



Empathy Alignment in Online Communities

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Introduction

More people are nowadays talking about their hard times on social media to seek for comfort and advice. Questions are left in how we should response to those posts that will be empathetic enough to be helpful.

The Appraisal Theory is applied to characterize the trigger of emotions into several dimensions that help find the alignment between expressions, showing the sign of a person feeling the same as the other, namely empathy.

The Appraisal Theory

An appraisal is a description of one aspect of one's experience:

- **Pleasantness:** How pleasant the situation was.
- **Anticipated Effort:** How much effort was needed to deal with the situation.
- **Situational Control:** How much the situation was out of anyone's control.
- **Self-Other Agency:** How much oneself or another person was responsible for the situation.
- **Attentional Activity:** How much one's attention was drawn to rather than diverted away from the situation.
- **Certainty:** How certain about what was happening in the situation or what would happen next.

The Appraisal Theory

Define target as the person experiencing an event or in a situation, and observer as the person who is responding to the target.

Empathy occurs when the observer appraises the target's situation in the same way that the target appraises it.

Paired Data with Target and Observer

1. Empathy Dataset with 246 pairs of target and observer text (Zhou, 2020)
2. Reddit data from 2019.06 to 2021.06
 - 35 subreddits included (e.g. 'r/depression', 'r/heartbreak')
 - Two classifiers are trained on Distress and Condolence dataset (Zhou, 2020) separately for filtering texts with high indication of distress or condolence using Microsoft/MiniLM-L12-H384-uncased.

Classifier	Accuracy	F1
Distress	0.707	0.692
Condolence	0.799	0.790

Dataset

Annotation for paired dataset on empathy alignment task

- Labels: Advice, Anticipated Effort, Attentional Activity, Certainty, Objective Experience, Pleasantness, Self-Other Agency
- Customized visualization tool for comparing annotations

Dataset

CompAnn

Full Text

target:

Man I'm so fucking depressed. I don't understand shit in my courses and I keep procrastinating, just staring at my ceiling titty. I hate my job, I hate college. I feel miserable daily, something has to change and I don't know where to start. The only thing I like is music and basketball. I don't fuck with anything else. I'm demotivated to the fullest man. Just needed to vent. I feel like ending it sometimes. Not living up to my parents' expectations makes me want to shoot myself. Makes me feel useless and shit because I want nothing to do with religion or completing a degree. I don't want to work at that job anymore. I feel like I need to talk to a therapist and take some time off. I need some guidance, my parents won't help me much on that front since their POV might be heavily biased towards me finishing my degree since they only want security and don't want me to stress them I guess if I can't finish at 22 like I'm supposed to. I'm fucking clueless man.

observer:

Labels

Advice

Anticipated Effort

Attentional Activity

Certainty

Objective Experience

Pleasantness

Self-Other Agency

Situational Control

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Final Annotation

target:

Man I'm so fucking depressed. Pleasantness I don't understand shit in my courses Objective Experience and I keep procrastinating, just staring at my ceiling titty. Anticipated Effort I hate my job, I hate college. Pleasantness

Jacky

target:

Man I'm so fucking depressed. I don't understand shit in my courses and I keep procrastinating, just staring at my ceiling titty. I hate my job, I hate college.

Hayley

target:

Man I'm so fucking depressed. Pleasantness I don't understand shit in my courses and I keep procrastinating. Anticipated Effort just staring at my ceiling titty. I hate my job, I hate college.

Wendy

target:

Man I'm so fucking depressed. Pleasantness I don't understand shit in my courses Objective Experience and I keep procrastinating, just staring at my ceiling titty. Anticipated Effort I hate my job, I hate college. Objective Experience

Allyson

target:

Man I'm so fucking depressed. Pleasantness I don't understand shit in my courses and I keep procrastinating, just staring at my ceiling titty. Objective Experience I hate my job, I hate college. Pleasantness

Submit Consensus

Pleasantness

Submit

target:

Man I'm so fucking depressed. I don't understand shit in my courses and I keep procrastinating, just staring at my ceiling titty. I hate my job, I hate college.

Annotation Example

- Pleasantness: “Gonna be real here...worst week of my life, haha.”
- Anticipated effort: “I've been trying to be strong for so many people recently.”
- Situational control: “This is my last chance to go to college and Uni”
- Self-other agency: “The little shit dropped me as a patient and now I can't seem to find a doctor who is willing to prescribe it.”
- Attentional activity: “I am not typically an emotional person. I have only really and truly cried 3 times in my adult life, this being the 3rd and by far the worst.”
- Certainty: “In retrospect, maybe should have broke it off earlier...”
- Objective Experience: “I just broke up with my girlfriend of 2 years like...a few days ago.”
- Advice: “I highly recommend breathing and meditation type exercises.”

Annotation Difficulty: Complexity of Language

“The reason we broke up wasn't because we don't like each other (quite the contrary! I still keep in touch) but because we both know each other well enough to know that we just wouldn't want to do long distance.”

=> Situational Control

“The reason we broke up wasn't because we don't like each other (quite the contrary! I still keep in touch) but because we both know each other well enough to know that it's hard to do long distance.”

=> Anticipated Effort

Annotation Difficulty: Complexity of Language

- Implicit Expression: “My cat died yesterday I get this”
- Ambiguity: “Reason I'm even telling you guys this is because while I tend to keep most of my real life to myself, this is just something that is too much for me to bottle up I think.”
- Multi-Appraisals: “I was really concerned that I'm just being selfish and I obviously don't want to hurt them by leaving them.”

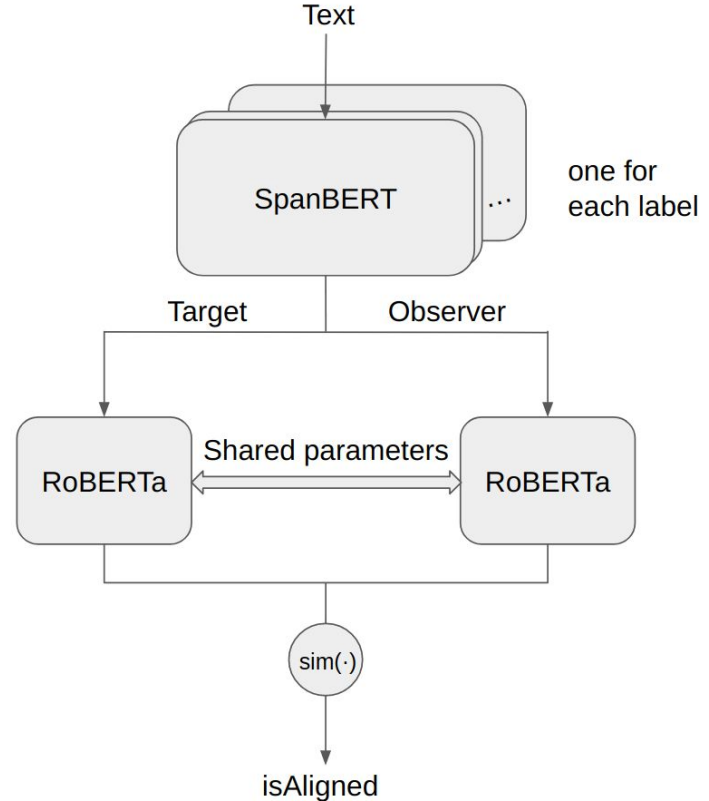
Some general rules in dealing with language complexity

- Favor explicit appraisals over implicit or coreferenced appraisals
- Favor longer spans, i.e. label as much of the sentence as possible provided that part contains an appraisal.
- If there are multiple appraisals in the same sentence, label the subparts with appraisal that dominates.

Modeling

SpanBERT: for recognizing each label from both target and observer text.

Siamese Network with RoBERTa: for finding the alignment of feelings between the target and the observer in text spans that appraise in the same dimension.



Future Work

- Expand the current dataset and improve annotation codebook for clearer guidance.
- Try on heuristic methods for labeling dataset.
- Train and improve the designed model to check the performance and prepare for future analysis.



Thank you