

SemEval 2014 Task 4: Aspect Based Sentiment Analysis

Annotation Guidelines

1. Introduction

The purpose of this annotation is to detect aspects and their sentiment polarity within sentences. Sentences from customer reviews of *restaurants* and *laptops* will be used in this task, i.e., the target entities will be particular restaurants or laptops. For a given *target entity* - a restaurant or laptop-, the task of the annotator is to identify the following types of information:

- **Aspect terms**

Single or multiword terms naming particular aspects of the target entity. For example, in “I liked the *service* and the *staff*, but not the *food*”, the aspect terms are “*service*”, “*staff*” and “*food*”; in “The *hard disk* is very noisy” the only aspect term is “*hard disk*”.

- **Aspect term polarity**

Each aspect term has to be assigned one of the following polarities based on the sentiment that is expressed in the sentence about it:

- *positive*
- *negative*
- *conflict* (both positive and negative sentiment)
- *neutral* (neither positive nor negative sentiment)

For example, in “I hated their *fajitas*, but their *salads* were great”, the aspect term “*fajitas*” has *negative* polarity and “*salads*” has *positive* polarity; in “The *fajitas* were their starters”, “*fajitas*” has *neutral* polarity; and in “The *fajitas* were great to taste, but not to see”, “*fajitas*” has *conflict* polarity.

For the restaurant data, two further types of information need to be annotated:

- **Aspect category**

The task of the annotator is to identify the aspect categories discussed in a sentence given the following five *aspect categories*:

- *food*
- *service*
- *price*
- *ambience* (*sentences referring to the atmosphere and the environment of a restaurant*)
- *anecdotes/miscellaneous* (*sentences that do not belong to the above four categories*)

A sentence may be classified into one or more aspect categories based on its overall meaning. For example, the sentence “*The restaurant was expensive, but the menu was great*” discusses the aspect categories *price* and *food*.

- **Aspect category polarity**

Each aspect category discussed by a particular sentence has to be assigned one of the following polarities based on the sentiment that is expressed in the sentence about it:

- *positive*
- *negative*

- *conflict* (both positive and negative sentiment)
- *neutral* (neither positive nor negative sentiment)

For example, in “*The restaurant was expensive, but the menu was great*”, the aspect category *price* has negative polarity, whereas *food* has positive polarity.

Aspect terms and aspect categories (or sets of aspect terms or aspect categories) are intended to be used as row labels as in the following table that could be automatically generated by an aspect based sentiment analysis system. The stars can be computed by averaging the polarity scores of the aspect terms or aspect categories over multiple reviews of the target entity (“Apple Mac mini” in this example).

Apple Mac mini		GO
money, price, cost, ...	★★★★★	
ram, memory, ...	★★★★	
design, color, feeling, ...	★★★★★	

Figure 1: Table summarizing the opinions (polarities) about particular aspects of a target entity.

2. Annotation guidelines for aspect terms

2.1. What should be annotated as aspect term

- 1) Nominal phrases explicitly mentioning aspects. Notice that in (ii), the aspect term is “*cover for the DVD drive*”, not simply “*DVD drive*”. In (vii), there is only one aspect term: the “*smoked salmon and roe appetizer*”, since this is a single dish, rather than two separate aspect terms “*smoked salmon*” and “*roe appetizer*”.
 - i. The screen is bright and the keyboard is nice
 - ii. The cover for the DVD drive soon came off, too--a mark of poor construction quality
 - iii. Of course, I also have several great software packages that came for free including iWork , GarageBand , and iMovie
 - iv. Quality of food is excellent and price is cheap , stick to pork , fish , chicken , lamb and vegetables
 - v. The food options rule
 - vi. I had Filet Mignon with garlic mash
 - vii. I ordered the smoked salmon and roe appetizer and it was off flavor
- 2) Verbs or verbals (words formed from a verb, but functioning as a different part of speech e.g., gerunds and participles) naming aspects, like “*priced*” and “*gaming*” below.
 - i. Fresh , delicious , and reasonably priced
 - ii. It is pretty sweet when you want gaming on the laptop

☺ Remarks:

A. Subjectivity indicators (i.e., words/phrases expressing opinion, evaluation etc.) are NOT considered aspect terms or parts of aspect terms. For example, “*malfunction*”, “*overpriced*”, “*good*”, “*great*” in the following sentences should NOT be annotated.

- i. *It had a cooling system malfunction after 10 minutes of general use, and would not move past this error*
- ii. *Good spreads, great beverage selections and bagels really tasty.*
- iii. *The MacBook is way too overpriced for something so simple and chaotic.*

Note that some terms can be used both as parts of aspect terms as well as subjectivity indicators (e.g., “*fresh*” in the following sentences).

