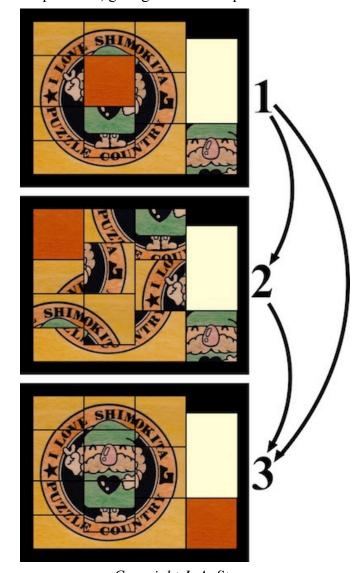
# **Shimokita**



Designed and mad by Minoru Abe, circa 1985.

(cardboard box 5+1/4" x 6.25" x 7/8", 10 wood pieces, blue keeper, and directions)

The directions show three positions, giving rise to three problems:



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#### **Shimokita Solutions**

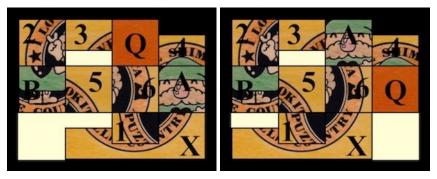
Similar to the *Moota-Kun* puzzle by the same designer, a tricky solution is made more difficult because it can be cumbersome to keep track of pieces that are labeled by portions of a drawing.

The big piece at the bottom has a nook that makes it natural to perform a *capture movement* where it slides left or right with another piece in its nook. Here, we limit capture movement to one of the small pieces being carried, where when in the nook the small piece does not extend beyond the bounding rectangle of the big piece.

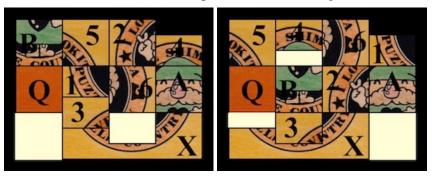
The following three pages show solutions for the three Shimokita problems where capture movement is allowed. Note, however, that by using move moves, without any capture movement Shimokita 1 -> 3 can be solved in 58 rectilinear moves, Shimokita 1 -> 2 in 55 rectilinear moves, and Shimokita 2 -> 3 in 65 rectilinear moves.

The figures here have piece labels added to match the solutions on the following pages. In all three solutions, the big piece labeled X, stays on the bottom and moves only two times.

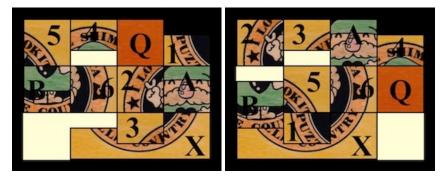
For Shimokita 1 -> 3, here are positions 13 and 39 just after each move of X:



For Shimokita 1 -> 2, here are positions 23 and 37 just after each move of X:



For the 2 -> 3 problem, here are positions 20 and 46 just after each move of X:



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# Shimokita Solution, 1 -> 3 (page 1/2)

Here is a solution of 51 rectilinear moves (72 straight-line moves):

2 2 2 Q Q Q 6 6 6 2 2 2 Q Q Q 6 6 6 1 1 1 1 B B B 6 6 6 1 1 1 1 B B B X X X A A A 1 1 1 B B B X X X A	3 3 3 4 4 4 4 2 2 2 2 Q Q Q Q 6 6 6 6 2 2 2 2 Q Q Q 5 5 5 5 6 6 6 6 6 6 6 1 1 1 B B B B 5 5 5 5 6 6 6 6 A A 1 1 1 B B B B X X X A A A A A A X X X B B B B	3. Move 4: 3 3 3 3
3 3 3 Q Q Q Q S S S S 3 3 3 Q Q Q S S S S	S S 2 2 2 3 3 3 3 Q Q Q S S S S 4 4 4 2 2 2 2 3 3 3 3 Q Q Q Q 4 4 4 4 4 4 4 4 4 4 4 4	7 - ROVE 1 2 2 2 3 3 3 3 Q Q Q S \$ \$ \$ 2 2 2 3 3 3 Q Q Q Q 4 4 4 4 2 2 2 2 1 1 1 1 Q Q Q 4 4 4 4 4 1 1 1 1 5 5 5 6 6 6 6 6 6 8 B B 5 5 5 6 6 6 6 B B B S 5 5 5 6 6 6 6 B B B B X X X A A A X X X X B B B X X X A A A A
8. Move B:  2 2 2 3 3 3 3 Q Q Q \$ \$ \$ \$ 2 2 2 3 3 3 3 Q Q Q \$  2 2 2 3 1 1 1 Q Q Q 4 4 4 4 2 2 2 2 Q Q Q 4 4 4 4 1 1 1 5 5 5 5 6 6 6 6 5 5 5 5 6 6 6 8 B B 5 5 5 5 6 6 6 B B B 5 5 5 5 6 6 6 B B B 5 5 5 5	S S 2 2 2 3 3 3 3 Q Q Q S S S S 4 4 4 2 2 2 2 3 3 3 3 Q Q Q 4 4 4 4 4 4 4 4 4 4 4 4 4	11. Move 6: 2 2 2 3 3 3 3 Q Q Q \$ \$ \$ \$ 2 2 2 3 3 3 3 Q Q Q 4 4 4 2 2 2
12. Move A: 2 2 2 3 3 3 3 Q Q Q \$ \$ \$ \$ 2 2 2 3 3 3 3 Q Q Q \$ 2 2 2 3 3 3 Q Q Q 4 4 4 4 4 4 4 5 5 5 5 6 6 6 A A A B B B B 5 5 5 6 6 6 A A A B B B B 5 5 5 6 6 6 A	14. Move B:  \$ \$ 2 2 2 3 3 3 3 Q Q Q \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	15. Move 5: 2 2 2 3 3 3 3 Q Q Q \$ \$ \$ \$ 2 2 2 3 3 3 3 Q Q Q 4 4 4 4 2 2 2 Q Q Q 4 4 4 4 5 5 5 5 6 6 6 6 A A A 5 5 5 5 6 6 6 6 A A A 5 5 5 5 6 6 6 6 A A A 8 B B B X X X X 1 1 1 X X X B B B B X X X X X X X X X
2 2 2 Q Q Q 4 4 4 4 2 2 2 2 Q Q Q 4 4 5 5 5 5 3 3 3 6 6 6 A A A A 5 5 5 5 3 3 3 6 6 6 A A A 5 5 5 5 6 6 6 A A A 5 5 5 5	X X B B B X X X 1 1 1 X X X	19. Move 1: 2 2 2 2 Q Q Q 6 6 6 6 \$ \$ \$ \$ 2 2 2 Q Q Q 6 6 6 6 4 4 4 2 2 2 2 Q Q Q 6 6 6 6 4 4 4 5 5 5 5 3 3 3
2 2 2 Q Q Q 6 6 6 6 4 4 4 4 2 2 2 2 Q Q Q 6 6 6 6 5 5 5 3 3 3 5 5 5 5 3 3 3 A A A A 5 5 5 5	5 5 5 3 3 3 3 6 6 6 6 4 4 4 5 5 5 5 1 1 1 A A A 4 4 4 4 4 4 5 5 5 1 1 1 1 A A A X X X X X X X B B B B X X X X X X	
5 5 5	\$ \$ \$ 2 2 2 3 3 3 3 Q Q Q \$ \$ \$ \$ \$ \$ 6 6 6 2 2 2 2 3 3 3 3 Q Q Q 6 6 6 6 6 6 6 6 6 6 6 6 6	27. Move Q: 2 2 2 3 3 3 3

