Willy Husted

Annotated Bibliography

Burns, James E. "Mutual Exclusion with Linear Waiting Using Binary Shared Variables." *ACM SIGACT News* 10.2 (1978): 42. *ACM*. Web. 31 Mar. 2014.

Continuing the work of Dijkstra and Knuth, this article by James E. Burns examines the upper and lower bounds of shared variables among asynchronous, parallel processes with regard to the problem of mutual exclusion. Burns’s addition to this classic problem is a closer look at the realistic case of the operations mentioned by Dijkstra, Knuth, and others in which the operations are restricted to single binary variables.

I believe this is a reputable article. It comes from a large, well-known university—Georgia Tech—and has 11 citations. However, it was published in the ACM newsletter, and was therefore not peer reviewed and may be less “official” than an identical article that is published in the ACM journal.

Szymanski, Boleslaw K. "A Simple Solution to Lamport's Concurrent Programming Problem with Linear Wait." *ICS '88 Proceedings of the 2nd International Conference on Supercomputing* (1988): 621-26. *ACM*. Web. 31 Mar. 2014.

As suggested by the title, Dr. Szymanski offers a solution to Leslie Lamport’s concurrent programming problem—a problem originally brought up and “solved” by Dijkstra. Both of these computer scientists’s seminal articles are cited by Dr. Szymanski. In this article, the author offers a simple solution using “just five distinct values of shared memory per process.” The advantage of this (also stated in the title) is linear wait time and fairness. While Dikstra famously stated that perfect fairness is impossible, Dr. Szymanski emphasizes that his solution provides *strong* fairness.

Dr. Szymanski has been active in the field of computer science for decades, and this article is one of his most prominent; therefore, I believe it to be a reputable source. It has many downloads, has been cited 12 times, and continues to be downloaded 26 years after its publication. It was published by the International Conference on Supercomputing (ICS), a reputable aggregation of computer science-related articles. Published after just its second year, the ICS has occurred every year since and continues to be an influential presence in the world of computer science.

Peterson, Gary L. "Myths about the Mutual Exclusion Problem." *Information Processing Letters* 12.3 (1981): 115-16. Web. 1 Apr. 2014.

In “Myths about the Mutual Exclusion Problem”, author Gary L. Peterson from the department of computer science at the University of Rochester extends the work of Dijkstra, Lamport, and even his past work with regard to the problem of mutual exclusion. In Peterson’s previous work from the year before—“A new solution to Lamport’s concurrent programing problem using small shared variables”—he conceived an algorithm using two important variables, flag and turn, to solve the problem of mutual exclusion for only two processes. The important innovation from “Myths” is that his algorithm becomes generalized for more than two processes.

I take this article as highly reputable. Gary L. Peterson is well known in his field, and the journal this article was published in, Information Processing Letters, is respectable, peer-reviewed, and long-lived. Its references include seminal articles from some of the big names, such as Dijkstra’s “Co-operating sequential processes” and Lamport’s “The mutual exclusion problem”.