- iii. *Both the fresh mozzarella slices and the Plain Cheese slice are phenomenal*
- iv. *The food is fresh, delicious, and reasonably priced*

B. Terms that are often used as aspect terms (e.g., “*screen*”) may not always be aspect terms; for example, “*blue screen crash*” is an operating system malfunction. In sentence (ii), “*place*” refers to the restaurant as a whole and, hence, is not an aspect term; by contrast, in (iii) “*place*” is an aspect term referring to the space or room of the restaurant.

- i. *It gave me a blue screen crash twice*
- ii. *Would recommend - perfect for those looking for a place close to grand central.*
- iii. *The staff was accomodating, the food was absolutely delicious and the place is lovely.*

C. If an aspect term appears in a sentence more than once, all of its occurrences in the sentence should be annotated.

The only disappointment was the coat check girls who didn't seem to know what a customer is on a relatively non-busy night (for the coat check girls).

D. The identified aspect terms should be annotated even if they appear in quotation marks or brackets. Notice that “*okra (bindi)*” is a single aspect term below.

I recommend the garlic shrimp, okra (bindi), and anything with lamb.

E. The identified aspect terms should be annotated as they appear, even if misspelled.

The store honored their warrenty and made the comment that they don't even recommend the HP brand because of the problems with their warrentys.

F. Determiners (e.g., “*a*”, “*the*”, “*some*”, “*many*”, “*all*”) should not be included in aspect terms, unless they are parts of embedded noun phrases, as illustrated below.

The cover for the DVD drive soon came off, too--a mark of poor construction quality.

2.2. What should NOT be annotated as aspect term

A. References to the target entity (the restaurant or laptop the review is about) as a whole and mentions of other entities (e.g., “*New York City*” below). No aspect term should be annotated in the following sentences:

- i. *Great product*
- ii. *This is my favorite Italian restaurant in all of New York City*

B. The name, the type or the model of the laptop, including the name of the manufacturer (e.g., “*netbook*”, “*MacBook*”, “*Dell*”, “*Apple*”) or the name of the restaurant. No aspect term should be annotated in the following sentences.

- i. *The Notebook PC, Toshiba Qosmio is the best gift my father could have ever gotten me.*
- ii. *I was at Rao 's last Wed*

C. Pronouns (e.g., “*it*”, “*they*”, “*this*”) even if they refer to an aspect. For example, “*it*” should not be annotated below.

I love the screen, it is amazing

D. Implicit aspect terms, i.e., aspect terms that are not explicitly mentioned, but can be inferred from adjectives or other expressions. For example, sentence (i) can be thought of as referring to an implicit aspect term “*price*”, because of the adjective “*inexpensive*”. Only explicitly mentioned aspect terms should be annotated, like “*prices*” in sentence (ii).

- i. *I picked it out because it was inexpensive (\$400).*
- ii. *Prices are in line*

3. Annotation guidelines for aspect term polarities

3.1. Positive, negative, conflict polarity

An aspect term should be classified as *positive*, *negative* or *conflict* if the sentence expresses a positive, negative, or both positive and negative, respectively, attitude, opinion, evaluation, emotion, or feeling etc. of an opinion holder towards the aspect term. In sentences (i), (ii), (iii), the opinion holder is the reviewer, whereas in sentence (iv), the opinion holder is a third person.

- i. *The technical service for dell is so 3rd world it might as well not even bother → “technical service”: negative*
- ii. *Small screen somewhat limiting but great for travel → “screen”: conflict*
- iii. *Metrazur has a beautiful spot overlooking the main terminal → “spot”: positive*
- iv. *My husband had the mesclun, salmon, and ice cream and he enjoyed all 3 courses → “mesclun”: positive, “salmon”: positive, “ice cream”: positive, “courses”: positive*

3.2 Neutral polarity

Aspect terms should be annotated as *neutral* in the following cases:

A. when a neutral sentiment, wish, or desire toward the aspect term is expressed, e.g.,

I would like at least a 4 hr. battery life → “battery life”: neutral

B. when factual information (no sentiment) about the aspect term is provided.

Went there for an office lunch → “office lunch”: neutral

C. when positive or negative polarity about the named aspect might be inferred, without being explicit.

i. *We were told that the wait was about twenty minutes and there would be no problem for our 8:00 pm curtain call → “wait”: neutral*

ii. *It took them 25 minutes to bring our appetizer → “appetizer”: neutral*

D. when expression like “moderate”, “in line”, “nothing out of the ordinary”, “not an issue” etc. are used. Notice, also, that in sentence (iv) the aspect term is “keyboard”, not “backlit keyboard”, since the laptop does not actually have a backlit keyboard.

