

A Survey of Translation Quality of English to Hindi Online Translation Systems (Google and Bing)

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Abstract- In developing countries like India and India where English is only 30% know there automatic machine translation systems in research, education and commercial activities of the extremely important role. India has claimed a large gathering in Hindi is the language you speak and in many areas it works in all kinds of official and study. Many online translator technologies today use different machine translation approach. As each translation approaches different characteristics, the results of the translation would be different. Google Translate and Bing Translator free online machine translators is using statistical machine translation. Both translators are of the most popular. It keeps increasing the language option and expanding its usability. Due to the major opposite characteristics of both machine translator services and their important role for the development of machine translators especially in internet platform, it is decided to have a study about their comparison. Google translate and Bing translator in the entire world have to use automatic online translation system is used extensively in India is also because it is a free and reliable. The purpose of this study is to create understanding about the different performance of the two online translation services due to the same procedures they have. The experiment designed is meant show how the two online translation services have its own advantages and drawbacks which can affect their performance. Other secondary aim of this study is to find out the typical problems that may arise in translation between English and Hindi and to find out from the two online translation services, which is more suitable. A fully automatic high quality machine translation system to get is a difficult task.

In this paper, we describe the online translation systems (like Google Translate and Microsoft Bing Translator) for English to Hindi translation and its translation quality. My researches focused on survey of online translation solutions for English to Hindi translation and investigate its translation quality.

Index Terms- Translation Quality of Online Translation Systems for English to Hindi Translation, Translation Quality Analysis

I. INTRODUCTION

Machine translation is the name for computerized methods that automate all or part of the process of translating from one language to another. In a large multilingual society like India, there is great demand for translation of documents from one language to another language. [7] Hindi written in the Devanagiri script is the official language of the union Government. English is also used for government notifications and communications. India's average literacy level is 70 percent. Less than 5 percent of people can either read or write

English. As most of the higher study material, research journals and other standard communication tools are in English; these materials are to be translated into the Hindi or respective provincial languages to have an appropriate higher study and communication with the people. Moreover, over 95 percent of the population is normally deprived of the benefits of Information Technology due to language barrier. All these make language translation a necessary one. [1]

Work in the area of Machine Translation in world has been going on for several decades. During the early 50s, advanced research in the field of Artificial Intelligence and Computational Linguistics made a promising development of translation technology. This helped in the development of usable Machine Translation Systems in certain well-defined domains. Fully high quality automatic machine translation system to get is a difficult task. Many organizations like Google, Microsoft, IBM, and many other etc. are engaged in development of MT systems. [3]

II. RESEARCH METHODOLOGY

The process of this study consists of three major parts. The first part is translation experiment. Here several paragraphs of different themes are selected and being translated using Google and Bing. Then the result of translation is being assessed with a manual evaluation. I decided to choose translation between English and Hindi as they are both available in Bing and Google. The second part is a comparative study about Google and Bing. With a set of parameter that is required for a good machine translation each translation services is examined. Here also the advantages and drawbacks of the translation services can be further analysed. The last part is the final assessment, where the result of the translation experiment and the comparative study is to be connected to further analysis. Here it is hoped that there is a relationship between the two results and a conclusion can be drawn to which translation services is more suitable for English and Hindi language pair.

My research is divided into several steps to complete this research the matter and has followed the following steps:

Step-1: First, compared to Google and Bing Translator will be collecting data from various fields such as: News Papers, Technology, Medical and Official Documents etc.

Step-2: After you've collected the data using both the translation system will be translated into English to Hindi.

Step-3: The results generated by Google and Bing Translator now analyse manual evaluation method to be used.

Under manual evaluation analysis results generated by Google and Bing contain errors(Such as: Missing Words, Word Order,

Incorrect Words, Unknown Words, Punctuation Errors etc.) that will be taken by the ratio of their appearances.

Step-4: Now Google and Bing Translator human analysis of the results obtained will be compared to the ratios.

Step-5: Now analyse the results obtained from comparisons of Google and Bing Translator translation quality will be explored.

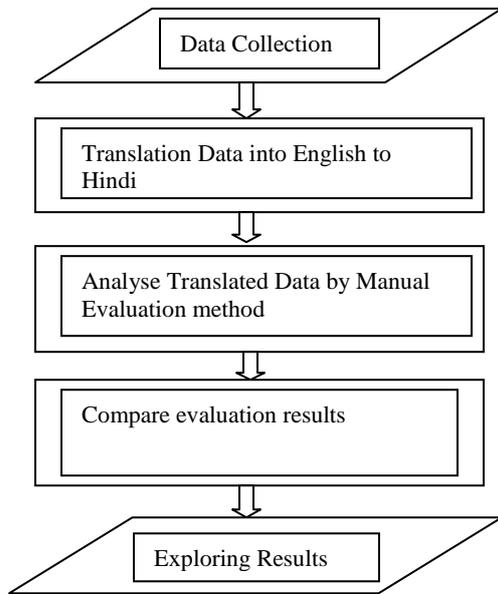


Figure 1: Research Methodology

III. ERROR CLASSIFICATION

In order to find the errors in a translation, it is useful to have one or more reference translations in order to contrast the output of the MT system with a correct text. [6] However, as it is well known in the machine translation community, there are several correct translations for a given source sentence, which poses a difficult problem for automatic evaluation and comparison of machine translation systems. Therefore the use of this reference translation must be done with care.

