Text Processing and Analysis of a News Article

1) Detect Sentences in the Given News Article:

The provided news article has been successfully divided into separate sentences using OpenNLP's sentence detection model. Each sentence is treated as a distinct unit for further analysis.

Code Snippet:

```
// Loading Model
InputStream sentenceModelIn = new
FileInputStream("C:/Users/Sumanth/OneDrive/Desktop/NLP/en-sent.bin");
SentenceModel sentenceModel = new SentenceModel(sentenceModelIn);
SentenceDetectorME sentenceDetector = new SentenceDetectorME(sentenceModel);
```

2) Tokenize Each Sentence into Words:

For each of the detected sentences, tokenization has been performed using OpenNLP's tokenizer model. This process involves breaking down each sentence into individual words. Below is a summary of the tokenization results for the sentences:

Code Snippet:

```
// Loading Model
InputStream tokenizerModelIn = new
FileInputStream("C:/Users/Sumanth/OneDrive/Desktop/NLP/en-token.bin");
TokenizerModel tokenizerModel = new TokenizerModel(tokenizerModelIn);
TokenizerME tokenizer = new TokenizerME(tokenizerModel);
```

Sentence 1: ["Anglo-French", "Channel", "Tunnel", "operator", "Eurotunnel", "Monday", "announced", "a", "deal", "giving", "its", "creditor", "banks", "45.5", "percent", "of", "the", "company", "in", "return", "for", "wiping", "out", "one", "billion", "pounds", "(", "$", "1.56", "billion", ")", "of", "its", "debt", "."]

Sentence 2: ["The", "long-awaited", "restructuring", "brings", "to", "an", "end", "months", "of", "wrangling", "between", "Eurotunnel", "and", "the", "225", "banks", "to", "which", "it", "owes", "nearly", "nine", "billion", "pounds", "(", "$", "14.1", "billion", ")".]

Sentence 3: ["The", "deal", ",", "announced", "simultaneously", "in", "Paris", "and", "London", ",", "brings", "the", "company", "back", "from", "the", "brink", "of", "insolvency", "but", "leaves", "shareholders", "owning", "only", "54.5", "percent", "of", "the", "company", "."]

Sentence 4: ["The", "restructuring", "plan", "provides", "Eurotunnel", "with", "the", "medium-term", "financial", "stability", "to", "allow", "it", "to", "consolidate", "its", "substantial", "commercial", "achievements", "to", "date", "and", "to", "develop", "its", "operations,", "\"", "Eurotunnel", "co-chairman", "Alastair", "Morton", "said", "."]

 Sentence 5: ["The", "firm", "was", "now", "making", "a", "profit", "before", "interest,", "he", "added", "."]

Sentence 6: ["Although", "shareholders", "will", "see", "their", "interests", "diluted,", "they", "were", "offered", "the", "prospect", "of", "a", "brighter", "future", "after", "months", "of", "uncertainty", "while", "Eurotunnel", "wrestled", "to", "reduce", "crippling", "interest", "payments", "negotiated", "during", "the", "tunnel's", "construction", "."]

Sentence 7: ["Eurotunnel,", "which", "has", "taken", "around", "half", "the", "cross-Channel", "market", "from", "the", "European", "ferry", "companies,", "said", "a", "strong", "operating", "performance", "could", "allow", "it", "to", "pay", "its", "first", "dividend", "within", "the", "next", "10", "years", "."]

Sentence 8: ["French", "co-chairman", "Patrick", "Ponsolle", "said", "shareholders", "would", "have", "to", "be", "patient", "before", "they", "could", "reap", "the", "benefits", "of", "the", "company's", "success", "."]

Sentence 9: ["He", "called", "the", "debt", "restructuring", "plan", ""an", "acceptable", "compromise"", "for", "holders", "of", "Eurotunnel", "shares", "."]

