

Chaotic Choice – Solve Path (Region Cells)

By MantaRay

- To begin the puzzle, note that any cell that only contains one arrow must be in the same region as the cell adjacent to it in the indicated direction (otherwise it would not see any region cells).

↓			5→	4→	↓	←6	←7
↓			↑				
↓	↑	→	←	↑	↑	↑	↑
↓	→	←	→		↓	↓	←
↑	↑	→			↓		←
↓	→	←	→				↓
				↑	↑	↑	
				↓	↓	↓	
	→	←					
			↓				
			←	→		↑	→
			9				
						←	

- If R1C5 and R1C8 were not in the same region, then they would both have a value of 1. This means that R1C4-9 is all part of a single region.

- Currently, R1C4 and R1C9 see the same number of region cells (as do R1C5 and R1C8). To ensure that all four cells have different values, the pink region must extend at least two cells into R1C2. It cannot also take R1C1, as the region would then have eleven cells. R1C45 and R1C89 can all be filled in.

- R1C6 must see at least one region cell below it, otherwise it would also contain a 7. This completes the pink region and places an 8 in R1C6. R1C1 must now be either 2 or 3, while R2C1 is either 1 or 2.

3	129	129	5→	4→	8→	129	←6	←7
2			↑		3			
1	↑	→	←	↑	↑	↑	→	←
7	↑	→	←	→	↓	↓	←	→
				↑	↑	↑		
				↓	↓	↓		
	→	←						
			↓					
			←	→		↑	→	
			9					
							←	

- R3C4 is from 1-2-3-4. If it was 4, then it would force the shape of the red region and place another 4 in R3C2 (along with a 1 in both R2C1 and R2C4).

- R3C1 can now see a maximum of three region cells (one below, and two to the right). But if R3C1 was a 3, then it would force R1C1 to be a 3 as well (as R1C1 would now see three region cells when looking down). This places 1-2-3 in R1-3C1.

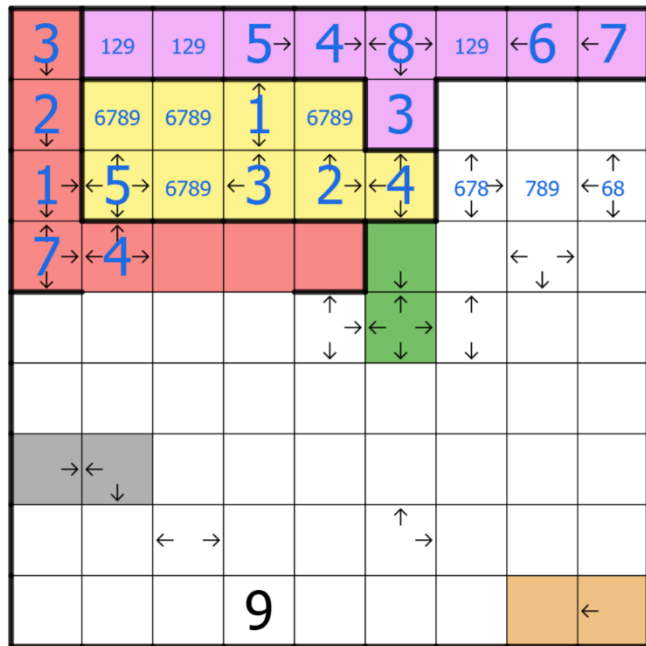
- R4C1 must see at least one region cell to the right, meaning that R4C2 is red. This

cannot see any region cells above it, so must see at least four region cells in the row – extending red to R4C5, where it must stop (as taking R4C6 would make the red region ten cells). 4 is placed in R4C2, and R4C1 is a 7.

8. R2C4 must be 1, and R3C4 a 3. This new yellow region must escape into R3C6 at least. But R3C5 is now either a 2 or 3 (so must be 2). This closes off the yellow region's escape from the top-left (as taking R4C6 would make yellow a ten-cell region), forcing it to take R2C2. The red region's final cell must exist somewhere in R5C2-4 (R5C5 would require a second 1 in red).

9. With the digits in R3C2 and R3C6 filled in, the remaining cells in row 3 must be from 6-7-8-9. 9 can never exist on a cell with arrows (as it cannot see nine other region cells) meaning the R3C7 is from 6-7-8 and R3C9 is either 6 or 8.

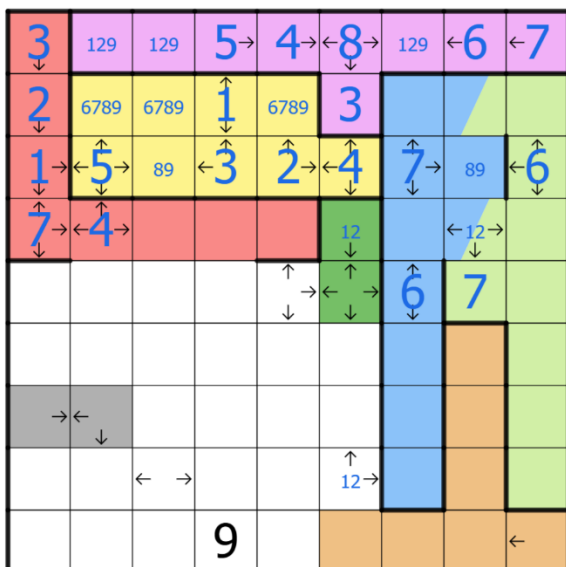
10. R3C7-9 must not all be part of the same region, as this would close off R2C7-9 and there would be no way for both of R3C7-9 to see enough region cells.



