tension between, for example, an abstract noun and a concrete adjective

Word	Abstr. rating
dark	0.43356
bad	0.63326
mood	0.61858

bad mood literal, *dark mood* metaphoric

- Koeper and Schulte im Walde (2016): German particle verbs
- Koeper and Schulte im Walde (2017): extension to phrases and senses. Better learning of abstractiveness ratings.

T.I.2: Metaphor recognition on short phrases (Basis)

Tsvetkov et al (ACL 2014) *Metaphor detection with cross-lingual model transfer.*

Main Idea

- Supervised Learning in source language on SVO and AN tuples
- Use conceptual features
- Transfer via bilingual lexicon: *schmutzig* $\longrightarrow$ *dirty, filthy, grimy* ...
- Average feature vectors of the translation. No retraining in new language

	SVO	AN
EN	0.79	0.85
RU	0.84	0.77
ES	0.76	0.72
FA	0.75	0.74

T.I.2: Metaphor recognition on short phrases, multimodal

Shutova et al. (NAACL 2016) *Black holes and white rabbits: Metaphor identification with visual features*

Main Idea

- $cos(w1, w2)$ with linguistic as well as visual embeddings ($bitter\ man$)
- Other models based on phrase similarities ...

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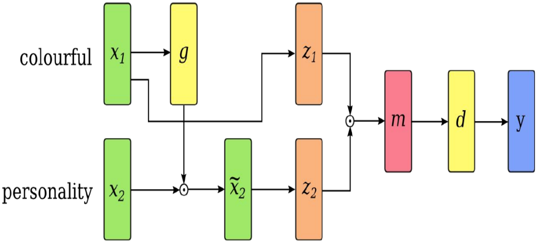
T.I.2: Metaphor recognition on short phrases, deep learning (Advanced)

Rei et al (EMNLP 2017) *Grasping the Finer Point: A Supervised Similarity Network for Metaphor Detection*

Builds on Shutova et al's core idea of cosine similarities. Expands this into a deep learning approach.



- Leong et al (2018): *A report on the 2018 VUA metaphor detection shared task*

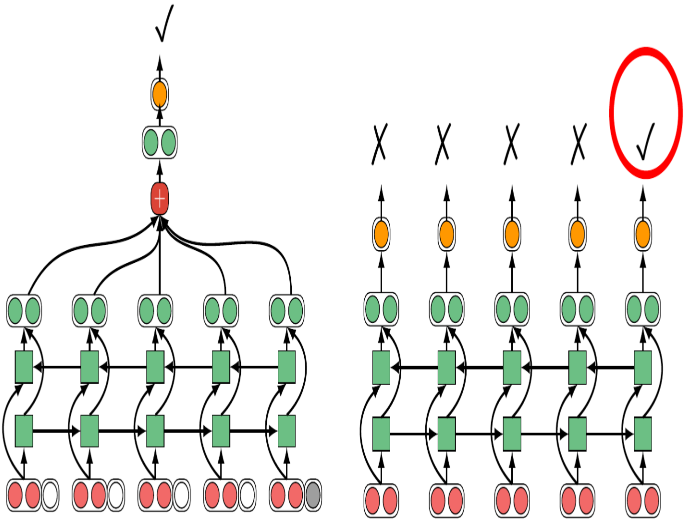
Example

he has become involved in a row over his **attack** on the **Pharisees** of British society

- A feature-based logistic regression baseline building on Klebanov et al (2016) still performs well
- All participants used some form of neural network. Not that many beat the baseline for all POS.
- Best performing system is a CNN/LSTM hybrid by Wu et al (2018)

T.I.3: Metaphor detection in running text (Advanced)

Current state of the art is the sequence to sequence labeling model in Gao et al (EMNLP 2018): *Neural Metaphor Detection in Context*



T.I.3: Metaphor detection in running text (advanced)

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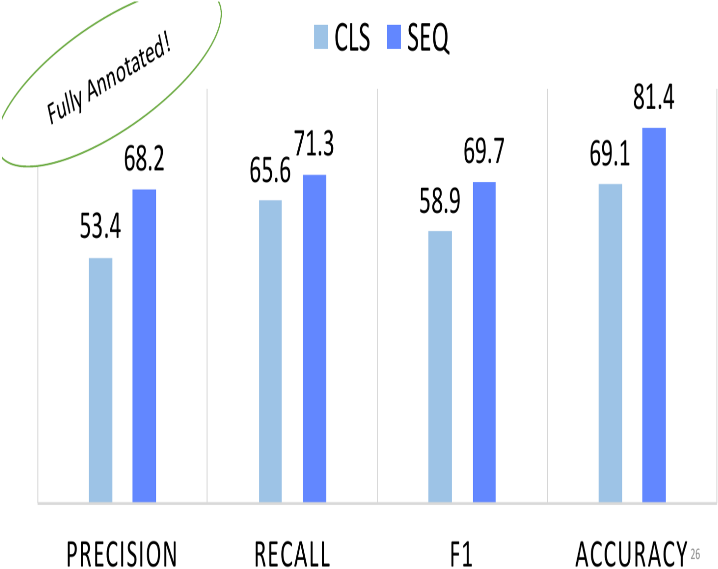
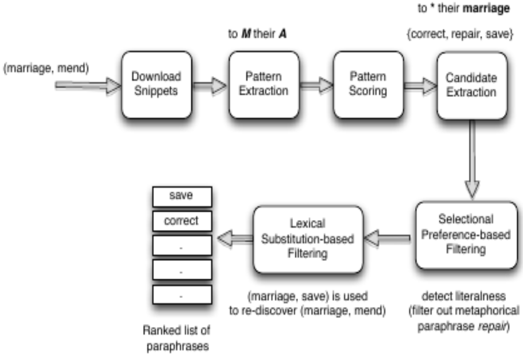


