

Gödel, von Neumann and the origins of theoretical computer science

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Abstract. Around 1989, a striking letter written in March 1956 from Kurt Gödel to John von Neumann came to light. It poses some problems about the complexity of algorithms; in particular, it asks a question that can be seen as the first formulation of the $P=?NP$ question. This talk discusses some of the background to this letter, including von Neumann's own ideas on complexity theory. Von Neumann had already raised explicit questions about the complexity of Tarski's decision procedure for elementary algebra and geometry in a letter of 1949 to J.C.C. McKinsey. The talk concludes with a discussion of why theoretical computer science did not emerge as a separate discipline until the 1960s.

* The author gratefully acknowledges the support of the Natural Sciences and Engineering Research Council of Canada.