The classification of the errors of a machine translation system is by no means unambiguous. We have split the errors in five big classes: “Missing Words”, “Word Order”, “Incorrect Words”, “Unknown Words” and “Punctuation” errors. [6]

A “Missing Word” error is produced when some word in the generated sentence is missing. We can distinguish two types of errors, when the missing words is essential for expressing the meaning of the sentence, and when the missing word is only necessary in order to form a grammatically correct sentence, but the meaning is preserved. Normally the first type of errors are caused by missing “main words” like nouns or verbs, but this not always the case, as for example a missing preposition can alter the meaning of the sentence significantly. This first type of errors is of course more important and should be addressed first. For each of these divisions one could further distinguish which lexical category (“Part of Speech”) is missing, as different word types may have different treatments. The next category concerns the word order of the generated sentence. Here we can distinguish between word or phrase

based reordering, and within each of these categories between local or long range reordering. In the case of word based reordering, we can generate a correct sentence by moving individual words, independently of each other, whereas when a phrase based reordering is needed, blocks of consecutive words should be moved together to form a right translation out of the generated hypothesis.

The distinction between local or long range is difficult to define in absolute terms, but it tries to express the difference between having to reorder the words only in a local context (within the same syntactic chunk) and having to move the words into another chunk.

The widest categories of error are the “Incorrect Words” errors. These are found when the system is unable to find the correct translation of a given word. Here we distinguish five subcategories. In the first one, the incorrect word disrupts the meaning of the sentence. Here we could further distinguish two additional subclasses, when the system chooses an incorrect translation and when the system was not able to disambiguate the correct meaning of a source word in a given context, although the distinction between them is certainly fuzzy.

The next subcategory within the “Incorrect Words” errors is caused when the system was not able to produce the correct form of a word, although the translation of the base form was correct. This is especially important for inflected languages, where the big variability of the open word classes poses a difficult problem for machine translation. How to further analyze the errors that fall into this category is very much dependent of the language pair we are considering. For example, for the Spanish language, being a highly inflected language, it is useful to distinguish between bad verb tenses and concordance problems between nouns and adjectives or articles.

Another class of errors is produced by extra words in the generated sentence. This kind of error was introduced mainly when investigating the translation of speech input, as artifacts of spoken language may produce additional words in the generated sentence.

The last two classes are less important. The first one (“Style Errors”) concerns a bad choice of words when translating a sentence, but the meaning is preserved, although it cannot be considered completely correct. A typical example is the repetition of a word in a near context. In this case a human translator would choose a synonym and avoid word repetition. The second one concerns idiomatic expressions that the system does not know and tries to translate as normal text. Normally these expressions cannot be translated in this way, which causes some additional errors in the translation. [2]

Unknown words are also a source of errors. Here we can further distinguish between truly unknown words (or stems) and unseen forms of known stems.

Lastly there can also be punctuation errors, but, for the current machine translation output quality, these represent only minor disturbances for languages without fixed punctuation rules, and are not further considered in this work.

Of course, the error types so defined are not mutually exclusive.

In fact it is not infrequent that one kind of error causes also another one to occur. So for example, a bad word translation can also cause a bad ordering of the words in the generated sentence.

IV. TRANSLATION RESULTS EVALUATION

In this study an observation of translation process is done, which specifically was focusing onto the source paragraph and its translated result.

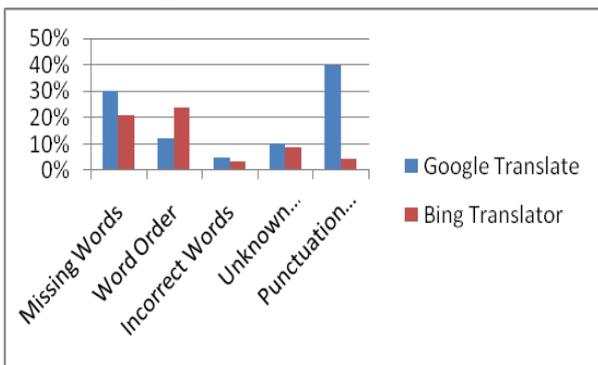
On the preparation of this test I went through a few things. Firstly paragraph samples are prepared. The paragraphs picked, as it is mentioned before, should follow the criteria of coming from a reliable source and written within this year. After that, the process continued to preparation and learned the mistakes category Missing Words, Word Order, Incorrect Words, Unknown Words, Punctuation errors to make sure when a mistake is found; it is not being categorized into the wrong category. In the observation process mistakes on the translated results are identified. The common indication of mistakes usually when the whole sentence read does not feel like are in perfect form or simply the vocabulary are out of line. The translation and observation of the result is done on Nov. 2012. It used the current version of Google Translate and Bing Translator. The observation occasion was not selected from any particular reason.