### Shimokita Solution, 1 -> 3 (page 2/2)

48. Move 3 3 3 3 3 3 2 2 2 A 2 2 2 A 1 1 1 B X X X B	2 2 2 3 2 2 2 1 1 B X X X B X X X X	2 2 2 3 2 2 2 5 8 8 8 5 8 8 8 1 X X X 1 X X X X	2 2 2 3 2 2 2 5 5 5 5 5 5 5 5 5 8 8 8 8 8 8 X	32. Move 2 2 2 3 2 2 2 3 2 2 2 2 5 5 5 5 5 5	2 2 2 3 2 2 2 1 5 5 5 1 5 5 5 A 5 5 5 A B B B A B B B X
\$ \$ 4 4 A A A 4 4 A A 5 5 5 6 6 A A 5 5 5 6 6 B B 5 5 5 6 6	1 1 A A A 4 4 1 1 5 5 5 6 6 5 5 5 6 6 B B 5 5 5 6 6 B B X X X Q Q B B X X X Q Q X X X X X Q Q	3 3 A A A S S 3 3 A A A A 4 4 4 4 5 5 6 6 6 6 5 5 5 6 6 6 6 6 5 5 5 6 6 6 6 1 1 X X X Q Q 1 1 X X X X Q Q X X X X X	3 3 A A A S S 3 3 A A A 4 4 A A A 4 4 6 6 6 Q Q 6 6 6 Q Q 6 6 6 Q Q	e 1: 3 3 6 6 6 8 \$ \$ 3 3 6 6 6 4 4 6 6 6 4 4 6 6 6 6 4 4 6 6 6 6 6 4 4 6	3 3 6 6 6 S S 3 3 6 6 6 1 1 6 6 6 1 1 A A Q Q Q 4 4 A A Q Q Q 4 4
49. Move 4: 3 3 3 4 4 4 4 \$ \$ \$ \$ 4 2 2 2 A A A 5 5 5 6 6 6 6 6 2 2 2 A A A 5 5 5 6 6 6 6 1 1 1 B B B 5 5 5 6 6 6 6 1 1 1 B B B 5 X X X Q Q Q	X X X X X X X X X Q Q Q	4 2 2 2 3 3 3 A A A 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4 2 2 2 3 3 3 A A A A 4 4 4 4 2 2 2 A A A A 4 4 4 0 5 5 5 6 6 6 0 0 0 0 5 5 5 6 6 6 0 0 0 0 5 5 5 6 6 6 6 0 0 0 0 5 5 5 6 6 6 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	33. Move 6: \$ 2 2 2 3 3 3 3 4 4 4 4 4 2 2 2 3 6 6 6 4 4 4 4 Q 5 5 5 5 6 6 6 Q Q Q Q 5 5 5 5 1 1 1 A A A Q Q Q X B B B 1 1 1 1 A A A X X X X B B B B X X X A A A X X X	2 2 2 3 3 3 6 6 6 4 4 4 4 2 2 2 2 1 1 1 6 6 6 4 4 4 4 5 5 5 5 1 1 1 6 5 5 5 A A A Q Q Q Q X X X X X B B B B A A A A Q Q Q X X X X B B B B X X X X X X X X X
50. Move 5: 3 3 3 4 4 4 5 5 5 5 \$ \$ \$ 3 3 3 4 4 4 5 5 5 5 2 2 2 A A A A 5 5 5 5 2 2 2 A A A A 6 6 6 6 2 2 2 A A A 6 6 6 6 1 1 1 B B B 6 6 6 6 1 1 1 B B B X X X Q Q Q	3 3 3 A A A A \$ \$ \$ \$ \$ 3 3 A A A A 4 4 4 4 4 4 2 2 2 2 5 5 5 5 6 6 6 6 6 2 2 2 2 5 5 5 5	42. Move 5: 2 2 2 3 3 3 3 A A A A S S S 2 2 2 3 3 3 3 A A A A 4 4 4 2 2 2 A A A A 4 4 4 5 5 5 5 6 6 6 6 B B B B 5 5 5 5 6 6 6 6 B B B B 1 1 1 X X X Q Q Q X X X X 1 1 1 1 X X X Q Q Q X X X X X X X X X X X Q Q Q 46. Move 2:	38. Move B: 2 2 2 3 3 3 3 A A A S S S 2 2 2 3 3 3 A A A A 4 4 4 2 2 2 A A A 4 4 4 5 5 5 5 6 6 6 6 Q Q Q B B B B 5 5 5 5 6 6 6 6 Q Q Q B B B B 5 5 5 5 6 6 6 6 Q Q Q B B B B X X X X I I I X X X X X X X X X	34. Move A: 2 2 2 3 3 3 A A A A S S S 2 2 2 2 3 3 3 A A A A 4 4 4 2 2 2 6 6 6 6 A A A 4 4 4 5 5 5 5 6 6 6 Q Q Q Q 5 5 5 5 1 1 1 1 Q Q Q Q B B B B 1 1 1 X X X X B B B B X X X X X X X X X	30. Move Q: 2 2 2 3 3 3 3 6 6 6 8 \$ \$ \$ 2 2 2 3 3 3 3 6 6 6 4 4 4 2 2 2 2 1 1 1 1 6 6 6 4 4 4 4 5 5 5 5 1 1 1 QQQQ 5 5 5 5 A A A QQQQ B B B B A A A X X X X X X B B B X X X X
51. Move 6: 3 3 3 4 4 4 4 5 5 5 5 \$ \$ \$ 3 3 3 4 4 4 4 5 5 5 2 2 2 A A A A 6 6 6 2 2 2 A A A 6 6 6 1 1 1 B B B 6 6 6 1 1 1 B B B X X X Q Q Q	3 3 3 A A A A A A A A A A A A A A A A A	43. Move 1: 2 2 2 3 3 3 3 A A A A \$ \$ \$ \$ 2 2 2 2 3 3 3 3 A A A A 4 4 4 2 2 2 1 1 1 A A A 4 4 4 1 1 1 5 5 5 5 6 6 6 6 B B B 5 5 5 5 6 6 6 6 B B B 5 5 5 5 6 6 6 6 B B B X X X Q Q Q X X X X X X X X X X Q Q Q X X X X	39. Move X: 2 2 2 3 3 3 3 A A A A \$ \$ \$ \$ 2 2 2 2 3 3 3 A A A A 4 4 4 2 2 2	35. Move 1: 2 2 2 3 3 3 3 A A A A S S S 2 2 2 3 3 3 3 A A A A 4 4 4 2 2 2 6 6 6 6 A A A 4 4 4 5 5 5 6 6 6 Q Q Q Q 5 5 5 6 6 6 Q Q Q Q 5 5 5 5 8 B B 1 1 1 X X X X B B B X X X X I 1 1 X X X X B B B X X X X X X X X X X	31. Move A: 2 2 2 3 3 3 3 6 6 6 8 \$ \$ \$ 2 2 2 3 3 3 3 6 6 6 4 4 4 2 2 2 1 1 1 1 6 6 6 4 4 4 5 5 5 5 1 1 1 QQQQ 5 5 5 5 QQQQ 5 5 5 5 AAAQQQQ B B B AAAAXXX B B B B X X X AAAAXXX

