



**The George Washington University
Department of Computer Science
Colloquium**

**April 10, 2008, 12:00pm
Room 736 Academic Center**

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Dijkstra's Pebbles Game: An ACL2 Proof Movie

ABSTRACT

In a 1991 video, Edsger Dijkstra presents two examples illustrating the difference between the partial and total correctness of programs—the pebbles game and a problem in geometry. In this talk, I will show how we can model the first problem in a formal language and demonstrate the "total correctness" of this game using the ACL2 "theorem prover". The development of the model and proof, although compact, illustrate several features of ACL2 that are necessary for larger proofs.

BIOGRAPHY

Simon Read is currently an Assistant Professor of Computer Science at St. Mary's College of Maryland. Previously he has been a faculty member at American University and an adjunct at the University of Maryland College Park. Dr. Read has a number of publications in the area of formal verification including articles in *IEEE Spectrum*, *Computer Design*, and the *Proceedings of the International Conference on Concurrent Engineering and Electronic Design Automation*. Dr. Read is the founder and president of Formal ASICs, Ltd., a formal verification consultancy firm. Dr. Read has worked for companies including COMPASS Design Automation and Plessey Crypto. Dr. Read received his PhD degree in 1994 from the University of Manchester Institute of Science and Technology.