The role of the researcher was the main actor of the experiment. The Hindi teacher and I did the translation using Google Translate and Bing Translator, prepare and collect data, and also we were the mistake categorizer.

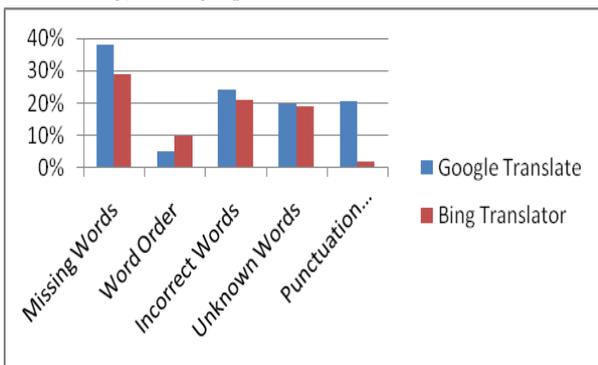
After the observation is done, the collected and mistake calculation. Then the final score of each translation is summed up mistakes of each category in each paragraph of different translator approach and also summed up mistakes of each category in all paragraph together for different translator application, then put the scores of each translator against each other. [4]

V. RESULTS

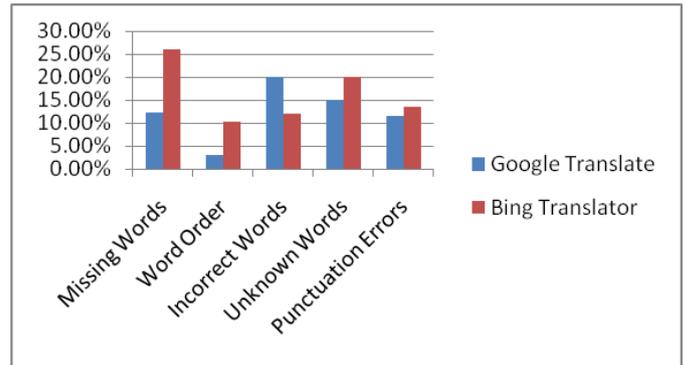
A. News Paragraph



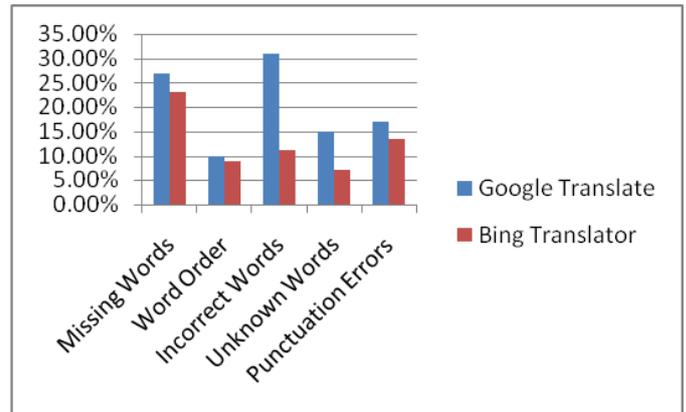
B. Technology Paragraph



C. Medical Paragraph



D. Official Documents



VI. CONCLUSIONS

From this research it can learned that the characters of two online machine translator application, Google machine translator and Bing machine translators. They have differences in basic features, where it leads to differences in its system architecture. Google and Bing machine translator used statistical records of previous translation to learn about the language to be translated. Statistical machine translators are divided into three kinds, word-based, phrase-based, and syntax based. I chose Google Translate and Bing Translator represent English to Hindi translation as it is the most known online machine translators.

The performance of the two is also different and this has been proven in this study. I chose Google Translate and Bing Translator to represent English to Hindi translation. In this studies it is found that Bing Translator did a better job when translating English to Hindi and vice versa.

However there are some intriguing facts when this study was written. In the beginning of study about Google Translate it is expected that perform better than Bing Translator, but in comparative study it is found that Bing Translator was better. The difference then explained to have a reason behind the architecture, the different characteristics of two languages, and other technical differences of the mentioned online translators.

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