# Shimokita Solution, 1 -> 2 (page 1/2)

Here is a solution of 50 rectilinear moves (69 straight-line moves):

0:	1. Move 6:	2. Move 5:	3. Move 4:
3 3 3 4 4 4 5 5 5 5 \$ \$	3 3 3 4 4 4 5 5 5 5 5 5 5	3 3 3 4 4 4 \$ \$ \$ \$	3 3 3 \$ \$ \$
3 3 3 4 4 4 5 5 5 2 2 2 Q Q Q 5 5 5	3 3 3 4 4 4 5 5 5 2 2 2 0 0 0 5 5 5	3 3 3 4 4 4 2 2 2 2 0 0 0	3 3 3 4 4 4 2 2 2 0 0 0 4 4 4
2 2 2 0 0 0 6 6 6	2 2 2 Q Q Q 6 6 6	2 2 2 0 0 0 5 5 5 6 6 6	2 2 2 0 0 0 5 5 5 6 6 6
2 2 2 Q Q Q 6 6 6 1 1 1 B B B 6 6 6	2 2 2 Q Q Q 6 6 6 1 1 1 B B B 6 6 6	2 2 2 Q Q Q 5 5 5 6 6 6 1 1 1 B B B 5 5 5 6 6 6	2 2 2 Q Q Q 5 5 5 6 6 6 1 1 1 B B B 5 5 5 6 6 6
1 1 1 B B B X X X A A A	1 1 1 B B B X X X A A A	1 1 1 B B B X X X A A A	1 1 1 B B B X X X A A A
X X X B B B X X X A A A X X X X X A A A	X X X B B B X X X A A A X X X X X A A A	X X X B B B X X X A A A A X X X X X X X	X X X B B B X X X A A A X X X X X X X X X A A A
4. Move Q:	5. Move 2:	6. Move 1:	7. Move B:
3 3 3 Q Q Q \$ \$ \$	3 3 3 0 0 0 0 5 5 5	3 3 3 QQQ\$\$\$	3 3 3 0 0 0 0 5 5 5
3 3 3 Q Q Q 4 4 4 2 2 2 Q Q Q 4 4 4	3 3 3 2 2 2 Q Q Q 4 4 4 2 2 2 Q Q Q 4 4 4	3 3 3 2 2 2 Q Q Q 4 4 4 1 1 1 2 2 2 Q Q Q 4 4 4	3 3 3 2 2 2 Q Q Q 4 4 4 1 1 1 2 2 2 Q Q Q 4 4 4
2 2 2 5 5 5 6 6 6	2 2 2 5 5 5 6 6 6	1 1 1 2 2 2 5 5 5 6 6 6	1 1 1 2 2 2 5 5 5 6 6 6
2 2 2 5 5 5 6 6 6 1 1 1 B B B 5 5 5 6 6 6	5 5 5 6 6 6 1 1 1 B B B 5 5 5 6 6 6	5 5 5 6 6 6 B B B 5 5 5 6 6 6	B B B 5 5 5 6 6 6 B B B 5 5 5 6 6 6
1 1 1 B B B X X X A A A	1 1 1 B B B X X X A A A	B B B X X X A A A	ввв хххааа
X	X X X B B B X X X A A A X X X X X A A A	X X X B B B X X X A A A A X X X X X X A A A	X
8. Move 2:	9. Move Q:	10. Move 5:	11. Move 2:
3 3 3 Q Q Q \$ \$ \$	3 3 3 Q Q Q \$ \$ \$	3 3 3 Q Q Q 5 5 5 \$ \$ \$	3 3 3 9 9 9 5 5 5 5 5 5 5
3 3 3 Q Q Q 4 4 4 1 1 1 Q Q Q 4 4 4	3 3 3 Q Q Q 4 4 4 4 1 1 1 Q Q Q 4 4 4 4	3 3 3 Q Q Q 5 5 5 4 4 4 1 1 1 Q Q Q 5 5 5 4 4 4	3 3 3 Q Q Q 5 5 5 4 4 4 1 1 1 Q Q Q 5 5 5 4 4 4
1 1 1 2 2 2 5 5 5 6 6 6	1 1 1 2 2 2 5 5 5 6 6 6	111222 666	111 222666
B B B 2 2 2 5 5 5 6 6 6 B B B 2 2 2 5 5 5 6 6 6	B B B 2 2 2 5 5 5 6 6 6 B B B 2 2 2 5 5 5 6 6 6	B B B 2 2 2 6 6 6 B B B 2 2 2 6 6 6	B B B 2 2 2 6 6 6 B B B 2 2 2 6 6 6
BBB XXXAAA	BBB XXXAAA	B B B X X X A A A	BBB XXXAAA
X	X X X	X X X	X X X
12. Move Q:	13. Move 1:	14. Move 3:	15. Move B:
3 3 3 5 5 5 5 5 5 5 3 3 3 5 5 5 5 4 4 4	3 3 3 1 1 1 5 5 5 5 5 5 5 5 3 3 3 3 1 1 1 5 5 5 5	1 1 1 5 5 5 5 5 5 5 5 1 1 1 1 5 5 5 5 4 4 4	1 1 1 5 5 5 \$ \$ \$ B B B 1 1 1 5 5 5 4 4 4
111 555444	5 5 5 4 4 4	3 3 3 5 5 5 4 4 4	B B B 3 3 3 5 5 5 4 4 4
