Relationship between the Relational Database Model and FCA

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The Relational Database Model (RDBM) [3, 4] is one of the most relevant database models that are being currently used to manage data. Although some alternative models are also being used and implemented (namely, object oriented databases and structured datatypes databases or NoSQL databases [1, 2]), the RDBM still maintains its popularity, as some rankings indicate [1].

The RDBM can be formulated from a set-theoretical point of view, such that a tuple is a partial function, and other basic operations in this model such as projections, joins, selections, etc, can be seen as set operations.

Another important feature of this model is the existence of constraints, which are first-order predicates that must hold in a relational database. These constraints mostly describe conditions that must hold in order to keep the consistency of the data in the database, but also help to describe some semantical aspects of the dataset.

In this talk, we consider some aspects of the RDBM that have been characterized with FCA, focusing on different kinds of constraints that appear in the Relational Model. We review some results that formalize different kinds of contraints with FCA [5–8]. We also explain how some concepts of the RDBM such as *key, closure, completion, cover* can be easily be understood with FCA.

References

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