Sentiment Analysis with Minimal User Guidance

Hotel Reviews

Aspect seeds

“room”, “price”, “service”, “food”

Sentiment seeds

(“good”: +), ("great": +), (“bad”: -), (“terrible”: -)

“The staff is friendly and attentive! Great location right off the interstate.”

Output

“staff”: positive
“location”: positive

“Nice room, but rude staff.”

Output

“room”: positive
“staff”: negative

“Perfect food and service.”

Output

“food”: positive
“service”: positive
• Identifying Aspect and Sentiment Lexicon
  • Using seeds to find pattern features:
    • e.g. “[aspect] is [sentiment]”, “a very [sentiment] [aspect]”
  • Using pattern features to instantiate a classifier for lexicon expansion

• Developing a generative model for aspect and sentiment words
  • Assigning positive/negative sentiment labels

• Submitted to SDM ‘19
• Revisiting the problem ...
• Aspect/sentiment lexicons can be viewed as an attention mechanism
• Developing attention mechanism for both aspect and attention
• Trying to learn the aspect and sentiment classes by reconstruction

\[
y_A = \text{softmax}(W_A x_A)
\]

\[
x_A = \sum a_A^{(i)} e_w^{(i)}
\]

\[
y_S = \text{softmax}(W_S x_s)
\]

\[
x_S = \sum a_S^{(i)} e_w^{(i)}
\]
Others

- Passed the preliminary exam
- Will serve as ICML reviewer