1 1 1 2 2 2 6 6 6	2 2 2 6 6 6	3 3 3 2 2 2 6 6 6	B B B 3 3 3 2 2 2 6 6 6
B B B Q Q Q 2 2 2 6 6 6 B B B Q Q Q 2 2 2 6 6 6	B B B Q Q Q 2 2 2 6 6 6 B B B Q Q Q 2 2 2 6 6 6	B B B Q Q Q 2 2 2 6 6 6 B B B Q Q Q 2 2 2 6 6 6	Q Q Q 2 2 2 6 6 6 Q Q Q 2 2 2 6 6 6
BBBQQQXXXAAA	BBBQQQXXXAAA	BBBQQQXXXAAA	QQQXXXAAA
X	X	X	X
16. Move Q:	17. Move 3:	18. Move 1:	19. Move 5:
1 1 1 5 5 5 \$ \$ \$ B B B 1 1 1 5 5 5 4 4 4	1 1 1 5 5 5 \$ \$ \$ B B B 1 1 1 5 5 5 4 4 4	5 5 5 5 5 5 8 8 B B B 5 5 5 4 4 4	555 \$\$\$ BBB555 444
B B B 3 3 3 5 5 5 4 4 4	BBB 555444	B B B 5 5 5 4 4 4	B B B 5 5 5 4 4 4
B B B 3 3 3 2 2 2 6 6 6 6 Q Q Q 2 2 2 6 6 6	B B B 2 2 2 6 6 6 6 Q Q Q 2 2 2 6 6 6	B B B 1 1 1 2 2 2 6 6 6 6 Q Q Q 1 1 1 2 2 2 6 6 6	B B B 1 1 1 2 2 2 6 6 6 6 Q Q Q 1 1 1 2 2 2 6 6 6
0 0 0 2 2 2 6 6 6	000333222666	000333222666	Q Q Q 3 3 3 2 2 2 6 6 6
Q Q Q X X X A A A X X X X X X A A A	Q Q Q 3 3 3 X X X A A A X X X X X X A A A	Q Q Q 3 3 3 X X X A A A X X X X X X A A A	Q Q Q 3 3 3 X X X A A A X X X X X X A A A
X X X X X X X X A A A	XXXXXXXXXXX	XXXXXXXXXXX	X X X X X X X X A A A
20. Move 2:	21. Move 6:	22. Move A:	23. Move X:
5 5 5 2 2 2 3 \$ \$ B B B 5 5 5 2 2 2 4 4 4 4	5 5 5 2 2 2 3 \$ \$ B B B 5 5 5 2 2 2 4 4 4	5 5 5 2 2 2 \$ \$ \$ B B B 5 5 5 2 2 2 4 4 4 4	5 5 5 2 2 2 \$ \$ \$ B B B 5 5 5 2 2 2 4 4 4
B B B 5 5 5 2 2 2 4 4 4	B B B 5 5 5 2 2 2 4 4 4	B B B 5 5 5 2 2 2 4 4 4	B B B 5 5 5 2 2 2 4 4 4
BBB111 666 QQQ111 666	B B B 1 1 1 6 6 6 Q Q Q 1 1 1 6 6 6	B B B 1 1 1 6 6 6 A A A Q Q Q 1 1 1 6 6 6 A A A	B B B 1 1 1 6 6 6 A A A Q Q Q 1 1 1 6 6 6 A A A
000333 666	0 0 0 3 3 3 6 6 6	0 0 0 3 3 3 6 6 6 A A A	Q Q Q 3 3 3 6 6 6 A A A
Q Q Q 3 3 3 X X X A A A X X X X X X A A A	Q Q Q 3 3 3 X X X A A A X X X X X X A A A	Q Q Q 3 3 3 X X X	Q Q Q 3 3 3 X X X X X X X X X X X X X X
XXXXXXXXXXX	XXXXXXXXXXXX	x x x x x x x x x	x x x x x x x x x
24. Move 6:	25. Move 1:	26. Move Q:	27. Move B:
5 5 5 2 2 2 \$ \$ \$ B B B 5 5 5 2 2 2 4 4 4	5 5 5 2 2 2 \$ \$ \$ B B B 5 5 5 2 2 2 4 4 4	5 5 5 2 2 2 \$ \$ \$ B B B 5 5 5 2 2 2 4 4 4	5 5 5 2 2 2 3 \$ \$ \$ 5 5 5 2 2 2 4 4 4
B B B 5 5 5 2 2 2 4 4 4	B B B 5 5 5 2 2 2 4 4 4	B B B 5 5 5 2 2 2 4 4 4	5 5 5 2 2 2 4 4 4
B B B 1 1 1 A A A Q Q Q 1 1 1 A A A	BBB 111AAA QQQ 111AAA	BBB 111AAA 111AAA	B B B 1 1 1 A A A B B B 1 1 1 A A A
Q Q Q 3 3 3 6 6 6 A A A	Q Q Q 3 3 3 6 6 6 A A A	3 3 3 6 6 6 A A A	B B B 3 3 3 6 6 6 A A A
Q Q Q 3 3 3 6 6 6 X X X X X X 6 6 6 X X X	Q Q Q 3 3 3 6 6 6 X X X	Q Q Q X X X 6 6 6 X X X	Q Q Q 3 3 3 6 6 6 X X X Q Q Q X X X 6 6 6 X X X
* * * * * * * * *		QQQXXXXXXXXX	

