

# **A Rôle for Mereology in Domain Science and Engineering**

**To every mereology there corresponds a  $\lambda$ -expression**

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## **Abstract**

We give an abstract model of parts and part-hood relations of software application domains such as the financial service industry, railway systems, road transport systems, health care, oil pipelines, secure [IT] systems, etcetera.

We relate this model to axiom systems for mereology, indicating satisfiability.

Finally we show that for every mereology there corresponds a class of Communicating Sequential Processes (CSP), that is: a  $\lambda$ -expression.

## **CV**

Dines Bjørner was Prof. of Computing Science at The Techn. Univ. of Denmark (DTU) 1976–2007 and is now a Prof. Emeritus at DTU. He was with IBM R&D 1962–1976. At IBM Bjørner worked with Gene Amdahl (supercomputer design), John Backus (functional programming), E.F.Codd (relational databases) and at the IBM Lab., Vienna, Austria, where he worked in the small team that conceived VDM, the Vienna Development Method, the first ISO standardised formal method. Bjørner co-founded Dansk Datamatik Center 1979–1989, led many EU R&D projects including the formal spec. of a semantics for Ada, the R&D of, and compilers for CHILL and Ada, and the RAISE, Rigorous Approach to Industrial Software Engineering. 1991–1997 Bjørner was founding and first UN Director of the Macau-based UNU-IIST, the UN University's Intl. Inst. for SW Techn. In 2006 Bjørner published a three volume book “Software Engineering” with Springer and in 2009 with QingHua Press. He has published more than 120 papers, 6 books, edited 11 other books, is a member of Academia Europaea, an ACM Fellow, an IEEE Fellow, Member of the Russian Academy of Natural Science, received the John von Neuman Medal from Hungary (1993), the Masaryk Gold Medal (1996) and an honorary doctorate (2004) from the Masaryk Univ. of Brno, The Czech Republic, etc., etc., and is a Royal Knight of the Danish Flag (1984).