

"The Hidden Logic of Sudoku" provides the first systematic perspective of the logical foundations and of the symmetries of the popular game. These are fully exploited to define new kinds of resolution rules, new graphical representations that may ease the solving process and a precedence ordering of the rules consistent with their logical complexity.

In addition to a few elementary rules, the very classical and basic pattern of xy-chains has been extended as far as its underlying logic allowed, into a homogeneous set of chain rules of progressively increasing complexity. It suffices to solve almost any puzzle without making guesses, dealing with chains of subsets or with nets or assuming the uniqueness of a solution.

These rules are illustrated with a hundred puzzles, together with their full resolution paths. They have been tested in an Artificial Intelligence (AI) engine and tens of thousands of puzzles have been processed, leading to a precise evaluation of the efficiency of each rule.

This book is intended for Sudoku players of all levels: they will discover many new facets of the game and new types of resolution rules - introduced in a pedagogical way and set in a uniform conceptual framework based on patterns. It is also intended for teachers or students of Logic or AI: they will appreciate the strict logical foundations.

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