

NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

C S S E M I N A R

Title: **The alias calculus**

Speaker: Prof. Bertrand Meyer, ETH

Date/Time: 21 April 2014, Monday, 01:00 PM to 02:00 PM

Venue: MR1, COM1-03-19

Chaired by: Dr Rosenblum, David S., Professor, School of Computing
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Abstract :

Take two expressions e and f , denoting references (pointers), and a program location p . When an execution reaches p , can e and f ever be attached (i.e., point) to a single object? This is the aliasing problem, undecidable like anything else of interest in computer science, but for which we may nevertheless expect good enough solutions. Applications abound, from the general verification of object-oriented programs to frame analysis and even deadlock analysis.

The talk will describe various forms of the "alias calculus" and how it has been applied to addressing these problems, as part of an integrated program development and verification environment.

References:

Bertrand Meyer: /Steps Towards a Theory and Calculus of Aliasing/, in International Journal of Software and Informatics, special issue (Festschrift in honor of Manfred Broy), Chinese Academy of Sciences, 2011, pages 77-116, available at <http://se.ethz.ch/~meyer/publications/aliasing/alias-revised.pdf>.

Alexander Kogtenkov, Bertrand Meyer and Sergey Velder: Alias Calculus, Frame Calculus and Frame Inference, in Science of Computer Programming, 2014, available at <http://www.sciencedirect.com/science/article/pii/S0167642313002906>.

Biodata :

Bertrand Meyer is Professor of Software Engineering at ETH Zurich and Chief Architect as Eiffel Software. His latest book is "Agile! The Good, the Hype and the Ugly" (Springer, April 2014). Bertrand Meyer is an internationally recognized expert in object technology, entrepreneur and author. He is a passionate researcher on the most advanced topics of IT,

who has devoted his carrier to the improvement of software quality. His contributions to modern software engineering were recognized with many top international awards: Jolt Award, ACM Software System Award, IEEE Harlan Mills Award. He wrote 12 books on software engineering, including the world-wide best-seller "Object-Oriented Software Construction" and "Touch of Class: learning to program well with classes and contracts".