Enjoy Life



Designed and made by Diniar Namdarian, 2016; sleeve made by J. A. Storer. (laser cut plastic, 3+3/8" high by 5.5" wide x 3/8" thick)

The directions ask one to exchange the upper left orange E with the lower right red E so that "ENJOY" is all red and "LIFE" is all orange:



In the theme of the *Fifteen* puzzle and *Panama Canal* puzzles, this is a seemingly impossible problem because of puzzle position parity; from any position, half of the other possible positions are reachable and half are not, and the start and end positions are in opposite halves.

However, there is sufficient free space in this puzzle to make moves that are not the straightforward movement of a piece left or right by a piece width or up and down by a piece height, and this allows two adjacent pieces to be exchanged (which reverses the puzzle parity).

The following pages show four ways to solve the puzzle, all of which fix the parity by effectively exchanging two letters that are adjacent to each other.

The first solution uses rotations to exchange L and I.

The other three solutions, using strictly rectilinear moves, move letters incrementally vertically; the first exchanges L and E, the second I and the orange E, and the third I and the red E.

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Enjoy Life Solution, Using Rotations

We use E to denote the red letter E and e to denote the orange letter e.

- 1. Slide *LIFE* right, *e* down, and *N* left to make:
 - N . J O Y e L I F E
- 2. Then exchange the L and I with non-standard movement:
 - 1. L rotates 90 degrees clockwise and slides up.
 - 2. I slides left and rotates 90 degrees counter clockwise.
 - 3. L rotates 90 degrees counter clockwise and fits next to J.
 - 4. I rotates 90 degrees clockwise and slides left.
 - 5. *L* slides down.
- 3. With parity reversed, 34 moves can finish the solution:

#0:	#1. Move I:	#2. Move L:	#3. Move F:	#4. Move E:
N J O Y	N I J O Y	N I J O Y	NIJOY	N I J O Y
e I L F E	e L F E	e L F E	eLF E	e L F E
#5. Move Y:	#6. Move O:	#7. Move E:	#8. Move F:	#9. Move J:
N I J O	NIJ O	NIJEO	NIJEO	NI E O
e L F E Y	eLFEY	eLF Y	eL FY	e L J F Y
#10. Move I:	#11. Move L:	#12. Move e:	#13. Move N:	#14. Move L:
N IEO	N L I E O	N L I E O	LIEO	L IEO
eLJFY	e J F Y	e J F Y	NeJFY	NeJFY
#15. Move I:	#16. Move E:	#17. Move F:	#18. Move J:	#19. Move e:
LI EO	LIE O	LIEFO	LIEFO	LIEFO
NEJFY	NEJFY	NeJ Y	NeJY	N eJY
#20. Move I:	#21. Move E:	#22. Move F:	#23. Move J:	#24. Move e:
L EFO	LE FO	LEF O	LEFJO	LEFJO
NIEJY	NIEJY	NIEJY	NIE Y	NI eY
#25. Move I:	#26. Move N:	#27. Move L:	#28. Move E:	#29. Move N:
LEFJO	LEFJO	EFJO	E FJO	ENFJO
N I e Y	NIEY	LNIEY	LNIEY	L IeY
#30. Move I:	#31. Move F:	#32. Move J:	#33. Move O:	#34. Move Y:
ENFJO	EN JO	ENJ O	E N J O	E N J O Y
LI eY	LIFeY	LIFeY	L I F e Y	L I F e

Enjoy Life Solution, Rectilinear Movement Version A (1/2)

Here is a solution of 43 rectilinear moves (46 straight-line moves). Positions 23 to 30 change parity by exchanging L and E. Notice that moving e down in Position 22 gives a position identical to Position 30, except with L and E exchanged.

0:	1. Move Y:	2. Move 0:
eeen NJJJOOOX X	eeen NJJJ000 ee NNN J0 0	eeen NJJJ 000 ee NNN J 00
ee NNN JO OYYY	ee NNN JOO	ee NNN J O O
eeeN N JJOOO Y	eeeN N JJ000	eeeN N JJ 000
L I FF EE	L I FF EE Y Y	L I FF EE Y Y
L I F E E	L I F EE YYY	L I F EE YYY
LLLIIIF EEE	LLLIIIF EEE Y	LLLIIIF EEE Y
3. Move J:	4. Move N:	5. Move I:
ee NNN JO C	ee NNN JO O	ee I NNN JO O
ee NNN JOC	ee NNN JOO	ee INNN JOO
eeeN N JJOOC	eee N N JJ000	eeeIIIN N JJ000
L I FF EE Y Y	L I FF EE Y Y	L FFEEYY
L I F EE YYY	L I F EE YYY	L F EE YYY
LLLIIIF EEE Y	LLLIIIF EEE Y	LLL F EEE Y
6. Move F: e e e I I I N N J J J O O C	7. Move N: DeeelII JJJ000	8. Move I: e e e IIIJJJ000
ee INNN JO C	ee I JO O	ee I JO O
ee INNN JOC	ee I JO O	ee I JOO
L FFF EEEV	L FFFN NEEEV V	eee III JJ000 L FFFN NEEEV V
L FF EE Y Y	L FF NNNEE Y Y	L FF NNNEE Y Y
L F EE YYY	L F NNNEE YYY	L F NNNEE YYY
A Move et	LLLF NNEEE I	LLLF NNEEE I
eeeIIIJJJ000	L eeeIIIJJJ000	L eeeIIIJJJ000
ee I JOC	Lee I JOO	Lee I JOO
L FFFN NEEEY Y	FFFN NEEEY Y	FFF N NEEEY Y
L FF NNNEE Y Y	FF NNNEE Y Y	FF NNNEE Y Y
L F NNNEE YYY	F NNNEE YYY F NNEEE Y	F NNNEE YYY F NNEEE Y
12. Move N:	13. Move E:	14. Move J:
L eeeIIIJJJ000	L eeeIIIJJJ000	L eeeIII 000
LLLeeeIII JJ000	LLLeeeIII JJ000	LLLeeeIII 000
FFFN N EEEY Y	FFFN NEEE YY	FFFN NEEEJJJY Y
FF NNN EE Y Y	FF NNNEE YY	FF NNNEE JY Y F NNNEE JY Y
F N N EEE Y	F N NEEE Y	F N NEEE JJ Y
15. Move I:	16. Move e:	17. Move N:
		L N NeeeIII000
		L NNNee I O O
LLLeee III000	LLL eeeIII000	LLLN NeeeIII000
FFFN NEEEJJJY Y	FFFN NEEEJJJY Y	FFF EEEJJJY Y
F NNNEE JYYY	F NNNEE JYYY	F EE JYYY
F N NEEE JJ Y	F N NEEE JJ Y	F EEE JJY
18. Move F:	19. Move L:	20. Move N:
L NNNee I O C	NNNee I 0 0	NNN ee I O O
L NNNee I O C	NNNee I O O	NNN ee IOO
LLLN NeeeIIIOOC	N NeeeIII000	N N eeeIII000
FFEE JY Y	L FF EE JY Y	L FF EE JY Y
F EE JYYY	L F EE JYYY	L F EE JYYY
F EEE JJ Y	LLLF EEE JJ Y	LLLF EEE JJ Y

