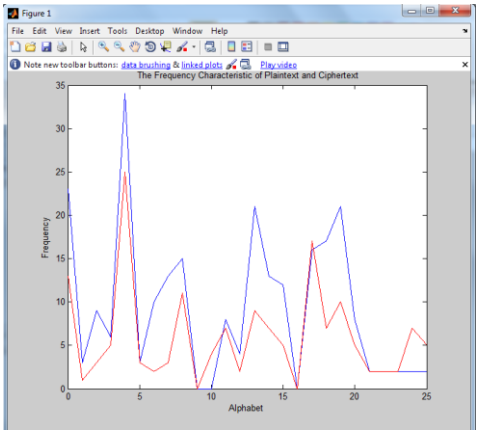

Figure 9: The Plaintext- Ciphertext Frequency Characteristic

➢ The proposed algorithms provide protection against cryptanalysis. If a cryptanalyst intercept part of the sequence, and have no information on how to predict what comes next.

8. Conclusion

In this paper we present encryption and decryption algorithms which used with text data depending on the concept of artificial intelligent. The proposed algorithms provide the following aims:

- **The privacy:** which cannot anyone except the exact receiver reads the original message.
- **Data integrity:** which guarantee that no changed and manipulated doing in cipher message data during transmission.
- **Authentication:** which provides the Verification of the person that you want to read the sent message.
- **Non repudiation:** which makes the person whose ciphertext message sent to him Unable to denial that he's the right person the message sent to him.
- **The cover security:** which prevents suspicion to anyone about this message is encrypted. Because the ciphertext is natural language also.
- There are two reasons for separating the knowledge based from the inference engine:-

1) If similar kinds of things are grouped together, it will be easier to find rules that do particular kinds of work in the system, so that they can be modified, deleted, or added to as necessary.
2) If all the knowledge rules are kept separate from the inference rules, it will make it easier to use the design for new expert system. An expert system with knowledge rules removed is called a "shell". They are programs that have been constructed by using an existing system in which the knowledge rules were removed, and new knowledge rules were then installed that were tailored to a new problem.

9. Suggestion

These algorithms provide good security using the artificial intelligent concepts. Therefore the working and developing on this work very visible. We can suggest some future works:

- Applying scrambling manner as a pre-process to original message before algorithms to increase the randomness and permutation to the ciphertext included the system confusion manner.
- Implication semantic manner to these algorithms.
- Applying syntax process as post-process to the ciphertext depending on the original production rule to the origin language.

References

[1] Robert Keller, "Expert System Technology: Development and Application", January 1987.
[2] George, F-luger and William A. Stubblefied, "Artificial intelligent and the design of Expert System", 1989.
[3] Spyros G. Tzafestas, "Knowledge- based system Diagnosis, supervision and Control", 1989.
[4] Michael Heilman, "Automatic Factual Question Generation from Text", ph. D thesis, School of Computer Science, Carnegie Mellon University, 2011.
[5] Anonymous, "Maximum Security", 1st Edition, Sams.net Publishing, 1997.
[6] Ronan Collobert, JasonWeston, , L´eon Bottou, Michael Karlen, Koray Kavukcuoglu, Pavel Kuksa, " Natural Language Processing (Almost) from Scratch" , Journal of Machine Learning Research 12 (2011) 2493-2537, 2011.
[7] K.P. Valavanis, G.N. Saridis' "Intelligent Robotic Systems: Theory, Design and Applications", Kluwer, 1992.
[8] K. Brunnstein, S. Fischer-Huebner, M. Swimmer, "Concepts of an Expert System for Virus Detection", Information Security, Elsevier Science Publishers B.V. (North-Holland), IFIP, 1991.
[9] David, "A Simple Autocorrelation Algorithm for Determining Grain Size from Digital Images of Sediment", journal of sedimentary research, vol. 74, no. 1, 2004.
[10] Victor H. Yngve, " Random generation of English Sentences", First international conference on machine translation of languages and applied language analysis, pages 66-80, Teddington, England, 1961.
[11] Joyce Friedman, " Application of Computer System for Transformational Grammar", Preprint No. 14, in International Conference on Computational Linguistics, Stockholm, 1969.
[12] Joyce Friedman, et al., " A Computer Model of Transformational Grammar (Mathematical Linguistics and Automatic Language Processing Nr.9), New York, London, Amsterdam, 1971.

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