SABDOOD, a Deductive, Object-Oriented Database System*

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Abstract

SABDOOD is a deductive, object-oriented database system composed of two main parts: a declarative language to define, update and query deductive object-oriented databases, and a DBMS. The system falls under the so-called DOOD (Deductive and Object-Oriented Database) systems, that is, database systems coupling the object-oriented data model with a declarative, deductive language. This paper presents SABDOOD, a general purpose database programming system.

Keywords: Databases, Artificial Intelligence, Object-oriented programming.

1 Introduction

SABDOOD (Sistema Administrador de Bases de Datos Orientadas a Objetos y Deductivas) is a deductive, object-oriented database system. SABDOOD has two main parts: a declarative language (named SPL—SABDOOD Programming Language) to define, update and query deductive object-oriented databases, and a DBMS (Database Management System) to create, populate, operate and store these databases with SPL. This system falls under the so-called DOOD (Deductive and Object-Oriented Database) systems, that is, database systems coupling the object-oriented data model with a declarative, deductive language [1, 13].

SABDOOD has the main advantages of both paradigms, as well as the main features of a DBMS: real objects can be naturally modeled in SABDOOD as in object models [14]; new knowledge can be inferred as in the deductive models [2] and also provides support for disk-resident data, as a DBMS [12].

SABDOOD integrates in a clean and practical manner such features, providing an easy way to define and operate objects (like in C++); its declarative language allows the specification of deductive rules in a Prolog-like syntax. Furthermore, it supports the practical functions of a DBMS like recording, updating, recovering and querying data. All of this is accomplished by means of a single language, to avoid impedance mismatch of different languages and paradigms for each model. The main features of our system are:

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