Objekt Algebra - Ein Lösungsansatz für das Expression Problem

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Abstract. The expression problem is a known problem in practical computer science where the goal is to define types of data and extend them with new types or functions neither with recompiling the code nor retaining static type safety [1]. This paper is about a new approach of dealing with this problem. We will introduce and discuss a new pattern called object algebra and use Linear Temporal Logic (LTL) formulas as examples. We will build a core set of LTL and show how easily new formulas and functions can be added.

1 Einleitung

The expression problem is about handling programs and algorithms which includes different types of data structurers or functions/operations. Especially when you want to extend your program and including more operations or another type of data structure you have to rewrite complex code structures. There are several approaches how you can avoid this by using programming patterns and paradigms. We will introduce the common interpreter and visitor pattern discuss them and show an alternative way to handle the expression problem.

2 Lösungsansätze

2.1 Interpreter Pattern

2.2 Visitor Pattern

2.3 Objekt Algebra

3 Implementation

4 Zusammenfassung

References

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