Enjoy Life Solution, Rectilinear Movement Version A (2/2)	tilinear Movement Version A (2/2)
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42. E E E E E L L L L	39. E E E E L L L L L	36. E E E E E E	33. N N N N N E E E E E E	30. N N N N N E E E E E E E	27. N N N N E E E E E E E E E	24. N N N N N L L L L	21. N N N N N L L L L L
		1					
E		E					
ve N N N I	ve N N N I		Ve F F F F F F L L L	FFFFLLL	ve	E	ve F F F
N N I I I I	I N I I I	N N L	F	F	E	FEEEE	F
: NNNNI			F	: F	•	E	: F
JFFFF	FFFF	FFFFI	ı	e e e	FFFFLLL	FFFF	eeeeEEE
JJFF	F	FFIII	I I I	e e e	FFeeeeL	FFeeee	e e e e e e e e e e
JJJJF	F	FI	I	e	Feee	Feeee	e e E E
000000000000000000000000000000000000000	J	Jeeee	J e e e e	I J	I e J e	I e J e	IJ
0 0 0 0 0 0 0 0 0	JJeeee	J J e e e e	JJeeeee	I I I J J	IIJJ	IIIIJ J	IIIJJ
000000	JJJJee	JJJJee	JJJJee	IJJJJ	IJJJJ	I IJJJJ	IJJJJ
Y Y Y	0000 ¥ ¥ ¥	0000	0000	0000444	0000 ¥ ¥ ¥	0000111	0000
Y	0 0 ¥¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥¥	0 0 ¥
Y Y Y	0000	0000	0000	0000	0000	00001111	00009999
4 EEEELLL	4 EEEELLL	3 E E E E	3 N N N N E E E E	3 N N N N E E E E	2 N N N N E E E E	2 N N N N L L L L	2 N N N N L L L L
E E E E L	EEEE L	7. EEEE	4. NN EEEE	NN EEEE	8. NN EEEE	5. NN L	2. N N
E	E	E	MNNNE	MNNNE	MNNNE	MNNN	MNNN
N N N I	N N N I	N N N N L L L	FFFLLL	FFFLLL	LLLL	EEE	OFFFFEEEE
e N N I I I I	e N N I I I I	e N N	e F F	e F F	e L	e E E E E	e F F E E E E
Y: N N N N I	F:NNNNI	E: N N N L	I: F	L	L:	E: E	E: F E
J PEFF		FFFFI I	I	I e e e e	F F F F	5. 5. 5. F.	eeee
J JFF	FF	FFIII	IIII	III II e e e e	FFeeee	F.F.e.e.e	e e e e
JJJJF	F	F	I	I	Feeee	Feeee	e
000000000000000000000000000000000000000	J	J	J	J	I I J e	I I J e	I
000000000000000000000000000000000000000	Jeeeeeeee	J	Jeeeeeee	J	J	J	J
00000					1 1 2 2 2 2 2 2	1 10000	1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Y	0						0 0 0 0
X X X	0000	0000 ¥ ¥	0000 2 Y Y	00000	0000	00000 ¥¥¥	K K O O O O O
	4 I I I I I I I I I I I I I I I I I I I	38 EEEELLLL	3 N N N N N E E E E	3NNNNNEEEE	29NNNNEEEE	26 N N N	2NNNNLLLL
	.EEEE L	LEEEE	. NN EEEE	NN EEEE	. NN EEEE	N N	N N L
	E	E	MNNNNE	MONNNE E	MONNNE	MC N N N N	MC N N N N L
	NNNNI	NNNN	LLLL	FFFFLLLL	FFFFLLLL	EEEE	N. F. F. F. M. M. M. M.
	NNIIII	e N N	L	FF	FF	EEEE	e FF EEEE
	J: NNNNNN I	L: N N N N	F:	F	F	E E	e: F E
	J FFFF	FFFI	FFFI	I I e e e e		FFFFLLL	
	J J F F	FFIII	FFIII	IIIEEEE	e e e	FFeeeeL	e e e
	JJJJF	FI	FI	I I e e	e e e	F e e e e L	e e e
	eeee	Jeeeee	J e e e e	J	I e J e	I e J e	I e J e
	eeee	J J e e e e	J J e e e e	J	IIJJ	IIIJJ	IIIJJ
	e	JJJe	JJJJe	JJJJ	I J J J J J	I J J J J J	I I J J J J J
	0000	0000 1 1 1 1	0000	0000	0000	0000XXX	0000111
	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥ ¥	0 0 ¥	0 0 ¥	0 0 ¥
	0000	0000	0 0 0 0 2 2 2 2	0000	0000	0000	00001111

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Enjoy Life Solution, Rectilinear Movement Version B (1/2)

Here is another solution of 43 rectilinear moves (48 straight-line moves). Positions 26 to 30 change parity by exchanging I and e. Notice that moving e up and then I left in Position 25, and moving I left in Position 30, gives identical positions except with I and e exchanged.