#### Shimokita Solution, 1 -> 2 (page 2/2)

28. Move 5: 5 5 5 2 2 2 2 4 4 4 5 5 5 5 2 2 2 2 4 4 4 8 B B B 1 1 1 1 A A A B B B B 3 3 3 6 6 6 6 A A A Q Q Q X X X X 6 6 6 A X X X Q Q Q X X X X 8 6 6 6 X X X X Q Q Q X X X X X X X X X X X X 32. Move 6: 5 5 5 5 4 4 4 6 6 6 6 1 1 1 B B B 2 2 2 2 B B B B 2 2 2 2 B B B B 3 3 3 3 A A A Q Q Q 3 3 3 3 X X X	29. Move 2: 5 5 5	30. Move 4: 5 5 5 5 4 4 4 4 5 5 5 5 2 2 2 B B B B 2 2 2 1 1 1 1 A A A B B B B 2 2 2 1 1 1 1 A A A B B B 3 3 3 6 6 6 6 X X X Q Q Q X X X X 6 6 6 X X X Q Q Q X X X X X X X X X X X  34. Move 2: 5 5 5 5 4 4 4 6 6 6 6 1 1 1 B B B 2 2 2 2 A A A B B B 2 2 2 2 A A A B B B 2 2 2 2 A A A B B B 2 2 2 2 A A A B B B 2 2 2 2 A A A B B B 3 3 3 3 X X X	31. Move 1: 5 5 5 4 4 4 4
Q Q Q X X X X X X X X X X X X X X X X X	Q Q Q X X X X X X X X X X X X X X X X X	Q Q Q X X X X X X X X X X X X X X X X X	Q Q Q X X X X X X X X X X X X X X X X X
5 5 5 4 4 4 6 6 6 6 \$ \$ \$ \$ \$ \$ 5 5 5 4 4 4 4 6 6 6 6 1 1 1 1 5 5 5 6 6 6 6 1 1 1 1 1	5 5 5 6 6 6 6 8 8 8 8 5 5 5 5 6 6 6 6 1 1 1 1 1 1 1 1 1 1 1 1	5 5 5 6 6 6 6 \$ \$ \$ \$ \$ \$ \$ 5 5 5 6 6 6 6	Q Q Q 5 5 5 6 6 6 6 8 8 8 8 Q Q Q 5 5 5 5 6 6 6 6 1 1 1 1 Q Q Q 5 5 5 5 6 6 6 6 1 1 1 1 4 4 4 8 B B B 2 2 2 2 4 4 4 4 B B B B 2 2 2 2 B B B B
Q Q Q S S S S 6 6 6 1 1 1 1 3 3 3 3 4 4 4 4 B B B B 2 2 2 2 B B B B 2 2 2 2	Q Q Q S S S S 6 6 6 1 1 1 1 3 3 3 3 8 B B B 2 2 2 2 3 3 3 3 8 B B B 2 2 2 2 4 4 4 4 8 X X X X A A A A X X X X X X X X A A A A X X X X X X X X X A A A A X X X X X X X X A A A A X X X X X X X X X A A A A X X X X X X X X X X A A A A X X X X X X X X X X X A A A A X X X X X X X X X X X A A A A X X X X X X X X X X X A A A A X X X X X X X X X X X A A A A X X X X X X X X X X X X A A A A X	Q Q Q Q 6 6 6 6 1 1 1 1 1 8 8 8 8 2 2 2 2 4 4 4 4 5 5 5 5 8 8 8 2 2 2 2 4 4 4 4 5 5 5 5 8 8 8 2 2 2 2 4 4 4 4 5 5 5 5 8 8 8 2 2 2 2 4 4 4 4 5 5 5 5 8 8 8 8 2 2 2 2 4 4 4 4 5 5 5 5 8 8 8 8 2 2 2 8 8 8 8 8 8 8 8 8	Q Q Q 6 6 6 6 1 1 1 1 1 3 3 3 3 6 6 6 6 B B B B 2 2 2 2 4 4 4 5 5 5 5 B B B B B B B B B B B B B

# Shimokita Solution, 2 -> 3 (page 1/2)

Here is a solution of 58 rectilinear moves (81 straight-line moves):

0:	1. Move 2:	2. Move B:	3. Move 1:
Q Q Q 1 1 1 B B B \$ \$ \$	Q Q Q 1 1 1 B B B \$ \$ \$	Q Q Q 1 1 1	Q Q Q
Q Q Q 1 1 1 B B B B	Q Q Q 1 1 1 B B B	Q Q Q 1 1 1	Q Q Q
Q Q Q 6 6 6 8 B B	Q Q Q 6 6 6 6 B B B	Q Q Q 6 6 6 6	Q Q Q 6 6 6
3 3 3 6 6 6 2 2 2	3 3 3 6 6 6 2 2 2	3 3 3 6 6 6 8 B B B 2 2 2	3 3 3 6 6 6 B B
3 3 3 6 6 6 2 2 2	3 3 3 6 6 6 2 2 2	3 3 3 6 6 6 B B B 2 2 2	3 3 3 6 6 6 B B
4 4 4 5 5 5 2 2 2	4 4 4 5 5 5 2 2 2	4 4 4 5 5 5 B B B 2 2 2	4 4 4 5 5 5 B B
4 4 4 4 5 5 5 5 X X X A A A X X X X 5 5 5 X X X A A A A		4 4 4 4 5 5 5 5 X X X A A A X X X 5 5 5 5 X X X A A A X X X X X X X X X A A A	4 4 4 5 5 5 X X X X X 5 5 5 X X X X X X X X X
4. Move 6:	5. Move 5:	6. Move 3:	7. Move 5:
QQQ 6665\$\$	Q Q Q 5 5 5 6 6 6 8 8 8	Q Q Q 5 5 5 5 6 6 6 \$ \$ \$	Q Q Q 6 6
QQQ 666111	Q Q Q 5 5 5 6 6 6 1 1 1	Q Q Q 5 5 5 5 6 6 6 1 1 1	Q Q Q 6 6
Q Q Q 6 6 6 1 1 1 1 3 3 3 3 B B B B 2 2 2 2 3 3 3 B B B B 2 2 2 2	Q Q Q 5 5 5 6 6 6 1 1 1	Q Q Q 5 5 5 6 6 6 1 1 1	Q Q Q 6 6 6
	3 3 3 8 B B B 2 2 2	B B B 2 2 2	5 5 5 B B
	3 3 3 B B B B 2 2 2	B B B 2 2 2	5 5 5 B B
4 4 4 5 5 5 5 8 8 8 2 2 2	4 4 4 B B B 2 2 2	4 4 4	4 4 4 5 5 5 B B
4 4 4 5 5 5 X X X A A A	4 4 4 X X X A A A		4 4 4 3 3 3 X X
X X X 5 5 5 X X X A A A	X X X X X A A A		X X X X 3 3 3 X X
X X X X X X X X A A A  8. Move Q: Q Q Q 6 6 6 8 8 8	X X X X X X X X X A A A  9. Move 4: 4 4 4 Q Q Q 6 6 6 8 8 8	X X X X X X X X X A A A  10. Move 5: 4 4 4 0 0 0 6 6 6 8 8 8	11. Move B: 4 4 4 Q Q Q 6 6
Q Q Q 6 6 6 1 1 1	4 4 4 Q Q Q G 6 6 6 1 1 1 1	4 4 4 Q Q Q G 6 6 6 1 1 1	4 4 4 Q Q Q 6 6
Q Q Q 6 6 6 1 1 1	Q Q Q 6 6 6 6 1 1 1	5 5 5 Q Q Q 6 6 6 1 1 1	5 5 5 Q Q Q 6 6
5 5 5 B B B 2 2 2	5 5 5 B B B 2 2 2	5 5 5 B B B 2 2 2	5 5 5 B B B
5 5 5 B B B 2 2 2	5 5 5 B B B 2 2 2 2	5 5 5 B B B 2 2 2 2	5 5 5 B B B
4 4 4 5 5 5 B B B 2 2 2	5 5 5 B B B 2 2 2 2	B B B B 2 2 2 2	B B B
4 4 4 3 3 3 X X X A A A	3 3 3 X X X A A A	3 3 3 X X X A A A	3 3 3 X X
X X X 3 3 3 X X X A A A	X X X 3 3 3 X X X A A A	X X X 3 3 3 X X X A A A	X X X 3 3 3 X X
X X X X X X X X X A A A	X X X X X X X X X A A A	X X X X X X X X X A A A	X X X X X X X X
12. Move 6:	13. Move O:	14. Move 4:	15. Move 5:
4 4 4 Q Q Q \$ \$ \$ \$ \$ \$ \$ 4 4 4 Q Q Q 1 1 1 1 1 5 5 5 5 Q Q Q 1 1 1 1	4 4 4 Q Q Q S S S 4 4 4 4 Q Q Q 1 1 1 1 5 5 5 Q Q Q 1 1 1 1	4 4 4 Q Q Q S S S 4 4 4 Q Q Q 1 1 1	5 5 5 4 4 4 Q Q 5 5 5 4 4 4 Q Q 5 5 5 5 Q Q
