REPORT

Problem:
To Identify negation and part of sentence over which it applies.

Method Used:

- Parse the sentence using Stanford parser to obtain the phrase structure grammar.
- Maintain a list of negative words such as ‘not’, ’except’, ’minus’, ’excluding’, ’no’ etc.
- Extract noun phrases occurring between the negative words and a conjunction or punctuations such as’,’ as the negative phrases.
- Check again after a conjunction or punctuation in case there is a change in tone. i.e. now there might be positive parts
- Extract the noun phrases occurring before the negative word as positive. Also the phrases after tone change will be positive phrases.

Reason for using the above method and other ways that can be used:
This problem can be solved by using either heuristics or using a classifier. Currently, I have used heuristics due limited availability of data. In real life one might encounter sentences, which are not so properly structured. In that scenario we can train the parser on such sentences or try to form structured sentence from the unstructured format. Once we have more data we can also try training a classifier depending on features such position of the negative word, which words tend to occur together etc.

Results

Got positive results for most of the examples tried.

Below are few examples:

Input :
I want coffee with no cream and extra sugar.
Output:

negative list set ([(u'no',), (u'cream',)])
positive list set ([(u'coffee',), (u'I',), (u'extra', u'sugar')])

Input:
I want coffee, but without any foam and cream

Output:
negative list set ([(u'any', u'foam', u'and', u'cream'), (u'cream',), (u'any',), (u'and',), (u'foam',)])
positive list set ([(u'coffee',), (u'I',)])