On the Wang Machine and the Minimality of Instructions of Turing Machines

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The paper of Alan Turing "On Computable Numbers, with an Application to the Entscheidungs problem" (1936) was the dawn of the era of theoretical machine models. In 1957 Hao Wang published his research on a variant of the turing machine. The main achievement was the implementation of only four basic instructions without loosing any power in terms of computability. The gain of a small set of instructions is mainly the lower effort for complex proofs but the downside is obviously an increase of the length and intricacy of actual programs. This gain is useful for proving machines because simple proofs are enormously valuable. Furthermore is there an impact evident in area of register machines because Wang was one of the first researchers who was concerned by the unravelling of practical and theoretical computer science.