

Practical Text Analytics: Text Preparation

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September 30, 2019

Recall: Text analytics process

Text analytics process

- Planning the text analytics projects
- **Preparing and preprocessing text**
(*Chapter 4 & 13, Anandarajan et al.(2019)*)
- Analyzing data
- Interpreting results

Text Preparation



- Raw text data: document collection or corpus
 - Document: each record of the collected text data (unique identifier)
 - Movie reviews:
Document 1: Excellent cast, story line, performances. ♡
Document 2: It was so BORING!
- Tokens: single words or groups of words
 - Focus and features of the text analysis
 - *Excellent, cast, story, line, performance, ♡, it, was, so, BORING*
 - *Excellent cast, story line, performance,...*

Text Preparation: Tokenization

Tokenization: separate the text into a more usable form, known as tokens.

- Single words

[Excellent] [cast] [,] [story] [line] [,] [performances] [.] [♡]

- N-grams, e.g., $n = 2$ for document 1,

The first token is:

[Excellent cast], story line, performances. ♡

The second token is:

Excellent [cast,] story line, performances. ♡

The third token is:

Excellent cast [, story] line, performances. ♡

The last token is:

[Excellent cast], story line, performances [. ♡]

Text Preparation: Standardization, Cleaning and Stop Word Removal

- Standardization: convert to lower case and check misspelling
- Cleaning: remove numbers, punctuation, and special characters
- Stop word removal: drop frequently used filler words, or stop words
 - *and, the, be, to, of*
- Movie reviews:

Document 1: Excellent cast, story line, performances. ♥

- [excellent] [cast] [story] [line] [performances]

Document 2: It was so BORING!

- [boring]

Text Preparation: Stemming and Lemmatization

Breaking words down to their root word

- Stemming: remove a word's suffix to reduce the size of the vocabulary
 - Train, Trains, Trained, Training, Trainer \Rightarrow train
 - A single word could have multiple meanings...
- Lemmatization: group word roots by the part of speech.
 - Group tokens at the cost of added complexity

Word	Stemming	Part of speech	Lemmatization
Fluffiest	Fluffy	Adjective	Fluffy
Fluffiness	Fluffy	Noun	Fluffiness
Fluffily	Fluffy	Adverb	Fluffily

Text Preparation: Synonymy and Polysemy

- Synonymy: two different words having the same meaning.
 - “My cap is brown”, “My hat is white”
"cap", "hat"
- Polysemy: a single word having multiple meanings.
 - “My fluffy dog has a white coat and hat,”
"coat":
 1. the dog is wearing a white coat
 2. the dog has white fur

Text Preparation: Summaries

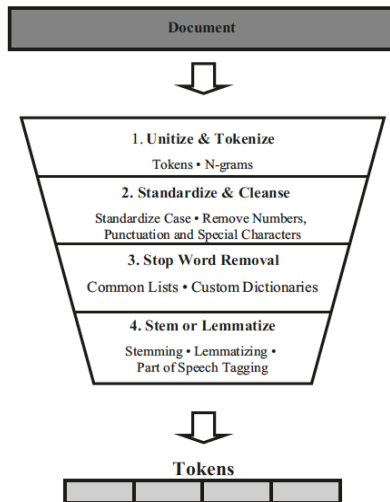


Figure: The text data pre-processing process

Source: **Practical text analytics: maximizing the value of text data**