Constructive Language in News Comments

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Research questions

- What is constructive?
- Do constructive comments tend to contain linguistic cues that are common in argumentative texts?
- What is the relation between toxicity and constructiveness?
Why does it matter?

- Organizing comments
- NYT picks

• News comments summarization
  (Llewellyn et al. 2014; Barker et al. 2016)
What is constructive?

Constructive comments intend to create a civil dialogue through remarks that are relevant to the article and not primarily intended to provoke an emotional response. They are typically targeted to specific points and supported by appropriate evidence.
Constructiveness corpus

- Carefully chose 10 articles from The Globe and Mail.
- Technology, immigration, terrorism, politics, budget, social issues, religion, property, refugees
- Randomly picked 1,121 comments
Annotation interface

Headline
Apple Watch: It's the precise opposite of a labour-saving device

Click here for the article.

Now read the following commentary on this article
This was an informative and humorous article showing the lack of utility of another piece of pointless electronic junk being foisted on the public to swell Apple's coffers. Hopefully it will flop and save the planet from having to accommodate further junk in dump sites as new iterations are introduced.

Is the comment constructive?
○ Yes
○ No
○ Not sure
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Training data

Lack of annotated data for constructiveness at a comment level

Yahoo News Annotation Comments Corpus (YNACC) (Napoles et al. 2017)

Constructive thread

Headline: Allergan CEO: Feds blindsided us on Pfizer deal

A something is very wrong. will the next step be forcing the talented and wealthy to remain? this strategy did not work well for the soviet union.

B your solution is?

C @B, lower the govt imposed costs and businesses will stay voluntarily.

D just because a company was started in us, given large tax breakes in the us and makes most of its profits in the us does not mean it owes loyalty right? they have to appease the shareholders who want more value so lower your cost of business by lowering taxes while still getting all the perks is one way of doing it.

C @D - in your world who eventually pays the taxes that our gov't charges business?
Training data

Intuition: Constructive comments tend to contain linguistic cues present in texts containing good argumentation

- Argument Extraction Corpus (AEC) (Swanson et al. 2015)

- Argument quality on sentences extracted from the topics of gun control, gay marriage, evolution, and death penalty
Model: Bidirectional LSTMs
Classification results

![Bar chart showing classification results for different training datasets.]

- **YNACC (60,778)**: Validation accuracy = 73%, Test accuracy = 73%
- **AEC (5,374)**: Validation accuracy = 53%
- **YNACC + AEC (66,152)**: Validation accuracy = 68%, Test accuracy = 68%

Random baseline = 49.44%

Best results with YNACC
Association with argumentation features

Argumentative discourse relations:
- cause, comparison, condition, contrast, evaluation, explanation

Stance adverbials:
- mainly, unfortunately

Reasoning verbs and modals:
- cause, lead

Root clauses:
- I think that

Conjunctions and connectives:
- because, therefore

Abstract nouns:
- issue, reason, problem

Odds ratio (log scale):

Strong association:
- 3.49
- 2.52
- 2.02
- 1.37
- 0.82
- 0.51
Association with argumentation features

Linguistic indicators of argumentation

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Toxicity in comments

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Toronto Star closes commenting on thestar.com

We have turned off commenting on thestar.com effective Wednesday, Dec. 16 and instead we’ll be promoting and showcasing the comments our readers share across social media and in their letters and emails to our editors.
Toxicity in comments

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- Obscenity, vulgarity, profanity
- ...

- Canadian Broadcasting Corporation
  - “We draw the line on hate speech and personal attacks”
  - “... unique situation when it comes to indigenous-related stories”
  - These stories “draw a disproportionate number of comments that cross the line and violate our guidelines”
Toxicity and constructiveness

Are non-constructive comments more likely to be toxic compared to constructive comments?

Levels of toxicity

1. Not toxic
   *Criticizing the new generation is not going to solve any problem.*

2. Mildly toxic
   *Our drama teacher will be no match for President Trump. We need a Trump to match Trump.*

3. Toxic
   *Another academic in denial – somebody rustle up a safe space, I think somebody has a case of vapours…*

4. Very toxic
   *What a disgusting person!! He should rot in hell!*

How will you rate the toxicity of the comment?

1. Not toxic
2. Mildly toxic
3. Toxic
4. Very toxic

Not toxic
Very toxic
Non-constructive comments are not much more toxic than constructive comments.
Toxicity and constructiveness

Useful and civil comments

Constructive

Toxic

Non-constructive

Non toxic but no useful content in the comments

Toxic language space: Personal attacks, hate speech, obscenity, vulgarity, profanity, spam, trolling, racism, sexism, …
Conclusion

• The crowd more or less agrees on the notion of constructiveness (87.88% agreement)

• Demonstrated the feasibility of identifying constructive comments automatically (72.59% accuracy)

• Well-known linguistic indicators of argumentation show strong association with constructiveness
Conclusion

- Some constructive comments are toxic
  - Do we want to filter constructive toxic comments?
    - Aggressive debate could be good as long as it is constructive
Comments and Questions?

- Data is available at
  https://github.com/sfu-discourse-lab/Constructiveness_Toxicity_Corpus

- The code and web interface will be available soon

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