18 L L L N N N N	15 L L N N N N	12 L L L	9. eeeeLLLL	6. e e e L L L L	3. e e e e L L L L	0: eeeeLLLLL
L N	L N	L	M e e e L	M e e e	M e e e	eee
L N N N	L N N N	L	e L	e	e	e
EEEeeeeee	EEEEeeee	e e e e N N N N N	N N N N	N N N N I I	e N N N N I I	N N N N I I
EEEEeeeee	EEEEeeee	e e e e N N	I: N N	E: NN IIII	E NN IIII	N N I I I I I
E E e e	E E e e	e e N N N N N N	N N N N	N N N N I I	NNNNI I	N N N N I I
FFFF	I	EEEEI	EEEI	EEEJ	J FFFF	J FFFF
FF	IIII	EEEEIIII	EEEIIII	EEEEJ J	J JFF	J JFF
F	I	EII	EI	EEJJJJ	JJJJF	JJJJF
J I I	FFFFJ	FFFFJ	FFFFJ	F. F. F. F.	E E E E	000000000
JJIIII	FF J J	FFJJJ	F F J J	FF	M M M M	0 0 0 0 0 0
JJJJI	FJJJJ	FJJJJ	FJJJJ	F	E	OOOOE E
0000444	0000	0000	0000	0000	00001111	Y Y Y
0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥¥	¥ ¥
0000 2 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0000	K K 0 0 0 0	0000	K K K O O O O	KKK0000	N N N
1 LLLNNNN	1 LLLLNNNN	1 LLLLNNNN	10 eeeeLLLL	7 eeeeLLLL	4 eeeellll	leeeellLL
P. L N	L N N	L N N	eeee L	L	L e e e e	l e e e e e L
L NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN	L NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN	LNNNNN	e e L	e	e e L	e
EEEE	EEEEeeee	e e e e	N N N N	N N N N I I	NNNN I I	NNNN I
EEEE	EEEEeeee	e e e e	NN	F NN NIIII	F NN IIII	Y NN IIII
E E	E E e e	e e	N N N N N	NNNN I	I NNNNI	I NNNNI
FFFFeeee	FFFFI	EEEEI	EEEI	EEEEJ	J	JFFFF
FFeeee	FFIII	EEEEIIII	EEEIIII	EEEEJ J	J	J JFF
F e e	FI	EII	EI	E E J J J J	JJJJ	JJJJF
J I I	J	FFFFJ	FFFFJ	F F F F		000000000
JJIIII	J	FFJJJ	F F J J	FF	E E E E E E E	0 00000
JJJJI	JJJJ	FJJJJ	FJJJJ	F	EEF	00000
0000	0000	0000	0000	0000	0000	Y Y Y
0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	YY
0000 7 Y Y Y	00001111	0000 1 1 1 1	0000	0000V ¥¥	K K K O O O O	X X X
2 L L L N N N N N	1 LLLNNNNN	1 L L L N N N N	1 LLL L	SeeeeLLLLL	5 e e e e L L L L	2 e e e e L L L L
L N N	T. L N N	4. L N	1. L	. 'e e e e L	. l e e e e L	. e e e e e L
LNNNNNN	LNNNN	LNNNNNN	L	e	e e L	e
EEEE	EEEEeeee	e e e	eeeeNNNNN	N N N N I I	NNNN I I	NNNN I I
EEEE	EEEEeeee	eeeee	e e e e e e e N N	JNNNIIII	J: NN IIII	O NN IIII
E E	E E e e	e	e e NNNN	N N N N I I	NNNNI	NNNN I I
FFFFeeee	FFFFI	EEEEH H	EEEEI	E E E	J	J FFFF
FFeeee	FFIII	EEEHHHH	EEEEIIII	E E E	J	JJFF
F e e	FI	EII	EI	E	JJJJ	JJJJF
J I I	J	FFFFJ	FFFFJ	FFFFJ	HHHHFFFF	00 00 00 00
JJIIII	J	FFJJ	F F J J	F F J J	EEEEFF	EEEE
JJJJI	J J J J	F JJJJ	F JJJJ	F JJJJ	EEF	E
0000 Y Y Y	00001111	0000	0000	00001111	00001111	00001111
0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥
K K K O O O O	M M NOOOO	K K K O O O O	N N N O O O O	K K K O O O O	K K K 0 0 0 0	K K K O O O O