T.II: Metaphor interpretation as paraphrasing

Bollegala and Shutova (PLos One 2013): Metaphor interpretation using paraphrases extracted from the web and

Bizzoni and Lappin (2018) Predicting human metaphor paraphrase judgments with deep neural networks.

From Bollegala and Shutova (2013):



T.III: Metaphor applications

Several Options (see literature list):

- schizophrenia detection (Basis)
- metaphor and MT
- metaphor and sentiment (Basis)

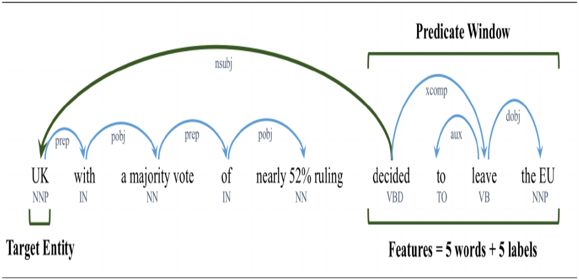
T.IV: Metonymies

Gritta et al (ACL 2017): Vancouver welcomes you! Minimalist Location Metonymy Resolution

Location metonymies relevant for geo-parsing as they are false positives:

- *traumatized by* **Vietnam**
- *All* **London** *is going to the parade*

Gritta et al combine an LSTM with syntactic knowledge for metonymy identification:



T.V.1: Irony recognition in social networks (Basis)

Ghosh et al (EMNLP 2015): *Sarcastic or not: word embeddings to predict the literal or sarcastic meaning of words* and

Gonzales-Ibanez et al (ACL 2011): *Identifying sarcasm in twitter: a closer look*

T.V.1: Irony recognition in social networks (Basis)

Methods

- **Distant supervision**: Tweets marked with #sarcasm, #irony or similar: positive Instances
- Other Tweets: negative
- Mostly supervised learning with features such as: emotion, lexical, emojis, embeddings . . .
- Is distant supervision adequate for the task?

T.V.2 Irony Recognition: The inclusion of context (Advanced)

Ghosh et al (EMNLP 2017): *Magnets for Sarcasm: Making Sarcasm Detection Timely, Contextual and Very Personal*

Speaker Utterance: @MSNBC of course all of those jobs will be in China
In reply to ***@realDonaldTrump***: I will be the greatest jobs-producing president that God ever created.

- Use tweet you reply to
- Use writers personality and mood as evinced by previous tweets

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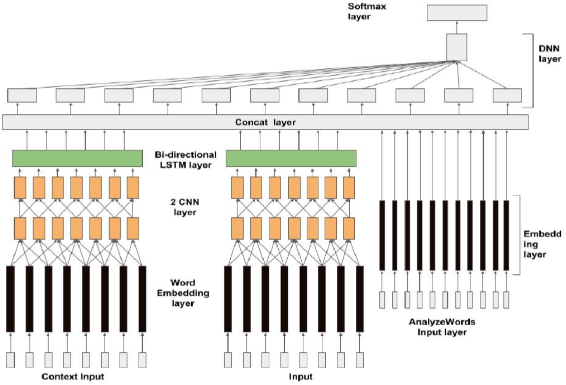

Figure 1: A Neural Architecture for Detecting Sarcasm in Contextualized Utterances

T.V.2: World knowledge for irony recognition

Riloff et al. (EMNLP 2013) *Sarcasm as Contrast between a Positive Sentiment and Negative Situation.* or Van Hee et al (CL 2018): *We usually dont like going to the dentist: Using common sense to detect irony on twitter*

Example

Thank you 2018 for the worst migraine ever. This is what I call a perfect beginning.

Collect negative situations:

- Riloff et al: bootstrapping
- Van Hee et al: Twitter crawls and knowledge bases

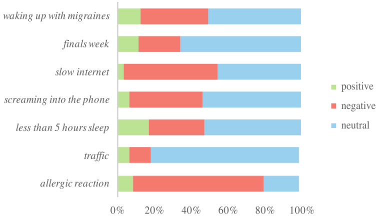

Image from Van Hee et al