

Preface

When the first computers appeared at the end of the Second World War, there were great hopes of the potential benefits which the imagined powers of these ‘electronic brains’ might bring. One was the prospect of translating languages, to break down communication barriers and to further the cause of international peace. At first computer technology was inadequate, but from the mid-1950s research on machine translation was vigorously pursued in many countries, not least in the Soviet Union and in the United States. Early expectations were however not fulfilled, awareness of the linguistic and computational complexities grew steadily, many researchers became disillusioned, and by the mid-1960s machine translation was in disrepute; a report for US sponsors resulted in drastic reductions of funding and US research came virtually to an end. Machine translation was now widely regarded as a ‘failed’ ideal — an image which it has retained in many quarters. However, research and development continued and by the mid-1970s there were machine translation systems in daily operation and substantial progress had been made on more advanced systems. The installation of an operational system in the translation service of the Commission of the European Communities was a marker for the beginning of a revival which has continued to grow stronger to the present day. The last decade has witnessed many more machine translation systems in daily operation, the commercial development of interactive systems and a steady increase in research activity, in Europe, the Soviet Union, Japan, and once more in the United States. The disillusionment of the 1960s has been replaced in the 1980s by a mood of realistic optimism. Machine translation is no longer a dream, it is a reality. This book is an account of these forty years of machine translation research and development: the projects and the systems, the problems and the solutions, the methods and the techniques, the achievements of the past and the prospects for the future.

During the last two years, I have incurred debts to many colleagues and researchers in the field of machine translation. Without their assistance the writing of

this book would have been incomparably more difficult. It goes without saying of course that all faults of omission and misrepresentation are my own. Nevertheless, it is my hope that there are no gross distortions and that readers unfamiliar with machine translation will be able to obtain a reasonably balanced view of the achievements and the current situation in this increasingly important field.

For the earlier periods of machine translation history I must express my particular thanks to Margaret Masterman for placing at my disposal the invaluable archive of machine translation documentation at the Cambridge Language Research Unit. I am indebted also to the late Dick Richens and to Andrew D. Booth for first hand information about the earliest history of machine translation, and I must also thank the Rockefeller Foundation Archive for providing copies of documents and correspondence relating to Warren Weaver's activities.

For information on current projects the list of individuals to be acknowledged is long; all have contributed substantially either with personal information or by sending documentation about the projects they are associated with. Their names are given here in alphabetical order: Doug Arnold (Essex University), Kenneth Beesley (Edinburgh), Christian Boitet (GETA, Grenoble), Laurent Bourbeau (Ottawa), Jaime G. Carbonell (Carnegie-Mellon University), Rod Johnson (UMIST), Frank Knowles (Aston University), Heinz Dirk Luckhardt (Saarbrücken), Elliott Macklovitch (TAUM, Montreal), Makoto Nagao (Kyoto University), Hirosato Nomura (Nippon Telegraph and Telephone Corporation), Atsushi Okajima (Hitachi), Loll Rolling (CEC, Luxembourg), Juan Sager (UMIST), Jonathan Slocum (LRC, Texas), John M. Smart (Smart AI Inc.), Harry Somers (UMIST), Karen Sparck Jones (Cambridge University), Allen Tucker (Colgate University), Yorick Wilks (New Mexico University), Toon Witkam (BSO, Utrecht).

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John Hutchins