11. R3C9 could still see eight region cells, but it would require R9C9. This would force the region to contain ten cells (as R9C8-9 are both in a region together).

12. If R3C7 was an 8, then it would close off the right side of the grid – while not leaving enough cells to populate the two other regions that must exist there. R3C7 is therefore a 7 but cannot see R9C7 for the same reason. This forces the green region to take all the remaining cells of column 9. R5C7 is a 6.

13. The blue and green regions can take a maximum of three cells in column 8, meaning that the orange region must extend into R6C8 at least. The orange region must also escape through to R9C6.



14. The only cell that could contain a 7 in the green region is R5C8, which means that the blue region can no longer enter column 6. One of R2-4C8 is in green; the other must be blue. R4C8 is either 1 (and blue) or 2 (and green).

15. R4C6 cannot see down to R8C6, as then both cells would see the same number of region cells. This means that R4-8C6 are a 1-2 pair.

16. R5C6 must now be at least 5. If R4C6 was a 1, then R5C6 would need to see at least four region cells to its left – which would close off the red region from reaching nine cells. Therefore, R4C6 is a 2 and R5C6 is a 5 that sees three region cells to its left. The red region is now complete. The colouring of R24C8 is now disambiguated, and R1C7 can no longer be a 2 (as 2 could not then be placed in the blue region).

3	129	129	5	4	8	19	6	7
2	6789	6789	1	6789	3		45	
1	5	89	3	2	4	7	89	6
7	4				2		1	
					5	6	7	
					1			
			9					45

17. The digit in R9C9 is from 3-4-5. It must therefore live in R2C8 in the green region, meaning it cannot be 3. The orange region must extend into R9C5, preventing it from taking R8C6 and being ten cells large.

18. R7C1 must be at least 4, which extends the grey region into R7C5. This limits the region cells that R5C5 can see, making it either 1 or 2. 2 already exists in the dark green region, so R5C5 is a 1. The grey region must take R6C5, along with R5C1 (as the dark green region cannot reach it). This finishes the dark green region and leaves the grey region with one cell to place.

19. Grey cannot take R7C6 as this is in the same region as R8C6. R7C1 is therefore a 4, and R7C6 is the final region which must extend to R8C4 at least. This forces the shape of the orange region and places a 5 in R9C9 (and R2C8). R3C8 must be a 9, and the 1-9 pair that now exists in column 7 can be disambiguated.

20. The black region must extend into R8C3 and then run along the remainder of row 9.

3	12	12	5	4	8	9	6	7
2	679	679	1	679	3	48	5	48
1	5	8	3	2	4	7	9	6
7	4				2		1	
9	8	3	4	1	5	6	7	2
								1
4	1							
		4			1			
8			9	67	67	1		5

This leaves R8C3 as either 3 or 4 and R7C2 from 1-2 (creating a 1-2 pair in column 2).

21. The 1 in the grey region exists in row 7 (either R7C2 or R7C3). This places 1 in R6C9. 6 and 7 must live in R9C56. By sudoku, R9C1 is an 8. The 2 in row 5 must live in R5C9.

22. Row 5 now contains a 3-4-8-9 quadruple, where R5C1 must be a 9 and R5C2 an 8. The 3 in R3C4 disambiguates the remaining 3-4 pair, which places a 4 in R8C3 and finishes the final region borders.

23. Row 9 can now be filled in (apart from the 6-7 pair), as can row 1. The 8 in dark green must go in R6C4, which leaves a 6-7-9 triple in row 6. This places a 5 in R6C1, and fixes the location of 2-3-4 in row 6. 8 in row 4 is placed in R4C9, leaving R4C7 as a 3. R4C4 is a 6, placing 2 in R4C7 and 7 in R4C8. The grey region can be filled in.
24. The 6-9 pair that now exists in column 3 places 5 in R4C3, and another 5 in R8C5. The 6 in the black region must live in R7C6, placing a 9 in R8C2 and R2C3. This places the 6-7-9s in columns 2-5.
25. The 5 in the blue region must go in R7C7, and the 9 in row 7 must live in R7C9. This places 3 in R7C8, which allows for row 8 to be filled in and completes the puzzle.

The final solution to 'Chaotic Choice – Region Cells' is pictured below:

3	2	1	5	4	8	9	6	7
2	6	9	1	7	3	8	5	4
1	5	8	3	2	4	7	9	6
7	4	5	6	9	2	3	1	8
9	8	3	4	1	5	6	7	2
5	7	6	8	3	9	4	2	1
4	1	7	2	8	6	5	3	9
6	9	4	7	5	1	2	8	3
8	3	2	9	6	7	1	4	5