Linguistic Understanding of Complaints and Praises in User Reviews

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Introduction & Goals

• Traditional sentiment analysis does not account for *informativeness* of opinion texts.

• For many real-world applications such as *social listening, brand monitoring* and *e-commerce platforms*, the opinions that really matter are opinions describing why something is good or bad.

• **Our goal:** Understand linguistic properties of *complaints* and *praises* - an informative subset of the negative and positive categories.
  • Study performed in the context of user reviews
  • We investigate several properties: **(1)** length property; **(2)** noun and adjective usage; **(3)** past tense usage **(4)** negation usage; **(5)** intensifier usage and **(6)** causal links.
  • We contrast the properties of complaint and praise sentences with negative only or positive only sentences.

Methods

• We defined 4 main categories:
  • **NegativeOnly** – Negative sentence but not a complaint

    Example: *"This is not a good company, stay away!"*

  • **Complaint** – Describes why something is bad

    Example: *"This company takes your payment but on the day of the scheduled job, they don't appear."*

  • **PositiveOnly** – Positive sentence without much information

    Example: *"I really love that restaurant, its awesome"*

  • **Praise** – Describes why something is good

    Example: *"This restaurant has delicious tacos and the ambience is amazing!"*

• For each category: manually gathered 500 review sentences from various review sources.

• Analyzed various properties of the sentences in each category

Results

Sentence Length Analysis

• Average # words in praise sentences: **15.54**
• Average # words in complaint sentences: **15.75**
• Average # words in positive only sentences: **10.33**
• Average # words in negative only sentences: **10.25**
• **Bottom line:** praise sentences and complaints more verbose than positive only or negative only sentences.

Noun and Adjective Usage

Nouns	Avg. Per Sentence	Adjective	Avg. Per Sentences
NegativeOnly	1.87	NegativeOnly	0.972
Complaint	3.36	Complaint	1.500
PositiveOnly	2.16	PositiveOnly	1.164
Praise	3.56	Praise	2.086

Bottom line for nouns:
• ***NegativeOnly*** and ***PositiveOnly*** categories - 1 noun per sentence.
• ***Complaint*** and ***Praise*** categories - 3 nouns or more per sentence.

Bottom line for adjectives:
• Most *praise* sentences use **2 or more adjectives**; most *complaint* sentences use a **single adjective**

• **Reason1:** In a praise sentence, user's tend to compliment more than one aspect of a topic within a single sentence.

  Example: *"This is a really lightweight machine and it is easy to assemble".*

• **Reason2:** With complaints, users tend to elaborate why a single aspect of a topic is bad.

  Example: *"'This machine was really hard to put together, the screws don't fit so I sent it back'.*

Past Tense Analysis

Avg. Past Tense per Sentence	NegativeOnly	Complaint	PositiveOnly	Praise
	0.63	**1.26**	0.55	0.68

Bottom line:
• On average, every complaint sentence uses at least 1 past tense.
• **Reason:** Within a complaint, a user is often explaining away why something was bad and what their actions were in response to the situation, which is usually something in the past.

Intensifier Usage

% Sentences containing intensifiers	NegativeOnly	Complaint	PositiveOnly	Praise
	13.40%	16.80%	14.80%	**20.60%**

Bottom line:
• Intensifiers are mostly used in praise sentences
• **Reason1:** Praise sentences tend to couple multiple positive aspects into a single sentence

  Example: *"This is a really light phone and super easy to use!*

• **Reason2:** Users tend to over emphasize positive points and state negative points more in a matter of fact fashion

Causal Transitions (because, since, as, therefore...)

% Sentences containing causal transitions	NegativeOnly	Complaint	PositiveOnly	Praise
	16.40%	**28.20%**	16.60%	23.80%

Bottom line:
• There is a much stronger relationship between **causal transitions** and the **complaints** category
• **Reason:** Complaints tend to have more explicit description on what caused something to be bad or reaction in response to something negative.