

Automatic Specialized Synchronization for Dynamic Data Structures

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1 Introduction

2 Preliminaries

A module defines a set of abstract data types and a set of operations that may be invoked by clients of the module. The parameters and local variables of an operation are private to the invocation of the operation. There are no static or global variables shared by different invocations of the operations. An operation is a sequence of atomic steps. Atomic step is either an operation on local variables or a load (“ $x=y.f$ ”) or a store (“ $x.f=y$ ”) operation on shared variables.

A configuration .. An execution is an alternating sequence of configurations and steps, $C_0, s_1, \dots, s_i, C_i, \dots$, where C_i is the initial configuration, and each configuration C_i is the result of executing step s_i on configuration C_{i-1} .

3 Global Version Algorithm

Each write operation acquires a unique version from a global version object. Before every store step, the operation writes its unique version to the object.

4 Local Version Algorithm