Jaco de Bakker, 1939-2012

On December 13, 2012, our colleague Jacobus Willem (Jaco) de Bakker, member of the Section Informatics of the Academia Europaea since 1990, passed away surrounded by his family in his home in Amsterdam after a short illness. He is survived by his wife Angeline, his children Bas, Jaska, Catrien, Jacob and Lisa, and two grandchildren.

Jaco was born on March 7, 1939, in Ede, the Netherlands. He was for more than 38 years, from 1964 until 2002, connected as Head of the Computer Science Department to the Mathematical Centre, later called CWI (Centrum Wiskunde & Informatica) in Amsterdam. He was a Fellow of CWI since 2002. In 1973 he was appointed as Professor in Computer Science, in particular for the mathematical semantics of programming languages and reasoning on program correctness, at the VU University Amsterdam, at that time called Vrije Universiteit Amsterdam. He occupied this professorship until his emeritate in 2002. In 1989 he was appointed as a member of the Royal Netherlands Academy of Arts and Sciences (KNAW), in the Section Mathematics. In 1972, Jaco was one of the founding fathers of the EATCS, the European Association for Theoretical Computer Science; he was Vice-President of the EATCS from 1972 until 1982, and Member of the Board until 1988. Since 1998 he was honorary member of IFIP Working Group 2.2, Formal Description of Programming Concepts. In 2002, during his retirement symposium at CWI, he received the Royal Decoration Knight of the Order of the Lion of the Netherlands (Ridder in de Orde van de Nederlandse Leeuw).

Jaco de Bakker started his scientific career with his Ph.-D. thesis in 1967 at the University of Amsterdam, with promotor Adriaan (Aad) van Wijngaarden, entitled: Formal Definition of Programming Languages: with an Application to the Definition of ALGOL 60. Jaco de Bakker was world-wide known and recognized for his pioneering work in developing the denotational and operational semantics of many basic features in programming languages, in a precise and rigorous mathematical style. One of its highlights became known as the induction rule of De Bakker and Scott. This culminated in his book Mathematical Theory of Program Correctness (1980). Later on, in the early eighties, he turned to the theory of communicating processes, introduced by Hoare and Milner, a theory known in those days as ‘concurrency’. His initial investigations in this field were in cooperation with Jeffery Zucker. The basic features in this theoretical area were treated in the same mathematically rigorous style in his book Control Flow Semantics (1996) together with Erik de Vink. Apart from these books, he wrote more than 150 scientific articles.

In the Netherlands Jaco de Bakker was the originator of an extensive school of theoretical computer scientists. He supervised many Ph.D.-theses, and was the driving force in the eighties, together with Willem-Paul de Roever and Grzegorz Rozenberg, behind several nation-wide programmes for research and education in the Netherlands, such as REX (Research and Education in Concurrent Systems). REX lasted from 1988 to 1993; it was preceded by LPC (Landelijk Project Concurrency, National Project Concurrency) from 1984-1988. Prior to these programmes Jaco was Director, together with Jan van Leeuwen, of the 'Advanced Course on Foundations of Computer Science', a biennial series of influential courses with international attendance, from 1974 to 1982, held in Amsterdam. Jaco was also one of the founding fathers in 1979 of the Dutch Association for Theoretical Computer Science (WTI, Werkgemeenschap Theoretische Informatica), since 1995 called NVTI (Nederlandse Vereniging voor Theoretische Informatica). Jaco was Chairman of the WTI from 1979 until 1987. Jaco was proud of the fact that 32 scientists who at some time worked in his group were eventually appointed professor.

Also in the eighties, Jaco was instrumental in stimulating the involvement and participation of the Dutch research community in the big European computer science frameworks such as FAST, Meteor, ESPRIT (European Programme for Research in Information Technology) and BRA (Basic Research Actions). As Head of the CWI Department Software Engineering he stimulated intensive

contacts with the European research community, resulting in a lively and productive research atmosphere in which researchers of many nationalities cooperated on a regular basis.

In addition to playing a crucial role in education and research in theoretical computer science, Jaco de Bakker was also a gifted and respected science director and administrator. He influenced the lives of many of us. We all remember him as a great scientist and an amiable person. Moreover many computer scientists will remember him as a friend.