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A. Formica, M. Missikoff

**CORRECTNESS OF INHERITANCE  
HIERARCHIES IN RECURSIVE  
OBJECT-ORIENTED DATABASE SCHEMAS**

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**Anna Formica** – Istituto di Analisi dei Sistemi ed Informatica "Antonio Ruberti" del CNR,  
Viale Manzoni 30 - 00185 Roma, Italy. Email: [anna.formica@iasi.cnr.it](mailto:anna.formica@iasi.cnr.it).

**Michele Missikoff** – Istituto di Analisi dei Sistemi ed Informatica del CNR, Viale Manzoni  
30 - 00185 Roma, Italy. Email: [michele.missikoff@iasi.cnr.it](mailto:michele.missikoff@iasi.cnr.it)

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Collana dei Rapporti dell'Istituto di Analisi dei Sistemi ed Informatica, CNR  
viale Manzoni 30, 00185 ROMA, Italy

tel. ++39-06-77161

fax ++39-06-7716461

email: [iasi@iasi.rm.cnr.it](mailto:iasi@iasi.rm.cnr.it)

URL: <http://www.iasi.rm.cnr.it>

## Abstract

Database design is traditionally recognized as one of the difficult activities in developing database applications. With the advent of Object-Oriented databases (OODBs), and their rich underlying data model, the problem becomes even harder. In particular, in designing an OODB schema, the presence of inheritance hierarchies, with multiple supertypes and the possibility of inheritance conflicts, can lead to incorrect schema definitions. In this paper, we address the problem of the characterization of a correct inheritance hierarchy, within the widely accepted frame of Carelli's type theory. The analysis is extended to recursive OODB schemas, showing that such a theory fails to deal correctly with all possible cases. It results that, in presence of recursive record types, the problem of certifying correctness is, in general, undecidable. Therefore, we introduce the notion of *fully certifiable* schemas, supplying a formal characterization of the schemas for which correctness is decidable.