i. *The price is moderate → “price”: neutral*

ii. *Prices are in line → “prices”: neutral*

iii. *The scallion pancakes and fried dumplings were nothing out of the ordinary → “scallion pancakes”: neutral, “fried dumplings”: neutral*

iv. *No backlit keyboard, but not an issue for me → “keyboard”: neutral*

4. Annotation guidelines for aspect categories

Aspect categories are annotated only in the restaurant reviews. The original dataset of Ganu et al. (2009), on which this dataset is based, included annotations for six aspect categories:

- *food*
- *price*
- *service*
- *ambiance*
- *anecdotes (sentences describing the reviewer’s personal experience or context, but that do not usually provide information on the restaurant quality e.g. “I knew upon visiting NYC that I wanted to try an original deli”)*
- *miscellaneous (sentences that do not belong to the other five categories including sentences that are general recommendations e.g. “Your friends will thank you for introducing them to this gem!”)*

The first four categories are typical parameters of restaurant reviews (e.g., Zagat ratings). The distinction between *anecdotes* and *miscellaneous*, however, was often unclear, and these two categories have been merged for the purposes of this annotation.

i. *The restaurant was expensive, but the menu was great → aspect categories discussed: **price, food***

ii. *All the appetizers and salads were fabulous, the steak was mouth watering and the pasta was delicious → aspect categories discussed: **food***

iii. *Overall I would recommend it and go back again → aspect categories discussed: **anecdotes/miscellaneous***

iv. *While the ambiance and atmosphere were great, the food and service could have been a lot better → aspect categories discussed: **ambiance, food, service***

v. *Now it 's so crowded and loud you ca n't even talk to the person next to you → aspect categories discussed: **ambiance***

!!! Notice that aspect categories may not necessarily occur as terms in the sentence e.g., the sentence “*Anybody who likes this place must be from a different planet, where greasy, dry, tasteless and complimentary*” discusses the aspect category *food*, without mentioning particular aspect terms related to the food.

Note: The original dataset of Ganu et al. (2009) included annotations only for aspect categories and overall sentence polarities. For the purposes of this annotation, the dataset is being modified to include annotations for aspect terms, aspect term polarities, and aspect category polarities. No changes are to be made to the existing *aspect category* annotations of the sentences, unless mistakes are detected.

Additionally, errors from the Ganu et al. (2009) dataset will be corrected. Some examples of these are:

vi. *Add to that great service and great food at a reasonable price and you have yourself the beginning of a great evening* → the **service** aspect category is *missing* from the annotations; the sentence was originally annotated only with aspect categories: **food** and **price**.

vii. *With the theater 2 blocks away we had a delicious meal in a beautiful room* → the **ambience** aspect category is *missing* from the annotations; the sentence was originally annotated only with the aspect category **food**.

Additional restaurant reviews, not in the original dataset of Ganu et al. (2009), will also be annotated from scratch in the same manner, and they will be used as test data.

5. Annotation guidelines for aspect category polarities

The guidelines are the same as for aspect term polarities. Some examples follow:

- i. *The restaurant was expensive, but the menu was great* → **price: negative, food: positive**
- ii. *All the appetizers and salads were fabulous , the steak was mouth watering and the pasta was delicious* → **food: positive**
- iii. *Overall I would recommend it and go back again* → **anecdotes/miscellaneous: positive**
- iv. *While the ambience and atmosphere were great , the food and service could have been a lot better* → **ambience: positive, food: negative, service: negative**
- v. *Now it 's so crowded and loud you can't even talk to the person next to you* → **ambience: negative**
- vi. *I have tried literally every restaurant on curry row* → **anecdotes/miscellaneous: neutral**
- vii. *The sweet lassi was excellent as was the lamb chettinad and the garlic naan but the rasamalai was forgettable* → **food: conflict**

If a sentence conveys both (a) neutral and (b) negative (or positive) opinions about an aspect category, then the negative (or positive) polarities dominate over the neutral ones. In the following example, a positive opinion is expressed about the menu, but there are no opinions (neutral) for the particular items of the menu mentioned (burger, steak, escargot), but the aspect category *food* has a positive polarity.

The menu was impressive with selections ranging from a burger, to steak, to escargot → **food: positive**

Annotation Confidence

For each aspect term and aspect category annotation the annotators have to provide a confidence level rating according to the following three-level scale:

1. Not Confident (i.e. the annotator is not sure about an aspect term)
2. Average Confidence (i.e. the annotator is confident about the aspect term but not about its polarity)
3. Confident

References

G. Ganu, N. Elhadad, and A. Marian, "Beyond the stars: Improving rating predictions using review text content". Proceedings of the 12th International Workshop on the Web and Databases, Providence, Rhode Island, 2009.