Department of Computer Science

Informal Seminar/ Reading Group on Software Verification and Distributed Systems

A Formal Approach for Developing Reliable Service-based Systems

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Date: March 26, 2010

Time: 1-2 PM

Place: 256, Coates Hall

Abstract

Today we will discuss the consensus number and consensus hierarchy of distributed shared memory atomic objects. We will show that Read/Write Objects have consensus number 1, which implies that they cannot solve the consensus problem in a wait free manner with more than 1 processor. More complicated atomic objects such as FIFO and Compare-and-Swap have higher consensus number. Objects with higher consensus number have the ability to simulate in a wait-free manner objects with lower consensus number. This helps the programmer and system architect to decide which types of objects are the most useful to implement when designing a shared memory system.

All are invited.