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SHOGI (JAPANESE CHESS) AS THE AI RESEARCH TARGET NEXT TO CHESS

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We paraphrase the abstract:
"This paper introduces research on computer Shogi (Japanese chess) and claims that Shogi is a promising subject for students of AI, it being much more difficult for computers than chess. Both Shogi and its mating problems (Tsume-Shogi) are very popular among the Japanese. An outstanding difference between Shogi and chess is that a player may re-use pieces captured. This drastically alters the informational properties: against a chess branching factor of about 35, Shogi presents over a hundred possible branches. In chess, material balance is almost enough to evaluate a position, in Shogi this must be supplemented by computing the effectiveness of offensive pieces, the King's impregnability and the 'turn'. Among them, they cause even a static evaluation function to be so costly in computing time that a brute-force approach is excluded and selective search must be adopted. These characteristics of Shogi render it invaluable as a subject for research in AI, in spite of its short history. The ability of Tsume-Shogi solvers has just caught up with that of human experts, and the ability of Shogi programs is at about the same level as that of average human amateurs. For the further development of Shogi programs, new AI techniques are imperative. The paper claims that if researches on computer Shogi make smooth progress, a Shogi program will be able to beat a human champion within 15 or 20 years from now."
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