Can computers understand our language?

Ruslan Mitkov

School of Languages and European Studies

University of Wolverhampton

Kenia Miranda

Student of the BA in Language Teaching

Language School of UABC

Tijuana, México

Summary:

The present work is based on the talk given by Ruslan Mitkov at the Language School of Universidad Autónoma de Baja California last April 24th, 2006. He discussed the possibilities computers have to replace humans in the teaching of languages and the translation activities.

Computers pervade our life more and more, and many activities including business, are unthinkable without them today. Imagine what would happen with all the flights and airports if their computers were down, or, how about the banking system? We would have to go back to a lifestyle of more than 50 years ago.

However, Mitkov highlighted that even though computers are that pervasive, "they will not replace humans in creative, intellectual activities such as learning languages or translating". He mentioned some reasons for making such a statement. An example of this is that computers have a very difficult time understanding language. They attempt this task by analyzing the input at different levels. The main difficulty is that natural languages are ambiguous.

Whereas humans generally manage to pick out the intended meaning from a set of possible interpretations, computers are less likely to do so due, among other reasons, to their limited knowledge and inability to decide in complex contextual situations.

He also said that ambiguity can occur at the lexical level where words may have more than one meaning (e.g. bank, file, chair), but also at the syntactic level when more than one structural analysis is possible (e.g. Flying planes can be dangerous, I saw the man with the telescope). Furthermore, ambiguity is exhibited at the semantic level (The rabbit is ready for lunch – where the rabbit can be interpreted as both agent and patient) or pragmatic level (Can you open the window?–where the phrase can act both as a request and a question, depending on the context).

He stated that a "natural language program requires a large amount of knowledge" about language, including how to identify words, how words are arranged into sentences, what the words mean and how their individual meanings combine to produce sentence meanings. At a higher level, a computer program must be able to identify sentences in a text, establish the relationships among them, show the intentions behind each sentence, etc. In addition, if an automatic natural language program is to be able to understand language like humans, it should have world and specific knowledge as well as reasoning abilities.

He explained that a "Natural Language Understanding (NLU) program should be able to determine the acceptability of a sentence from the point of view of various levels of analysis and should establish connections between the different components of a sentence or text". It is not an easy task as you can see. Moreover, the development of these programs, or technology, faces the problem of resources. This means that developing a good program is extremely difficult, time-consuming and it is a labor-intensive task.

However, this does not mean that computers and languages are in risk of becoming isolated from one another. Computers are good on routine jobs and make life easier and faster. Research for the improvement of speech technology is been done in many countries today, and we can expect solutions to be found very soon. The future is already here, and we do not want to be left behind.

He finished the talk by making the following question: "Are translators and teachers an "endangered species"?" Question he answered as follows: "Computers are not trying to replace humans. They are just trying to help; computers do not have the creativity and imagination of humans. But they are good at routine jobs".