Abstract

Implementing a Putback-based Bidirectional Transformation Language for Relational Databases Using BiGUL

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In relational databases, a view is created providing an easy interface for manipulation when only a small part of the whole database needs to be updated. After updating on the view, there exist situations that the update operation can be translated into more than one possible update operations on the source, and one of them satisfies user's intention. Bidirectional transformations naturally models the query and corresponding update translation as a pair of get and put functions respectively. Relational lenses as one of the bidirectional transformation languages is designed with a set of combinators that each can be executed both as a get and put functions. The put function that describes the update translation should have many possible ways, while the put semantics of this language is tailor-made with a default one which makes it impossible to fully model user's intention. In this presentation, we implemented a putback-based bidirectional transformation language brul for relational databases that provides a nice interface for user to specify the update translation flexibly, and a unique get is derived for free. The language brul is implemented based on BiGUL which is a fully verified putback-based bidirectional transformation language to guarantee that any program written in brul is correct.

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