

## Chapter 5

# Evaluation

There will be two forms of evaluation performed, statistical and user. The statistical evaluation will be used to determine the bitrate and the algorithms effectiveness against statistical steganalysis, while the user testing will allow humans to evaluate the output and test its effectiveness against human steganalysis.

### 5.1 Setup

To enable a full evaluation of the algorithm to take place, the system had to be adapted to accept larger text strings by removing the one minute processing time on the App Engine. To achieve this, the algorithm code was taken from the App Engine program, and the datastore was replaced with the actual WordNet dictionary files, accessed using the Java API for WordNet Searching (JAWS) [34]. The corpus data is loaded into the system and stored as ArrayList objects. This allowed the algorithm to provide identical results to the live web-based version, but accept any length of text. The evaluation program removes all of the features from the web chat application and runs through the command line, with the only remaining feature being the steganography itself.

The text is processed with a random bitstream. The result of the obfuscation algorithm is returned as an ObData object, which contains the word after processing and any bits hidden. The final element in the list (after the obfuscation algorithm is used) is a string containing the full text output. When deobfuscating, the result is identical, except the ObData objects in the list contain the deobfuscated word and any bits found. The lists created by obfuscation and deobfuscation are then compared to generate the test data.

### 5.2 Test Data

To test the algorithm text from a number of sources will be used to compare the effectiveness of the algorithm on different styles of writing. These will be: