P A T E N T
of
Hristo Georgiev and Theres Georgiev

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LOGICAL INFERENCE, (LOGIFOLG, A Computer System for Automated Reasoning to find implicit information in Natural Language Sentences), works on hundreds of syntactic structures representing millions of simple and compound (complex) sentences and their equivalents in meaning. Prototype, version 1.0, exists, showing how the program works and what it can do.

Inferences are made when a human being or computer software program finds unavailable evidence to form a conclusion. Our intelligent software program has an inductive and deductive automated reasoning. It can find and display implicit information that is not explicitly mentioned in the text, not contained in the synonyms of the particular word, or present in the concept the word belongs to. No statistical analysis or concordance based analysis can detect this information. Nevertheless, this implicit information is present and understood, implicitly, consciously or unconsciously, by everybody who reads the text.

The inductive reasoning of our Computer System is based to a great extent on its deductive reasoning, present in the word classes by default. The basic principle of the deductive reasoning is that if something is true of a class of things in general, this truth applies to all members of that class.

Therefore, we do not have difficulties to teach our System that all living beings, including all humans, are mortal or that all birds (exceptions excluded) can fly. If we list, in our database, all humans, who have lived 2500 years ago, including Socrates and Agamemnon, our System will be able to deduce that Socrates and Agamemnon are long dead, since no human being can live that long. We need to make a simple rule in the System to let it know that.

Our System is capable of making logical inferences based on simple sentences, also on complex, compound sentences. For example if we type in "John shot a partridge", the System will print out "John is a hunter", because partridge is a wild game bird, if one types in "John slaughters chicken", the System will print out "John is a butcher", because chicken are domestic poultry, if one types in "John killed Susan", the System will print out "John is a murderer", "Susan is dead", if we type in "John killed two enemy soldiers" our System will print out "John is a hero". If we type in "John married Ann", the System will print out "John is husband of Ann", "Ann is wife of John", etc.

Note that one can substitute the names John, Ann, etc, with any other name (contained in our database) or with any human being, male or female (man, woman, priest, president, etc.). Also, one can substitute partridge with any other wild game or chicken with any other domestic animal to achieve the same result.

Besides, our Computer System can turn the sentence and preserve its meaning, for example, if we type in "John is smaller than Ali.", the System will display "Ali is bigger than John", if we type in "Alexander breeds pigs", the System will display "The pigs are bred by Alexander", etc.

This implicit information will help the search engines find more accurately the information we are seeking. In education, it can be used in teaching logic and artificial reasoning. LOGIFOLG can serve as a basis to build an artificial intellect, chatbot or humanoid robot, capable of independent thinking, situation assessment and decision taking.

Languages: English and German. With the same method, one can develop similar software programs for other languages. Runs on all versions of Windows, also on Windows 7, 8, 10, 64 Bit.

Screen shot of the program interface with an example of processed input sentence "Ann and Ali are married"
and output sentence, the logical inference the program has made
"Ann is the wife of Ali."

Online download link: http://www.google.com.ar/patents/US8560305