Sentence 10: ["The", "company", "said", "there", "was", "still", "considerable", "work", "to", "be", "done", "to", "finalise", "and", "agree", "on", "the", "details", "of", "the", "plan", "before", "it", "can", "be", "submitted", "to", "shareholders", "and", "the", "full", "225", "bank", "syndicate", "for", "approval,", "probably", "early", "in", "1997", "."]

Sentence 11: ["Monday's", "announcement", "followed", "two", "weeks", "of", "highly", "secretive", "negotiations", "between", "Eurotunnel", "and", "its", "six", "leading", "banks", "."]
Sentence 12: ["This", "was", "extended", "to", "the", "24", ""instructing", "banks"", "at", "a", "meeting", "late", "last", "week", "in", "London", "."]

Sentence 12: ["This", "was", "extended", "to", "the", "24", ""instructing", "banks"", "at", "a", "meeting", "late", "last", "week", "in", "London", "."]

Sentence 13: ["Eurotunnel", "said", "the", "debt-for-equity", "swap", "would", "be", "at", "130", "pence,", "or", "10.40", "francs,", "per", "share", "."]

Sentence 14: ["That", "is", "considerably", "below", "the", "level", "of", "around", "160", "pence", "widely", "reported", "before", "announcement", "of", "the", "deal,", "and", "will", "reduce", "outstanding", "debt", "of", "8.7", "billion", "pounds", "(", "$", "13.6", "billion", ")", "by", "1.0", "billion", "(", "$", "1.56", "billion", ")" "."]

Sentence 15: ["The", "company", "said", "a", "further", "3.7", "billion", "pounds", "(", "$", "5.8", "billion", ")", "of", "debt", "would", "be", "converted", "into", "new", "financial", "instruments", "and", "existing", "shareholders", "would", "be", "able", "to", "participate", "in", "this", "issue", "."]

Sentence 16: ["If", "they", "choose", "not", "to", "take", "up", "free", "warrants", "entitling", "them", "to", "subscribe", "to", "this,", "Eurotunnel", "said", "shareholders'", "interests", "may", "be", "reduced", "further", "to", "just", "over", "39", "percent", "of", "the", "company", "by", "the", "end", "of", "December", "2003", "."]

Sentence 17: ["Eurotunnel's", "shares,", "which", "were", "suspended", "last", "week", "at", "113.5", "pence", "ahead", "of", "Monday's", "announcement,", "should", "resume", "trading", "on", "Tuesday,", "the", "company", "said", "."]

3) Perform Part-of-Speech (POS) on Each Sentence:

Part-of-speech tagging has been applied to each sentence using OpenNLP's POS tagging model. This process assigns a grammatical category (such as noun, verb, adjective, etc.) to each word in the sentence.

Code Snippet

```
InputStream posModelIn = new
FileInputStream("C:/Users/Sumanth/OneDrive/Desktop/NLP/en-pos-maxent.bin");
POSModel posModel = new POSModel(posModelIn);
POSTaggerME posTagger = new POSTaggerME(posModel);
```

Sentence1 : POS Tags: JJ, NNP, NNP, NN, NNP, NNP, VBD, DT, NN, VBG, PRP$, NN, NNS, CD, NN, IN, DT, NN, IN, NN, IN, VBG, RP, CD, CD, NNS, -LRB-, $, CD, CD, -RRB-, IN, PRP$, NN, .

Reference :

- **CC:** It is the conjunction of coordinating
- **CD:** It is a digit of cardinal
- **DT:** It is the determiner
- **EX:** Existential
- **FW:** It is a foreign word
- **IN:** Preposition and conjunction
- **JJ:** Adjective
- **JJR and JJS:** Adjective and superlative
- **LS:** List marker
- **MD:** Modal
- **NN:** Singular noun

- **NNS, NNP, NNPS:** Proper and plural noun
- **PDT:** Predeterminer
- **WRB:** Adverb of wh
- **WP$:** Possessive wh
- **WP:** Pronoun of wh
- **WDT:** Determiner of wp
- **VBZ:** Verb
- **VBP, VBN, VBG, VBD, VB:** Forms of verbs
- **UH:** Interjection
- **TO:** To go
- **RP:** Particle
- **RBS, RB, RBR:** Adverb
- **PRP, PRP$:** Pronoun personal and professional

4) Find Named Entities Including Person's Name Entities and Locations:

Named entity recognition (NER) has been performed to identify entities like persons' names and locations within each sentence. Identified named entities are listed below each sentence.