Enjoy Li	fe Solution	, Rectilinear	Movement	Version	B	(2/2)
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42 E 1 E 1 L L L	39 E E L L L L	36 E 1 E 1 E 1	33 N N N E E E	30 N N N E E E	27 N N E E E	24 N N N N N N N N N N N N N N N N N N N	21 N N N
			Ve FI FF LLLI	Ve FI FI L	F F F C C L L J		
O: NNNNNN NNI II		N: NN NN N	e: F	e: F	I: F F e e e e e e e e e e e e e e e e e	L: L L	
J FFFF	FFFF	FFFFI	ı	e e e e	I e I e	FFFFeeee	FFFFeeee
J JF F	F	FFIII	IIII	e e e	IIII	F F e e e e	F F e e e e
JJJF	F	FI	I	e	I	F e e	F e e
000000000000000000000000000000000000000	J e e e e	J e e e e	Jeeeee	I I J	J	J I I	J I I
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	J J e e e e	J J e e e e	JJeeee	IIIJJ	J	JJIIII	JJIIII
0000e e	JJJe	JJJe	JJJJe	I J J J J J J	1 1 1 1	JJJJI	JJJJI
Y Y Y	0000 ¥ ¥ ¥	0000 1 1 1	0000 ¥ ¥ ¥	0000	00001111	0000 ¥ ¥ ¥	0000 ¥ ¥ ¥
Y	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥
Y Y Y	0000 ¥ ¥ ¥ 0000	x x x 0 0 0 0	X X X 0 0 0 0	0000	00001111	× × × 0 0 0 0	0000 2 X X 00 2 X X X X X X X X X X X X X X X X X X X
4 E E E E L L L L	4 EEEELLLL	3 M M M M M	⁴ z z z z u u u u	3 N N N N N E E E E	2 N N N N N E E E E	2 N N N N N N N N N N N N N N N N N N N	22 NNNNN
L E E E E	LEEE	·······································	NN MMEN	NN EEEE	NN EEEE	NN EEEE	2. N N
E	E	E	MNNNNE E	MNNNNE	MNNNNE	MNNNNE	Ma N N N N N
N N N I I	N N N N I I	NNNNLLLL	FFFFLLLL	FFFFLLLL	FFFFLLLL	FFFFLLLL	LLLEEEE
N N I I I I I I	N N I I I I I I	E P	FF	F F L	FFeeee	FF	LEEEE
I I	NNNN I	I NNNN	L L	L L	F e e e e e e L	F	L E E
J FFFF	F F F F	FFFFI	I	I I e e e e	I E E	e e e	FFFFeeee
J J F F	F	FFIII	IIII	IIIEEEE	III	e e e	F F e e e
J J J J F	F	FI	I	I I e e	I	e	F e e
000000000000000000000000000000000000000	J e e e	J e e e e	Jeeeee	J	J	J I I	J I I
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	J J e e e e	J J e e e e	J J e e e e	J	J	JJIIII	JJIIII
0 0 0 0 e e	JJJee	JJJe	JJJJe	JJJJ	JJJJ	JJJJI	JJJJI
Y Y Y	0000 ¥ ¥ ¥	N K K O O O O	0000 ¥ ¥ ¥	0000	0000 ¥ ¥ ¥	0000 ¥ ¥ ¥	0000 ¥ ¥ ¥
¥ ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥
Y Y Y	x x x 0 0 0 0	x x x 0 0 0 0	X X X 0 0 0 0	0000	0000 1 1 1	A A A O O O O	X X 0 0 0 0
	4 H H H H H L L L L	SEEEELLLL	³ Z Z Z Z E E E E	3 N N N N N N N N N N N N N N N N N N N	2 N N N N N E E E E	2 N N N N N H H H H	2 N N N N N E E E E
	L E E E E	S.EEEE L	S. NN MMME	2. NN EEEE	9. NN EEEE	6. NN MEME	3. NN MMMM
	E	E	MNNNNE	MONNNE	MONNNE	MONNNE	MC N N N N E E
	N N N I I	N N N N	LLLL	FFFFLLLL	FFFFLLLL	FFFFLLLL	
	N N I I I I I I	N N	E F	F F L	Feeee	F F e e e e L	e E L
	I N N N I	: NNNN	r: L	F	Feeee	Feeee	L
	JFFFF	FFFI	FFFFI	I I e e e e	e	e e	FFFFeeee
	J J F F	FFIII	FFIII	IIIeeeee			F F e e e e
	JJJJF	FI	FI	I I e e			F e e
	e e e	Jeeeee	Jeeee	J	I J	J I I	JI
	e e e	J J e e e e	JJeeeee	J	I I I J J	J J I I I I	J J I I I I
	e	JJJe	JJJJe	JJJJ	I J J J J J	JJJJI	JJJJI
	0 0 0 0 0 2 2 2 2	0000 ¥ ¥ ¥	0000 Y Y Y	0000	0000	0000 ¥ ¥ ¥	0000
	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥	0 0 ¥
	0000	0000	0000	0000	0000	0000	0000

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Enjoy Life Solution, Puzzle Directions Solution (1/3)

This solution shown here, provided and copyright by the puzzle maker, uses 43 rectilinear moves (48 straight-line moves). The I is exchanged with the red E in steps 14 to 18 (in Step 18, if E is move up and I moved left, the position is identical to step 13 with I moved left and J moved up, except with I and E exchanged).





Enjoy Life Solution, Standard Rectilinear Movement (2/3)





Enjoy Life Solution, Standard Rectilinear Movement (3/3)