Knowledge Representation based on Rules for a health diagnosis through an Expert System

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In this article a Knowledge Based System for the diagnosis of a health problem is set out. In order to build the knowledge base of this System it has been necessary to design a Model of the problem, this knowledge base is composed by a set of rules defined in Boolean logic. The inference engine of this System uses CoCoA (Computer Commutative Algebra, http://cocoa.dima.unige.it) to apply Gröbner Bases and Normal Forms and so it is possible to obtain the diagnosis from the information contained in the knowledge base. In order to make easy the access to the System it has been implemented an user computer interface.

To make the establishment of functions that relate elements (operative concepts) of a “concept category” it was defined the following “consideration procedure” for each situation in three steps which are:

- Clinical step: the function is given attending to the clinical criterion.
- Quantitative step: a unitary value of concept or its weight correction is assigned to the function.
- Correction step: it compares the previous steps and fits the final.

In view of the set out results the undertaken way will allow the discipline approach and its concretion in the operative projects. It is necessary to review the necessity of documentation, organization, annotation, of all the displayed steps and that are qualifying a constant evaluation of intermediate research results. To emphasize, like lines of investigation derived from the presented work, the creation of an expert system of aid to the diagnosis based on the knowledge representation by means of Boolean rules.

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