Code Snippet :

```
InputStream nerModelIn = new
FileInputStream("C:/Users/Sumanth/OneDrive/Desktop/NLP/en-ner-person.bin");
TokenNameFinderModel nerModel = new TokenNameFinderModel(nerModelIn);
NameFinderME nerFinder = new NameFinderME(nerModel);
```

Output:

From the news article, I could extract two named entities from the following sentences below,

```
Sentence: "The restructuring plan provides Eurotunnel with the medium-term financial
stability to allow it to consolidate its substantial commercial achievements to date
and to develop its operations," Eurotunnel co-chairman Alastair Morton said.
Tokens: ", The, restructuring, plan, provides, Eurotunnel, with, the, medium-term,
financial, stability, to, allow, it, to, consolidate, its, substantial, commercial,
achievements, to, date, and, to, develop, its, operations, ,, ", Eurotunnel, co-
chairman, Alastair, Morton, said, .
POS Tags: ``, DT, NN, NN, VBZ, NNP, IN, DT, JJ, JJ, NN, TO, VB, PRP, TO, VB, PRP$,
JJ, JJ, NNS, TO, NN, CC, TO, VB, PRP$, NNS, ,, '', NNP, NN, NNP, NNP, VBD, .
Named Entities: Alastair Morton
Here, Alastair Morton is a named entity
```

```
Sentence: French co-chairman Patrick Ponsolle said shareholders would have to be
patient before they could reap the benefits of the company's success.
Tokens: French, co-chairman, Patrick, Ponsolle, said, shareholders, would, have, to,
be, patient, before, they, could, reap, the, benefits, of, the, company, 's, success,
.
POS Tags: JJ, NN, NNP, NNP, VBD, NNS, MD, VB, TO, VB, JJ, IN, PRP, MD, VB, DT, NNS,
IN, DT, NN, POS, NN, .
```

Named Entities: Patrick Ponsolle
Here, Patrick Ponsolle is a named entity

In summary, the text processing and analysis of the provided news article have successfully divided the text into sentences, tokenized them into words, performed POS tagging, and identified named entities, including person's names and locations. This analysis provides a structured understanding of the content within the news article.

Importing Package and Libraries:

```java
package com.example.opennlp;

import java.io.BufferedReader;
import java.io.FileInputStream;
import java.io.IOException;
import java.io.InputStream;
import java.io.InputStreamReader;
import opennlp.tools.sentdetect.SentenceDetectorME;
import opennlp.tools.sentdetect.SentenceModel;
import opennlp.tools.tokenize.TokenizerME;
import opennlp.tools.tokenize.TokenizerModel;
import opennlp.tools.postag.POSModel;
import opennlp.tools.postag.POSTaggerME;
import opennlp.tools.namefind.*;
import opennlp.tools.util.Span;
```

