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Logic and the acquisition of knowledge

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PREFACE

Held at intervals in Scotland, the first seven International Machine Intelligence Workshops spanning the period of 1965–71 were involved in developing the new subject internationally—in those early days mainly as a mid-Atlantic phenomenon. Japan and continental Europe had yet to enter in strength. Also in the wings was the ill-famed 'Lighthill report' which in 1973 stigmatized machine intelligence as a mirage and in the UK demolished its local infrastructure.

Two and a half millennia ago, the historian Thucydides observed that it is not fortifications which make a city but people. In spite of dispersion, the AI culture under challenge evinced both hardiness and solidarity. Included in the exodus from Britain's 'AI winter' were the MI Workshops themselves. Successively they found hospitality in Santa Cruz, USA (1975), Repino, USSR (1977), and Cleveland, USA (1981), by which time the distant tidings of Japan's Fifth Generation presaged the coming thaw. Preparations were begun to found a new UK centre, the Turing Institute at Glasgow. By 1985 sufficient critical mass existed for the new Institute to be able to host a return after fourteen years to the series' land of origin. With additional support from the University of Strathclyde, the eleventh Workshop took place at the University's study centre at Ross Priory near the banks of Loch Lomond.

The titles of the twenty papers which now emerge are indicative of a continuing trend towards unity of approach. Logical models of deductive and inductive reasoning become ever more central and find a common frame in interactive environments for practical problem solving. We also see the first demonstrations that the fruits of past solutions can be systematically digested by an automated solver and built into incremental bodies of new, human-type, knowledge.

The long expected maturation of machine intelligence is evidently at last occurring apace. An adolescent's elders not uncommonly warn, as elders of the physical sciences have of AI, that the youth may have outgrown his own strength. Has the maturation of machine intelligence been of this kind? With some confidence we commit this eleventh volume to the hands of its readers and invite them to pursue the question to their own conclusions.

February 1988

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