The Modelling Beauty of Constraint Solving

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Abstract

In this talk we shall examine the logic based approach to natural language processing, first presenting established formalisms such as Definite Clause Grammars, which initiated the parsing-as-deduction paradigm, and then newer ones as CHR (Constraint Handling Rules), which allow us to view parsing as constraint solving. We shall demonstrate how this logical rendition of constraint solving facilitates modeling in various realms, not just in that of language processing, and we shall in particular discuss interesting parallels that can be drawn between parsing human languages of the spoken kind, and of the molecular biology kind, as in the languages of DNA.

Verónica Dahl is an Argentine/Canadian computer scientist who is recognized as one of the 15 founders of the field of logic programming. She has contributed over 100 scientific publications in the fields of computational linguistics, deductive knowledge bases, computational molecular biology and web based virtual worlds. She has received numerous scientific awards – such as the Calouste Gulbenkian Award for Science and Technology – and a few literary awards as well. Her greatest ambition is to help bridge the gap between the formal and the humanistic sciences, in the hopes that this will be conducive to an overall more balanced world. She is presently Professor Emeritus at Simon Fraser University. Her research is supported by NSERC.