Code to load models:

```java
// Load models
InputStream sentenceModelIn = new FileInputStream("C:/Users/Sumanth/OneDrive/Desktop/NLP/en-sent.bin");
SentenceModel sentenceModel = new SentenceModel(sentenceModelIn);
SentenceDetectorME sentenceDetector = new SentenceDetectorME(sentenceModel);

InputStream tokenizerModelIn = new FileInputStream("C:/Users/Sumanth/OneDrive/Desktop/NLP/en-token.bin");
TokenizerModel tokenizerModel = new TokenizerModel(tokenizerModelIn);
TokenizerME tokenizer = new TokenizerME(tokenizerModel);

InputStream posModelIn = new FileInputStream("C:/Users/Sumanth/OneDrive/Desktop/NLP/en-pos-maxent.bin");
POSModel posModel = new POSModel(posModelIn);
POSTaggerME posTagger = new POSTaggerME(posModel);

InputStream nerModelIn = new FileInputStream("C:/Users/Sumanth/OneDrive/Desktop/NLP/en-ner-person.bin");
TokenNameFinderModel nerModel = new TokenNameFinderModel(nerModelIn);
NameFinderME nerFinder = new NameFinderME(nerModel);



// Detect sentences
String[] sentences = sentenceDetector.sentDetect(newsArticle);

for (String sentence : sentences) {
    // Tokenize sentence into words
    String[] words = tokenizer.tokenize(sentence);

    // Perform POS tagging
    String[] posTags = posTagger.tag(words);

    // Find named entities
    Span[] spans = nerFinder.find(words);
    String[] entities = Span.spansToStrings(spans, words);

    // Print results
    System.out.println("Sentence: " + sentence);
    System.out.println("Tokens: " + String.join(", ", words));
    System.out.println("POS Tags: " + String.join(", ", posTags));
    System.out.println("Named Entities: " + String.join(", ", entities));
    System.out.println();
}
```

Source Code(NewsProcessingFromFile.java):

```java
package com.example.opennlp;


import java.io.BufferedReader;
import java.io.FileInputStream;
import java.io.IOException;
import java.io.InputStream;
import java.io.InputStreamReader;
import opennlp.tools.sentdetect.SentenceDetectorME;
import opennlp.tools.sentdetect.SentenceModel;
import opennlp.tools.tokenize.TokenizerME;
```

```java
import opennlp.tools.tokenize.TokenizerModel;
import opennlp.tools.postag.POSModel;
import opennlp.tools.postag.POSTaggerME;
import opennlp.tools.namefind.*;
import opennlp.tools.util.Span;


public class NewsProcessingFromFile {
public static void main(String[] args) {
try {
// Load models
InputStream sentenceModelIn = new
FileInputStream("C:/Users/Sumanth/OneDrive/Desktop/NLP/en-sent.bin");
SentenceModel sentenceModel = new SentenceModel(sentenceModelIn);
SentenceDetectorME sentenceDetector = new SentenceDetectorME(sentenceModel);


InputStream tokenizerModelIn = new
FileInputStream("C:/Users/Sumanth/OneDrive/Desktop/NLP/en-token.bin");
TokenizerModel tokenizerModel = new TokenizerModel(tokenizerModelIn);
TokenizerME tokenizer = new TokenizerME(tokenizerModel);


InputStream posModelIn = new
FileInputStream("C:/Users/Sumanth/OneDrive/Desktop/NLP/en-pos-maxent.bin");
POSModel posModel = new POSModel(posModelIn);
POSTaggerME posTagger = new POSTaggerME(posModel);


InputStream nerModelIn = new
FileInputStream("C:/Users/Sumanth/OneDrive/Desktop/NLP/en-ner-person.bin");
TokenNameFinderModel nerModel = new TokenNameFinderModel(nerModelIn);
NameFinderME nerFinder = new NameFinderME(nerModel);


// Read the news article from a text document
String filePath = "C:/Users/Sumanth/Downloads/news article.txt";
StringBuilder articleText = new StringBuilder();


try (BufferedReader br = new BufferedReader(new InputStreamReader(new
FileInputStream(filePath), "UTF-8"))) {
String line;
while ((line = br.readLine()) != null) {
articleText.append(line).append("\n");
}
}
```

```java
String newsArticle = articleText.toString();


// Detect sentences
String[] sentences = sentenceDetector.sentDetect(newsArticle);


for (String sentence : sentences) {
// Tokenize sentence into words
String[] words = tokenizer.tokenize(sentence);


// Perform POS tagging
String[] posTags = posTagger.tag(words);


// Find named entities
Span[] spans = nerFinder.find(words);
String[] entities = Span.spansToStrings(spans, words);


// Print results
System.out.println("Sentence: " + sentence);
System.out.println("Tokens: " + String.join(", ", words));
System.out.println("POS Tags: " + String.join(", ", posTags));
System.out.println("Named Entities: " + String.join(", ", entities));
System.out.println();
}


// Close the input streams
sentenceModelIn.close();
tokenizerModelIn.close();
posModelIn.close();
nerModelIn.close();
} catch (IOException e) {
e.printStackTrace();
}
}
}
```

