Annotating Attitude in Swedish Political Tweets

Resourceful Workshop @ Nodalida
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SPRÅKBANKENTEXT

Introduction

- Dataset of annotated Swedish political tweets
- Annotation: object of positive and negative attitude
- Motivation: Not many resources with sentiment, opinion or similar in Swedish
- Outline:
  – Dataset
  – Annotation scheme
  – Annotation procedure
  – Results

Data

- Around 4500 tweets from official accounts of Swedish political parties and party leaders

- Roughly from one the term of office, between 2018 - 2022

	Nr. of tweets	Nr. of tokens
Preliminary	315	9677
Main	4280	131338

Annotation procedure

- 4 annotators with linguistic background (60 ECTS in a linguistic subject)

- Annotation tool: Prodigy

- Additional options:
  - Accept
  - Reject
  - Ignore

POS 1 NEG 2

Vi vill köpa och annullera **utsläppsrätter** NEG så att vi får bort dem **från handeln och utsläppen** POS från atmosfären .

(spans just for demonstration)

Annotation procedure

- Two rounds:
  - Preliminary:
    - 315 tweets, annotators were asked to comment on the difficult tweets
  - Main:
    - 600 tweets annotated by all four annotators (ABCD)
    - 3 annotators per tweet, ca 3300 per annotator (ABC, ABD etc.)

Annotation scheme

- Aim: identify positive or negative attitude, more specifically the object of an expressed attitude
- "Is there a negative or positive attitude expressed in the tweet?"
- "If so - about what?"

"Now every penny needs to go towards counteracting **the municipal crisis.** Therefore, we say no to **increased Swedish EU fees.** The EU bureaucrats will have to cut their coat according to their cloth."

Bold = negative

Annotation scheme

- Unit of annotation: spans
- Object of the attitude could be both one word or a phrase, as well as the full tweet if deemed necessary.
- Guidelines of 6 pages, including examples and tests (for/against)
- After the test round the guidelines were updated
  - Explicit attitude
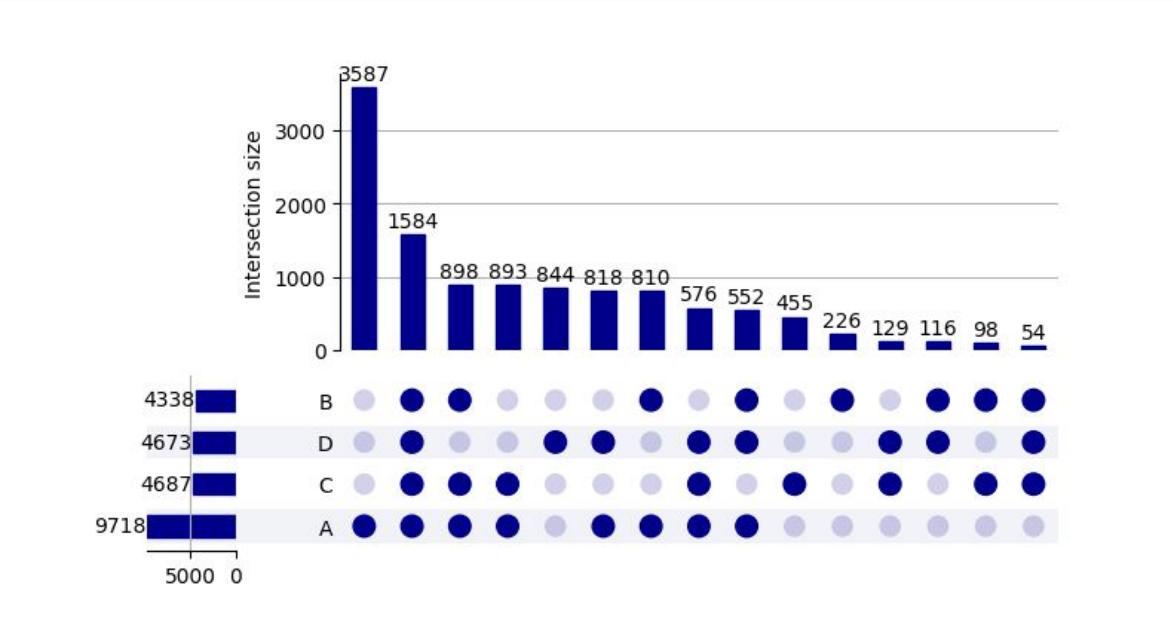 - All instances of an attitude

