Turn 12

The Turn 12 puzzle is a cube with a numbered dial on each face. The six dials have 24 numbers on them in the range 3 to 9. The aim is to set the dials so that at all twelve cube edges where two dials meet the two numbers sum to 12. There are also simpler versions available with symbols or drawings on the sides, and then the aim is to get matching symbols at each cube edge.

The dials show these numbers:
Top   356735869637537564374649
Bottom   343574954363596738547975
Front   353748635975458485676439
Back   349576573795398457964379
Left   357863653739359498735895
Right   348765738453874583769785

Turn 12 has a patent assigned to REFO Verlag GmbH, dated 28 March 2002, DE 20,112,728 U.

The number of positions:
Each dial has 24 possible positions, so there are 24^6=191,102,976 puzzle positions. There is a unique solution.

Links to other useful pages:
German game archive that also shows the other simpler versions of the puzzle.

Solution:

I have not been able to find any pattern in the numbers on the dials (apart from the fact that adjacent numbers always differ). I have also not found any clever trick for solving the puzzle. Exhaustively searching for all possible solutions is quite feasible by hand - there are 24 positions of the top dial, then no more than 5 possibilities for matching the front dial, and these are quickly found to be a solution or not by matching the left or right dials.

If you hold the puzzle in the orientation as given by the list above, then the edge numbers for all the dials in the solution is as follows:
Top dial: front 6, back 7, left 9, right 4.
Front dial: top 6, bottom 6, left 3, right 4.
Right dial: top 8, bottom 5, front 8, back 6.
Bottom dial: front 6, back 3, left 4, right 7.
Back dial: top 5, bottom 9, left 7, right 6.
Left dial: top 3, bottom 8, front 9, back 5.

Home   **Links**   **Guestbook**