

## 8. THESEUS LIVES!

There are few things more disconcerting than finding out, after investing months of time and effort, that you have only managed to reinvent the wheel, or to rediscover America. I only recently became aware that the first part of the parallel analysis method had been anticipated by master Sudoku-designer Michael Mepham, as what he termed "Ariadne's thread". The name comes from Greek mythology, where the young Athenian hero Theseus volunteers to enter the Labyrinth in Crete and slay the Minotaur. Princess Ariadne gives him a silken thread by which he can mark his pathway through the Labyrinth, so that whenever he comes to a blind alley he can backtrack and try again, rather than becoming hopelessly lost.

The Ariadne's thread strategy is outlined in an excellent PDF document by Mepham entitled, logically, "Solving Sudoku". It is available on the internet at:

**[www.sudoku.org.uk/PDF/Solving\\_Sudoku.pdf](http://www.sudoku.org.uk/PDF/Solving_Sudoku.pdf)**

Ariadne's thread is equivalent to single-level parallel analysis. Choose one two-digit cell and try each of its digits in turn. If one of these digits solves the puzzle, you are done. If neither digit does so, then choose a different two-digit cell and try again. Keep going until one of them finally solves the puzzle.

The parallel analysis approach goes one logical step further. Ariadne's thread makes no distinction between a stall, meaning an impasse or a failure to solve, and a true crash with disallowed clashing of digits. In contrast, the parallel analysis method does differentiate between a stall and a crash, and uses a stall as the starting point for a new bifurcation step. In the earlier Plate 5.10, the first example, with  $H9 = 1/7$ , can be thought of as a use of Ariadne's thread. But the example below it, with  $D3 = 4/6$ , is not. Rather than abandoning cell D3 because neither choice led to a solution, the parallel analysis method accepts  $D3=6$  as correct because  $D3=4$  crashed, adds  $D3=6$  to the matrix, and builds on this with another choice, here  $B6 = 4/5$ .

In the more complex Plate 6.11, Ariadne's thread alone fails to solve the puzzle. Three or even four iterations or parallel analysis levels are required to do the job. Granted, Plate 6.11 shows a messy puzzle with multiple solutions that would cause it to be rejected for publication. But I find exploring these complications the most fascinating side of Sudoku, and only parallel analysis will get you through them.

In conclusion, the parallel analysis method might justifiably be called, not Ariadne's thread, but Ariadne's thicket. And if you plunge into this thicket or jungle, you are likely to encounter many more interesting creatures than if you had merely stayed on the straight-and-narrow road.