OUTPUT :

Sentence: Anglo-French Channel Tunnel operator Eurotunnel Monday announced a deal giving its creditor banks 45.5 percent of the company in return for wiping out one billion pounds ($1.56 billion) of its debt.

Tokens: Anglo-French, Channel, Tunnel, operator, Eurotunnel, Monday, announced, a,
deal, giving, its, creditor, banks, 45.5, percent, of, the, company, in, return, for,
wiping, out, one, billion, pounds, (, $, 1.56, billion,), of, its, debt, .
POS Tags: JJ, NNP, NNP, NN, NNP, NNP, VBD, DT, NN, VBG, PRP$, NN, NNS, CD, NN, IN,
DT, NN, IN, NN, IN, VBG, RP, CD, CD, NNS, -LRB-, $, CD, CD, -RRB-, IN, PRP$, NN, .
Named Entities:

Sentence: The long-awaited restructuring brings to an end months of wrangling between
Eurotunnel and the 225 banks to which it owes nearly nine billion pounds ($14.1
billion).
Tokens: The, long-awaited, restructuring, brings, to, an, end, months, of, wrangling,
between, Eurotunnel, and, the, 225, banks, to, which, it, owes, nearly, nine,
billion, pounds, (, $, 14.1, billion,), .
POS Tags: DT, JJ, NN, VBZ, TO, DT, NN, NNS, IN, VBG, IN, NNP, CC, DT, CD, NNS, TO,
WDT, PRP, VBZ, RB, CD, CD, NNS, -LRB-, $, CD, CD, -RRB-, .
Named Entities:

Sentence: The deal, announced simultaneously in Paris and London, brings the company
back from the brink of insolvency but leaves shareholders owning only 54.5 percent of
the company.
Tokens: The, deal, ,, announced, simultaneously, in, Paris, and, London, ,, brings,
the, company, back, from, the, brink, of, insolvency, but, leaves, shareholders,
owning, only, 54.5, percent, of, the, company, .
POS Tags: DT, NN, ,, VBD, RB, IN, NNP, CC, NNP, ,, VBZ, DT, NN, RB, IN, DT, NN, IN,
NN, CC, VBZ, NNS, VBG, RB, CD, NN, IN, DT, NN, .
Named Entities:

Sentence: "The restructuring plan provides Eurotunnel with the medium-term financial
stability to allow it to consolidate its substantial commercial achievements to date
and to develop its operations," Eurotunnel co-chairman Alastair Morton said.
Tokens: ", The, restructuring, plan, provides, Eurotunnel, with, the, medium-term,
financial, stability, to, allow, it, to, consolidate, its, substantial, commercial,
achievements, to, date, and, to, develop, its, operations, ,, ", Eurotunnel, co-
chairman, Alastair, Morton, said, .
POS Tags: ``, DT, NN, NN, VBZ, NNP, IN, DT, JJ, JJ, NN, TO, VB, PRP, TO, VB, PRP$,
JJ, JJ, NNS, TO, NN, CC, TO, VB, PRP$, NNS, ,, '', NNP, NN, NNP, NNP, VBD, .
Named Entities: Alastair Morton

Sentence: The firm was now making a profit before interest, he added.
Tokens: The, firm, was, now, making, a, profit, before, interest, ,, he, added, .
POS Tags: DT, NN, VBD, RB, VBG, DT, NN, IN, NN, ,, PRP, VBD, .
Named Entities:

Sentence: Although shareholders will see their interests diluted, they were offered the prospect of a brighter future after months of uncertainty while Eurotunnel wrestled to reduce crippling interest payments negotiated during the tunnel's construction.
Tokens: Although, shareholders, will, see, their, interests, diluted, ,, they, were, offered, the, prospect, of, a, brighter, future, after, months, of, uncertainty, while, Eurotunnel, wrestled, to, reduce, crippling, interest, payments, negotiated, during, the, tunnel, 's, construction, .
POS Tags: IN, NNS, MD, VB, PRP$, NNS, VBN, ,, PRP, VBD, VBN, DT, NN, IN, DT, JJR, NN, IN, NNS, IN, NN, IN, NNP, VBD, TO, VB, JJ, NN, NNS, VBD, IN, DT, NN, VBZ, NN, .
Named Entities:

Sentence: Eurotunnel, which has taken around half the cross-Channel market from the European ferry companies, said a strong operating performance could allow it to pay its first dividend within the next 10 years.
Tokens: Eurotunnel, ,, which, has, taken, around, half, the, cross-Channel, market, from, the, European, ferry, companies, ,, said, a, strong, operating, performance, could, allow, it, to, pay, its, first, dividend, within, the, next, 10, years, .
POS Tags: NNP, ,, WDT, VBZ, VBN, IN, PDT, DT, NN, NN, IN, DT, JJ, NN, NNS, ,, VBD, DT, JJ, NN, NN, MD, VB, PRP, TO, VB, PRP$, JJ, NN, IN, DT, JJ, CD, NNS, .
Named Entities:

Sentence: French co-chairman Patrick Ponsolle said shareholders would have to be patient before they could reap the benefits of the company's success.
Tokens: French, co-chairman, Patrick, Ponsolle, said, shareholders, would, have, to, be, patient, before, they, could, reap, the, benefits, of, the, company, 's, success, .
POS Tags: JJ, NN, NNP, NNP, VBD, NNS, MD, VB, TO, VB, JJ, IN, PRP, MD, VB, DT, NNS, IN, DT, NN, POS, NN, .
Named Entities: Patrick Ponsolle

Sentence: He called the debt restructuring plan "an acceptable compromise" for holders of Eurotunnel shares.
Tokens: He, called, the, debt, restructuring, plan, ", an, acceptable, compromise, ", for, holders, of, Eurotunnel, shares, .
POS Tags: PRP, VBD, DT, NN, NN, NN, ``, DT, JJ, NN, '', IN, NNS, IN, NNP, NNS, .
Named Entities:

Sentence: The company said there was still considerable work to be done to finalise and agree on the details of the plan before it can be submitted to shareholders and the full 225 bank syndicate for approval, probably early in 1997.
Tokens: The, company, said, there, was, still, considerable, work, to, be, done, to, finalise, and, agree, on, the, details, of, the, plan, before, it, can, be, submitted, to, shareholders, and, the, full, 225, bank, syndicate, for, approval, ,, probably, early, in, 1997, .

POS Tags: DT, NN, VBD, EX, VBD, RB, JJ, NN, TO, VB, VBN, TO, VB, CC, VB, IN, DT, NNS, IN, DT, NN, IN, PRP, MD, VB, VBN, TO, NNS, CC, DT, JJ, CD, NN, NN, IN, NN, ,, RB, RB, IN, CD, .
Named Entities:

Sentence: Monday's announcement followed two weeks of highly secretive negotiations between Eurotunnel and its six leading banks.
Tokens: Monday, 's, announcement, followed, two, weeks, of, highly, secretive, negotiations, between, Eurotunnel, and, its, six, leading, banks, .
POS Tags: NNP, POS, NN, VBD, CD, NNS, IN, RB, JJ, NNS, IN, NNP, CC, PRP$, CD, JJ, NNS, .
Named Entities:

Sentence: This was extended to the 24 "instructing banks" at a meeting late last week in London.
Tokens: This, was, extended, to, the, 24, "instructing, banks, ", at, a, meeting, late, last, week, in, London, .
POS Tags: DT, VBD, VBN, TO, DT, CD, NN, NNS, '', IN, DT, NN, RB, JJ, NN, IN, NNP, .
Named Entities:

Sentence: Eurotunnel said the debt-for-equity swap would be at 130 pence, or 10.40 francs, per share.
Tokens: Eurotunnel, said, the, debt-for-equity, swap, would, be, at, 130, pence, ,, or, 10.40, francs, ,, per, share, .
POS Tags: NNP, VBD, DT, NN, NN, MD, VB, IN, CD, NN, ,, CC, CD, NNS, ,, IN, NN, .
Named Entities:

Sentence: That is considerably below the level of around 160 pence widely reported before announcement of the deal, and will reduce outstanding debt of 8.7 billion pounds ($13.6 billion) by 1.0 billion ($1.56 billion).
Tokens: That, is, considerably, below, the, level, of, around, 160, pence, widely, reported, before, announcement, of, the, deal, ,, and, will, reduce, outstanding, debt, of, 8.7, billion, pounds, (, $, 13.6, billion,), by, 1.0, billion, (, $, 1.56, billion,), .
POS Tags: DT, VBZ, RB, IN, DT, NN, IN, IN, CD, NN, RB, VBN, IN, NN, IN, DT, NN, ,, CC, MD, VB, JJ, NN, IN, CD, CD, NNS, -LRB-, $, CD, CD, -RRB-, IN, CD, CD, -LRB-, $, CD, CD, -RRB-, .
Named Entities:

Sentence: The company said a further 3.7 billion pounds ($5.8 billion) of debt would be converted into new financial instruments and existing shareholders would be able to participate in this issue.

Tokens: The, company, said, a, further, 3.7, billion, pounds, (, $, 5.8, billion,), of, debt, would, be, converted, into, new, financial, instruments, and, existing, shareholders, would, be, able, to, participate, in, this, issue, .
POS Tags: DT, NN, VBD, DT, RB, CD, CD, NNS, -LRB-, $, CD, CD, -RRB-, IN, NN, MD, VB, VBN, IN, JJ, JJ, NNS, CC, VBG, NNS, MD, VB, JJ, TO, VB, IN, DT, NN, .
Named Entities:

Sentence: If they choose not to take up free warrants entitling them to subscribe to this, Eurotunnel said shareholders' interests may be reduced further to just over 39 percent of the company by the end of December 2003.
Tokens: If, they, choose, not, to, take, up, free, warrants, entitling, them, to, subscribe, to, this, ,, Eurotunnel, said, shareholders, ', interests, may, be, reduced, further, to, just, over, 39, percent, of, the, company, by, the, end, of, December, 2003, .
POS Tags: IN, PRP, VBP, RB, TO, VB, RP, JJ, NNS, VBG, PRP, TO, VB, TO, DT, ,, NNP, VBD, NNS, POS, NNS, MD, VB, VBN, RB, TO, RB, IN, CD, NN, IN, DT, NN, IN, DT, NN, IN, NNP, CD, .
Named Entities:

Sentence: Eurotunnel's shares, which were suspended last week at 113.5 pence ahead of Monday's announcement, should resume trading on Tuesday, the company said.
Tokens: Eurotunnel, 's, shares, ,, which, were, suspended, last, week, at, 113.5, pence, ahead, of, Monday, 's, announcement, ,, should, resume, trading, on, Tuesday, ,, the, company, said, .
POS Tags: NNP, POS, NNS, ,, WDT, VBD, VBN, JJ, NN, IN, CD, NNS, RB, IN, NNP, POS, NN, ,, MD, VB, VBG, IN, NNP, ,, DT, NN, VBD, .
Named Entities: