

Variational Database Management System: Theory and Application

Parisa S. Ataei
Thesis Proposal
Submitted November 3rd, 2020

Abstract

1 Introduction

With this initial ..., we propose the following research:

- Objective 1: Identify the kinds of variation existing in relational databases in different application domains.
- Objective 2: Design a query language and implement a database management system that accommodate at least a subset of types of variations identified in objective 1.
- Objective 3: Mechanize proofs of properties of the language and the system.
- Objective 4: Demonstrate how the proposed system can be used to manage variation in databases in different application domains.
- Objective 5: Generalize the encoding of variation and the design of the query language to cover more kinds of variation.

2 Statement of Thesis

The goal of this research is to provide a query language(s) and a database management system that explicitly account for different kinds of variation in relational databases to relieve some of programmer/DBA's labor by providing some guarantees within the query language that accounts explicitly for variation.

3 Background and Related Work

3.1 Variational Research

3.2 Forms of Variation in Relational Databases

Database Evolution:

Data Integration:

Versioning a Database:

4 Research Goals and Methods

- 4.1 Identify the kinds of variation existing in relational databases in different application domains**
- 4.2 Design a query language and implement a database management system that accommodate at least a subset of identified types of variations**
- 4.3 Mechanize proofs of properties of the language and the system**
- 4.4 Demonstrate how the proposed system can be used to manage variation in databases in different application domains**
- 4.5 Generalize the encoding of variation and the design of the query language to cover more kinds of variation**
- 4.6 Summary**

Figure ?? summarizes the connections between the research questions and activities. Table ?? provides the timeline for this proposal.

5 Conclusion