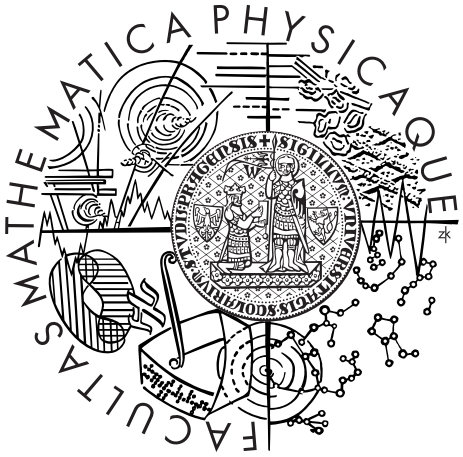
Charles University in Prague
Faculty of Mathematics and Physics

MASTER THESIS



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Querying NoSQL databases in MPS

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Study programme: Computer Science
Specialization: Software Systems

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Název práce: Dotazování NoSQL databáz v prostředí MPS

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Abstrakt: S příchodem NoSQL databází se objevila i potřeba pro vznik doménově specifických dotazovacích jazyků. Jednou ze zajímavých domén jsou grafové databáze jako například Neo4j s dotazovací jazykem Cypher. Doménově specifické jazyky (DSLs) může být navržena a snadno použita pomocí speciálních vývojových prostředích zvaných Language Workbenche. Velmi populární Language Workbench je MPS, který implementuje koncept projekčních DSLs.

Tato práce zodpovídá otázku, zda Language Workbenche a projekční DSLs mohou být přínosem v doméně NoSQL databází, vystihnout výhody projekčních DSLs použitím různých typů přístupu. Dalším specifickým cílem je navrhnout a implementovat dotazovací DSL jazyk pro vybranou NoSQL databázi (např. Neo4J nebo Redis) jako případová studie.

Klíčová slova: NoSQL, MPS, dotaz, Cypher

Title: Querying NoSQL databases in MPS

Author: Bc. Radovan Duga

Department: Department of Distributed and Dependable Systems

Supervisor: RNDr. Pavel Parízek, Ph.D., Department of Distributed and Dependable Systems sl Abstract: With the advent of NoSQL databases, a need for targeted domain-specific query languages has become evident. One of the interesting domains are graph databases, such as Neo4j with the query language Cypher. Domain specific languages (DSLs) can be designed and easily used with the help of special development environments called Language Workbenches. A very popular Language Workbench is MPS, which implements the concept of projectional DSLs.

This work will answer the question whether Language Workbenches and projectional DSLs can make a contribution in the domain of NoSQL databases, and identify the benefits of projectional DSLs over different approaches. An additional specific goal is to design and implement a practical MPS-based query DSL for a chosen NoSQL database (e.g., Neo4J or Redis) as a case study.

Keywords: NoSQL, MPS, query, Cypher

Contents

1. Introduction

1.1 Motivation

1.2 Goals

The goals of this thesis are these:

- item1
- item2

2. Background

2.1 NoSQL databases

2.1.1 Neo4j graph database

2.1.2 Neo4j Cypher query language

2.2 Domain specific languages

2.2.1 MPSypher DSL

2.3 Language workbenches

2.3.1 How to define DSL in MPS

2.4 MPS Language workbench

2.4.1 How to define DSL in MPS

Structure DSL

Editor DSL

Constraints DSL

Typesystem DSL

Intensions and other parts

2.4.2 MPS Pros and Cons

3. Design of MPSypher

3.1 Problem analysis

3.2 Design decisions

3.2.1 Text-like editor

3.2.2 Graphical extensions

4. Implementation details of MPSypher language

4.1 Patterns

4.2 References

4.3 Integration into BaseLanguage

5. Evaluation

5.1 Experience with MPS

5.2 MPS Contribution in DSL languages

5.3 MPS Contribution in NoSQL Domain

5.4 Related work

5.5 Case Study

Conclusion

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List of Tables

List of Abbreviations

Attachments