

Keynote: Evaluation of NLP Tools for Hairy RE Tasks

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Natural language processing (NLP) has been used since the 1980s to construct tools for performing natural language (NL) requirements engineering (RE) tasks. While these NL RE tasks are not inherently difficult for humans, on the scale of the collection of NL artifacts for the development of a typical large-scale computer-based system (CBS), these tasks become unmanageable, i.e., hairy.

Because these hairy tasks are difficult for humans to do thoroughly, we try to build tools to assist humans in doing these tasks. The RE field has often adopted information retrieval (IR) algorithms for use in implementing these NL RE tools. Traditionally, also the methods for evaluating an NL RE tool have been inherited from the IR field without considering whether they make sense from the viewpoint of the requirements for NLP RE tools for hairy tasks. That is, despite that the main goal of an NLP RE tool is to assist a human to do a hairy task, which is hard for a human to do completely, many RE tool builders consider precision to be at least as important, if not more important, than recall.

This talk briefly surveys requirements for NLP tools for hairy NL RE tasks and what they imply about evaluation of the tools. It then describes the data that must be gathered during the evaluation of the tool and how to use them to do the evaluation. The talk walks through several example tools and typical data for them and justifies various different conclusions about these tools on the bases of these data.

Biography of Daniel M. Berry Daniel M. Berry got his B.S. in Mathematics from Rensselaer Polytechnic Institute, Troy, New York, USA in 1969 and his Ph.D. in Computer Science from Brown University, Providence, Rhode Island, USA in 1974. He was on the faculty of the Computer Science Department at the University of California, Los Angeles, California, USA from 1972 until 1987. He was in the Computer Science Faculty at the Technion, Haifa, Israel from 1987 until 1999. From 1990 until 1994, he worked for half of each year at the Software Engineering Institute at Carnegie Mellon University, Pittsburgh, Pennsylvania, USA, where he was part of a group that built CMU's Master of Software Engineering program. During the 1998-1999 academic year, he visited the Computer Systems Group at the University of Waterloo in Waterloo, Ontario, Canada. In 1999, Berry moved to what is now the the Cheriton School of Computer Science at the University of Waterloo. Between 2008 and 2013, Berry held an Industrial Research Chair in Requirements Engineering sponsored by Scotia Bank and the National Science and Engineering Research Council of Canada (NSERC). Prof. Berry's current research interests are software engineering in general, and requirements engineering and electronic publishing in the specific.