5 5 5 8 8 8 8 6 6 6 2 2 2	5 5 5 B B B 6 6 6 6 2 2 2	5 5 5 B B B 6 6 6 6 2 2 2 5 5 5 B B B 6 6 6 6 2 2 2 B B B 6 6 6 2 2 2 2	B B B 6 6
5 5 5 8 8 8 8 6 6 6 2 2 2	5 5 5 B B B 6 6 6 6 2 2 2		B B B 6 6
8 8 8 6 6 6 2 2 2	B B B 6 6 6 6 2 2 2		B B B 6 6
3 3 3 X X X A A A A X X X X 3 3 3 X X X A A A A	3 3 3 X X X A A A A X X X X A A A A X X X X	3 3 3 X X X A A A A X X X X A A A A X X X X	3 3 3 X X X X X 3 3 3 X X X X X X X X X
16. Move B:	17. Move 6:	18. Move 2:	19. Move A:
5 5 5 4 4 4 Q Q Q \$ \$ \$ \$	5 5 5 5 4 4 4 Q Q Q \$ \$ \$	5 5 5 4 4 4 Q Q Q \$ \$ \$	5 5 5 4 4 4 Q Q
5 5 5 4 4 4 Q Q Q 1 1 1	5 5 5 5 4 4 4 Q Q Q 1 1 1	5 5 5 4 4 4 Q Q Q 1 1 1	5 5 5 4 4 4 Q Q
5 5 5 Q Q Q 1 1 1 1	5 5 5 Q Q Q 1 1 1 1		5 5 5 Q Q
6 6 6 2 2 2	6 6 6 2 2 2 2		6 6 6 2 2
B B B 6 6 6 2 2 2	B B B 6 6 6 2 2 2 2		B B B 6 6 6 2 2
B B B	B B B 6 6 6 2 2 2 2	B B B 6 6 6 2 2 2	B B B 6 6 6 2 2
	B B B B 3 3 3 X X X A A A	B B B B 3 3 3 X X X A A A	B B B 3 3 3 X X
	X X X 3 3 3 X X X A A A	X X X 3 3 3 X X X A A A	X X X 3 3 3 X X
X X X X X X X X X X A A A  20. Move X: 5 5 5 4 4 4 0 0 0 8 8 8	X X X X X X X X X A A A  21. Move B: 5 5 5 4 4 4 0 0 0 8 8 8	X X X X X X X X X A A A 22. Move 6: 5 5 5 4 4 4 0 0 0 8 8 8	X X X X X X X X X X X X X X X X X X X
5 5 5 4 4 4 Q Q Q 1 1 1 1 5 5 5 Q Q Q 1 1 1 1 6 6 6 2 2 2 A A A	5 5 5 4 4 4 Q Q Q 1 1 1 1 5 5 5 Q Q Q 1 1 1 1 6 6 6 6 2 2 2 A A A	5 5 5 4 4 4 Q Q Q 1 1 1 5 5 5 Q Q Q 1 1 1	5 5 5 4 4 4 Q Q 5 5 5 5 2 2 2 Q Q 6 6 6 6 2 2 2
B B B 6 6 6 6 2 2 2 A A A B B B 6 6 6 2 2 2 A A A B B B B 6 3 3 3 3 X X X	6 6 6 2 2 2 A A A 6 6 6 2 2 2 A A A	6 6 6 2 2 2 A A A 6 6 6 2 2 2 A A A	6 6 6 2 2 2 6 6 6
X X X 3 3 3 X X X	B B B X X X 3 3 3 X X X	B B B X X X 3 3 3 X X X	B B B X X X 3 3
X X X X X X X X X	B B B X X X X X X X X X	B B B X X X X X X X X X	B B B X X X X X
24. Move 3:	25. Move A:	26. Move 1:	27. Move Q:
5 5 5 4 4 4 4 Q Q Q \$ \$ \$	5 5 5 4 4 4 4 Q Q Q S S S	5 5 5 4 4 4 Q Q Q S S S	5 5 5 4 4 4
5 5 5 4 4 4 4 Q Q Q 1 1 1 1	5 5 5 4 4 4 4 Q Q Q 1 1 1 1	5 5 5 4 4 4 4 Q Q Q	5 5 5 4 4 4
5 5 5 2 2 2 2 Q Q Q 1 1 1 1 6 6 6 6 2 2 2 2 A A A A	6 6 6 2 2 2	5 5 5 2 2 2 2 Q Q Q 6 6 6 6 2 2 2 1 1 1 1	5 5 5 2 2 2 6 6 6 2 2 2 6 6 6 2 2 2
6 6 6 3 3 3 A A A A B B B B 3 3 3 X X X X B B B B X X X X X	6 6 6 3 3 3 A A A	6 6 6 3 3 3 A A A 1 1 1	6 6 6 3 3 3 A A
	B B B B 3 3 3 A A A X X X	B B B 3 3 3 A A A X X X	B B B 3 3 3 A A
	B B B X X X A A A X X X	B B B X X X A A A X X X	B B B X X X A A

### Shimokita Solution, 2 -> 3 (page 2/2)

	- (puge =/=)		
#28. Move 4: 5 5 5 5 4 4 4 4 \$ \$ \$ \$ 5 5 5 5 2 2 2 Q Q Q 6 6 6 6 2 2 2 2 1 1 1 1 B B B B 3 3 3 A A A A X X X B B B X X X X A A A X X X B B B X X X X X X X X X	#29. Move 2: 5 5 5 5 2 2 2 2 4 4 4 4 \$ \$ \$ \$ 5 5 5 5 2 2 2 2 4 4 4 Q Q Q 5 5 5 5 2 2 2 2 Q Q Q 6 6 6 6 Q Q Q Q 6 6 6 6 1 1 1 1 B B B B 3 3 3 3 A A A 1 1 1 1 B B B B 3 3 3 3 A A A X X X B B B B X X X A A A X X X B B B B X X X X X X X X X X	#30. Move 3: 5 5 5 5 2 2 2 2 4 4 4 9 9 0 0 5 5 5 5 2 2 2 2 4 4 4 0 0 0 0 6 6 6 6 3 3 3 3 0 0 0 0 6 6 6 6 A A A 1 1 1 1 B B B A A A X X X B B B X X X A A A X X X B B B X X X X A A A X X X	#31. Move A: 5 5 5 5 2 2 2 2 4 4 4 4 8 8 8 5 5 5 5 2 2 2 2 4 4 4 4 Q Q Q 5 5 5 5 2 2 2 2 3 3 3 Q Q Q 6 6 6 6 A A A 3 3 3 Q Q Q 6 6 6 6 A A A 1 1 1 1 B B B X X X X X X X X X X X X X X X X X
#32. Move 1: 5 5 5 5 2 2 2 2 4 4 4 4 9 Q Q Q 5 5 5 5 2 2 2 2 3 3 3 Q Q Q 6 6 6 6 A A A A 3 3 3 Q Q Q 6 6 6 6 A A A A B B B B X X X X X X X X X X X X X X X X	#33. Move 3: 5 5 5 5 2 2 2 2 4 4 4 4 2 Q Q Q 5 5 5 5 2 2 2 2 4 4 4 Q Q Q 6 6 6 6 A A A A 3 3 3 Q Q Q 6 6 6 6 A A A A B B B B B X X X I I I X X X B B B B X X X X	#34. Move Q: 5 5 5 5 2 2 2 2 4 4 4 4 \$ \$ \$ \$ 5 5 5 5 2 2 2 4 4 4 4 5 5 5 5 2 2 2 6 6 6 6 A A A A 3 3 3 3 Q Q Q 6 6 6 6 A A A A A A A A A A A A A A A A	#35. Move 4: 5 5 5 5 2 2 2
#36. Move 3: 5 5 5 5 2 2 2 2 3 3 3 3 4 4 4 4 5 5 5 5 2 2 2 2 3 3 3 4 4 4 4 6 6 6 6 A A A Q Q Q Q 6 6 6 6 A A A Q Q Q Q 6 6 6 6 A A A R Q Q Q Q Q B B B R R X X X 1 1 1 X X X X B B B B X X X X X X	#37. Move A: 5 5 5 5 2 2 2 3 3 3 3 \$ \$ \$ \$ 5 5 5 5 2 2 2 3 3 3 3 4 4 4 6 6 6 6 A A A Q Q Q 6 6 6 6 Q Q Q 6 6 6 6 Q Q Q 8 B B B X X X X X X X X X X X B B B B X X X X	#38. Move 6: 5 5 5 5 2 2 2 3 3 3 3 \$ \$ \$ \$ 5 5 5 5 2 2 2 3 3 3 3 4 4 4 5 5 5 5 2 2 2 3 A A A 4 4 4 6 6 6 A A A Q Q Q 6 6 6 6 A A A Q Q Q 7 6 6 6 7 0 Q Q Q 8 B B B X X X X X X X X X X X X X X X X	#39. Move 5:
#40. Move 2: 2 2 2 3 3 3 3 \$ \$ \$ \$ 2 2 2 3 3 3 4 4 4 4 2 2 2 2 A A A A 4 4 4 5 5 5 5 6 6 6 A A A Q Q Q 5 5 5 5 6 6 6 6 Q Q Q Q B B B 1 1 1 1 X X X B B B B X X X X 1 1 1 X X X	#41. Move 3: 2 2 2 3 3 3 3 \$ \$ \$ \$ 2 2 2 2 3 3 3 4 4 4 4 2 2 2 2 AAA 4 4 4 5 5 5 5 6 6 6 AAA Q Q Q Q 5 5 5 5 6 6 6 6 AAA Q Q Q Q 5 5 5 5 6 6 6 6 AAA Q X X X X X X X X X X X X X X X X X	#42. Move A: 2 2 2 3 3 3 3 A A A \$ \$ \$ \$ 2 2 2 2 3 3 3 A A A 4 4 4 2 2 2 2 A A A 4 4 4 5 5 5 6 6 6 Q Q Q Q 5 5 5 5 6 6 6 Q Q Q Q B B B 1 1 1 1 X X X B B B X X X X 1 1 1 X X X	#43. Move 6: 2 2 2 2 3 3 3 A A A A \$ \$ \$ 2 2 2 2 3 3 3 A A A A 4 4 4 2 2 2 A A A 4 4 4 5 5 5 6 6 6 6 Q Q Q 5 5 5 5 6 6 6 6 Q Q Q 5 5 5 5 6 6 6 6 Q Q Q B B B B 1 1 1 1 X X X B B B B X X X X X X X X X X
#44. Move 5: 2 2 2 3 3 3 3 A A A 4 4 4 2 2 2	#45. Move B: 2 2 2 3 3 3 3 A A A 4 4 4 4 2 2 2	#46. Move X: 2 2 2 3 3 3 3 A A A S S S 2 2 2 2 3 3 3 A A A A 4 4 4 2 2 2 A A A A 4 4 4 5 5 5 6 6 6 Q Q Q B B B 5 5 5 5 6 6 6 Q Q Q B B B 5 5 5 5 6 6 6 Q Q Q B B B 1 1 1 X X X X X X 1 1 1 X X X X X X X X	#47. Move Q: 2 2 2 3 3 3 3 A A A S S S 2 2 2 2 3 3 3 A A A A 4 4 4 2 2 2 A A A 4 4 4 5 5 5 6 6 6 B B B 5 5 5 5 6 6 6 B B B 5 5 5 6 6 6 B B B B 1 1 1 X X X Q Q Q X X X X 1 1 1 X X X X Q Q Q X X X X X X X X X X Q Q Q
#48. Move 6: 2 2 2 2 3 3 3 A A A A \$ \$ \$ 2 2 2 2 3 3 3 A A A A 4 4 4 2 2 2 A A A 4 4 4 5 5 5 5 6 6 6 6 B B B 5 5 5 5 6 6 6 6 B B B 5 1 1 1 X X X Q Q Q X X X X 1 1 1 X X X X Q Q Q X X X X X X X X X X X Q Q Q	#49. Move 5: 2 2 2 3 3 3 3 A A A 4 4 4 4 2 2 2 A A A 4 4 4 2 2 2 A A A 4 4 4 5 5 5 6 6 6 6 B B B 5 5 5 5 6 6 6 6 B B B 7 5 5 5 6 6 6 6 B B B 8 7 5 5 5 6 6 6 6 B B B 8 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8	#50. Move 1: 2 2 2 3 3 3 3 A A A \$ \$ \$ \$ 2 2 2 3 3 3 3 A A A 4 4 4 2 2 2 1 1 1 1 A A A 4 4 4 1 1 1 5 5 5 6 6 6 6 B B B 5 5 5 5 6 6 6 6 B B B X X X Q Q Q X X X X X X X X Q Q Q X X X X	#51. Move B: 2 2 2 3 3 3 3 A A A \$ \$ \$ \$ 2 2 2 3 3 3 3 A A A 4 4 4 2 2 2 1 1 1 1 A A A 4 4 4 1 1 1 5 5 5 6 6 6
#52. Move 1: 2 2 2 3 3 3 3 A A A 4 4 4 2 2 2 A A A 4 4 4 5 5 5 6 6 6 5 5 5 6 6 6 1 1 1 B B B B 5 5 5 6 6 6 1 1 1 B B B B X X X Q Q Q X X X X B B B X X X Q Q Q	#53. Move 2:  3 3 3 3 A A A A \$ \$ \$ \$ 3 3 3 A A A 4 4 4 2 2 2 2	#54. Move 3: 3 3 3	#55. Move A: 3 3 3 3
#56. Move 4: 3 3 3 3 4 4 4 4 \$ \$ \$ \$ \$ 3 3 3 3 4 4 4 4 2 2 2 2 A A A A 5 5 5 6 6 6 6 2 2 2 2 A A A 5 5 5 6 6 6 6 1 1 1 B B B B 5 5 5 6 6 6 6 1 1 1 B B B B X X X Q Q Q X X X B B B X X X X Q Q Q X X X X B B B X X X X Q Q Q	#57. Move 5: 3 3 3 4 4 4 4 5 5 5 5 \$ \$ \$ \$ 3 3 3 3 4 4 4 5 5 5 5 2 2 2 2 A A A 5 5 5 5 2 2 2 2 A A A 6 6 6 6 1 1 1 1 B B B B X X X Q Q Q X X X B B B X X X X Q Q Q X X X X B B B X X X X Q Q Q	#58. Move 6: 3 3 3 4 4 4 4 5 5 5 5 \$ \$ \$ 3 3 3 3 4 4 4 5 5 5 5 2 2 2 2 A A A A 6 6 6 2 2 2 2 A A A 6 6 6 1 1 1 1 B B B B 6 6 6 1 1 1 B B B B X X X Q Q Q X X X B B B X X X X Q Q Q X X X X B B B X X X X Q Q Q	