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Philip A. Cobb* (phcobb@prodigy.net), Queensborough Community College, 222-05 56 Avenue, Bayside, NY 11364. *A Computer Alogrithm for Solving Sudoku.*

This talk will present an algorithm to solve sudoku puzzles by computer. One array holds the numbers in the puzzle itself. A three-dimensional array $p(i, j, k)$ is set to 0 or 1 according to whether the (i, j) entry can or cannot be k . If the number k appears in a row, column, or three-by-three box, then the other entries in the column, row, or box can't be k . More subtely, if k is known to be in a row of a box even though the exact location is not immediately decidable, we may deduce that k is not in any other position in that row.

We then scan each row column, and box, counting the possible locations for k . If one, we place k there. If none, there is a contradiction. If no guess was made, there is no solution. Otherwise, the guess is wrong. Then we can fix one location in the $s(i, j)$ array and count how many numbers are possible there.

If deductions were made the process is itterated if necessary. If no deductions were made in the previous cycle, we make a guess in the first blank cell. If further deductions lead to a contradiction, the guess and its consequences are erased and a new guess is made. If necessary another guess is made. If the guess leads to a solution, we may stop or make an another guess to search for other solutions, if any. (Received September 01, 2006)