Results - Annotator statistics

- Few rejected tweets - but not the same ones
- 80-95% of the tweets were found to express attitude
- Overall more positive spans annotated than negative spans
- Annotator A annotated more and shorter spans (4 vs. 6 tokens avg. length)

	A	B	C	D
Nr. spans	10304	5098	5254	3600
% of tokens annotated	42%	29%	31%	21%

Token annotation co-occurrence (ignoring label)

Results - Agreement

- Krippendorff's α: 0.41 on token level
  - between 0,36-0.46 for different annotator combinations
- Evaluation on token level doesn't take spans into account
- Units are assumed to be predefined
- Krippendorff's *unitized* α, $_u\alpha$

Krippendorff's unitized alpha, $_u\alpha$

- Implemented $_u\alpha$ in Python[1]

- Takes into account both labels and spans

- 4 variants covering different aspects of span annotation (3 demonstrated here)

[1] https://github.com/lindanna/unitized_alpha

Agreement

- Agreement on spans and labels: $_u\alpha$

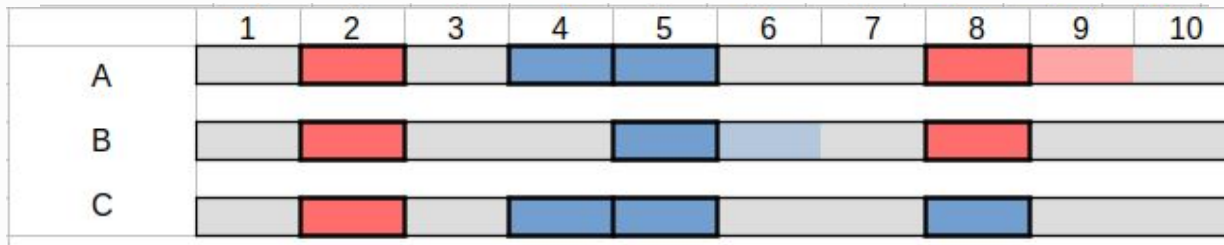| Combo	ABCD	ABC	ABD	ACD	BCD
$_u\alpha$	0.34	0.45	0.39	0.36	0.41

Agreement

- Agreement on span location: $_{|u}\alpha$

Combo	ABCD	ABC	ABD	ACD	BCD
$_{|u}\alpha$	0.31	0.43	0.36	0.33	0.38

Agreement

- Agreement on labels: $_{cu}\alpha$
- Only on annotated, overlapping segments

Combo	ABCD	ABC	ABD	ACD	BCD
$_{cu}\alpha$	0.84	0.88	0.91	0.83	0.89
coverage	13.5%	14.1%	12.6%	14.3%	14.5%

Challenges

- Feedback and discussion with annotators + manual inspection of annotations
- Ambiguity and implicitness
- Boundaries of spans
- Labels can change depending in what is included in a span:

"Now every penny needs to go towards <u>counteracting</u>

<u>**the municipal crisis.**</u>"

An annotated example

The elderly should not have to **suffer due to understaffing.** _Female-dominated professions must be revalued and appreciated_ so that more people want to stay in their jobs - it's about _the care of our loved ones!_

The elderly should not have to suffer due to **understaffing.** _Female-dominated professions must be revalued and appreciated_ so that more people want to stay in their jobs - it's about the care of our loved ones!

The elderly should not have to suffer due to understaffing. _Female-dominated professions must be revalued and appreciated_ so that more people want to stay in their jobs - it's about the care of our loved ones!

Bold = negative
Underlined = Positive

Conclusions

- The annotators do not agree on where an attitude is being expressed.
- When they agree on span location, they agree on the label.
- Although annotator A annotated the most, their annotation often include the others' annotations
- A future annotation might benefit from annotating in steps or in predefined units

Thank you!

Questions?