

Full 4x4 OLL (using Kåre Parity)

(You can skip this page to get to the cases)

Background

Here I document all the cases for solving OLL parity + OLL. For a lot of cases I use a variation of Kåre Parity, seen here: [YouTube: Kåre OLL parity in ~1.88s](#).

I swapped one Rw' to a $Rw3$ to make it flow better.

The algorithm: $Rw' U Rw' U' Rw2 R' U' Rw' U' R U2 Rw' U' Rw3 U2 Rw' U2 Rw'$

I'll refer to it as KP below.

KP messes up the FRD corner, putting it in the top layer (in BRU to be exact).

It also does PLL parity, but that is rarely useful.

Note that it's NOT a replacement for normal OLL parity, but allows for a lot of cases to be done quicker.

You can also use this during F2L if you notice you have parity then.

The theory behind these algorithms is that we could think about solving OLL and OLL parity (OP) as "alg [OP] alg" to solve different cases (for many cases this means OP + OLL).

Using KP instead of OP allows for wildly different setups or fixes after the algorithm, which proves very beneficial.

From the next page you find all OLL cases with parity together with algorithms using using KP and OP. I also have a code for each case so you can look them up faster.

I have tried to sort them so the best alg is on top.

Color coding:

Images - White: Top color, Gray: Any other color

Algs:

[KP] = $Rw' U Rw' U' Rw2 R' U' Rw' U' R U2 Rw' U' Rw3 U2 Rw' U2 Rw'$

[OP] = $Rw U2 x Rw U2 Rw U2 Rw' U2 Lw U2 Rw' U2 Rw U2 Rw' U2 Rw' / (Rw' U2' Rw U2) (Rw' F2 Rw2 U2') (Rw U2 Rw' U2') F2 Rw2 F2'$

[UB] = $Rw U2 Rw' U2 Rw F2 Rw2 F2 U2 Rw U2 Rw' U2 Rw2 F2 / Rw U2 Rw' U2 Lw D2 Lw' Rw' F2 U2 Rw U2 Rw' U2 Rw Lw D2$

Codes:

Number axyz

a = number of edges flipped, always one flipped UF and one non-flipped UL. Always 1 or 3.

x,y,z = code for how UFL, UFR, UBR are flipped respectively. 0 = top color up, 1 = top color R/L, 2 = top color on F/B.

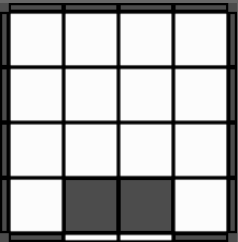
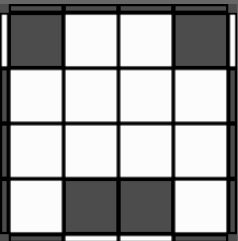
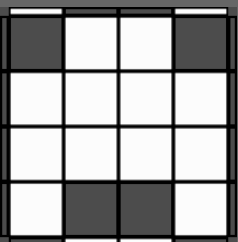
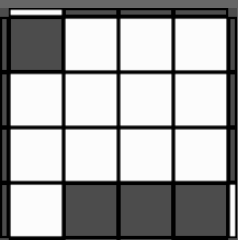
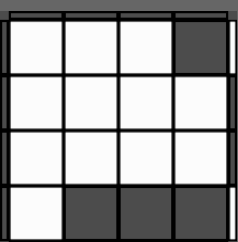
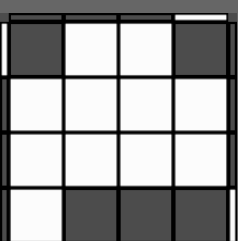
To find a specific case, figure out the code, then use Ctrl+F and type in the code.

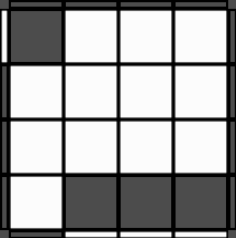
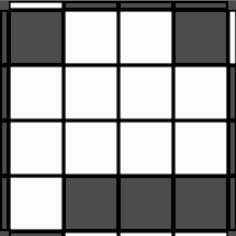
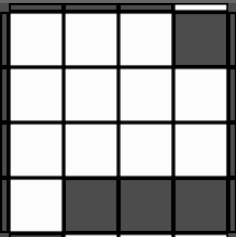
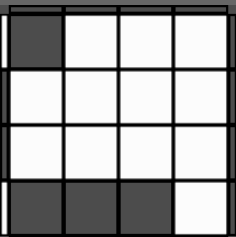
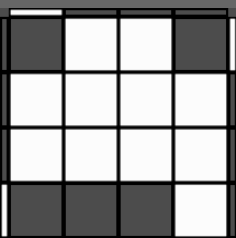
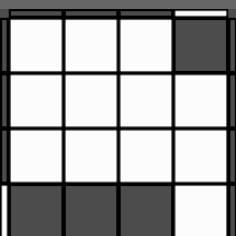
This sheet has all the same cases, just structured way nicer:

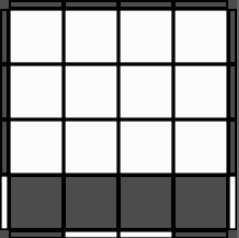
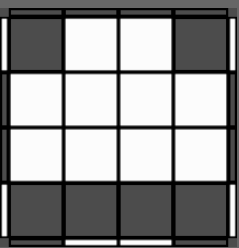
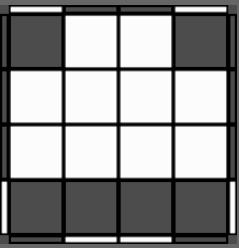
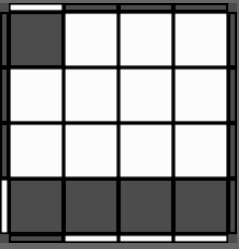
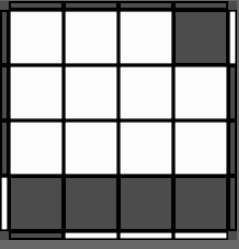
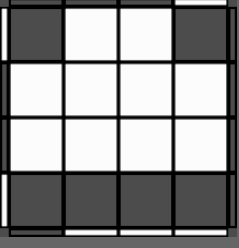
<https://docs.google.com/spreadsheets/u/0/d/1E3Y4qNmxt7WsBHFflmSi7SH22fUHQft-0yPCb8Qeg-4/htmlview#>

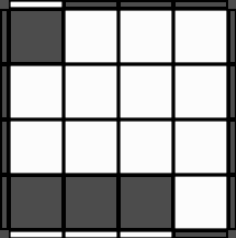
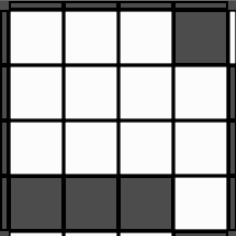
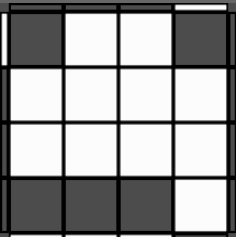
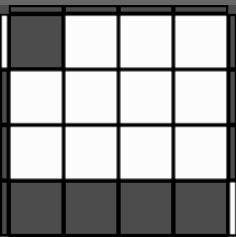
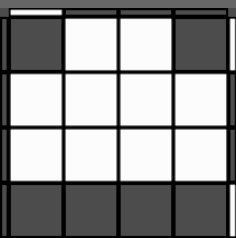
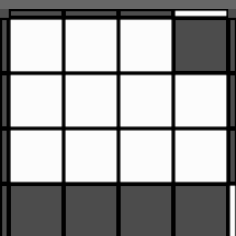
Credits to CubeAlgs101

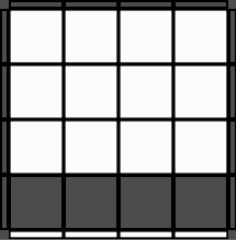
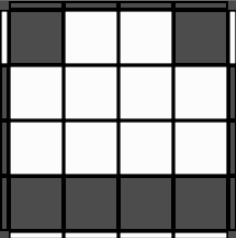
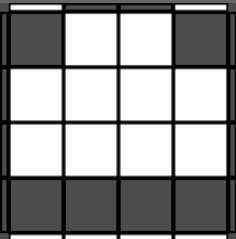
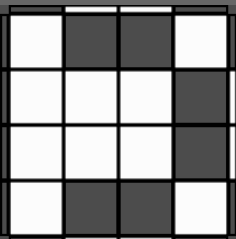
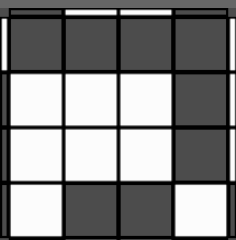
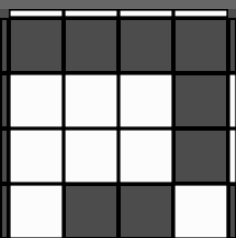
Cases

Code	Image	Alg
1000		1. $R' [KP] R U' R' U' R$ 2. $(U2) R U2 R' [KP] R U' R'$ 3. $[KP] R U' R' U' R U2 R'$ 4. $(U') R U' R' U' R U2 R' [KP]$ 5. $R' F R F' [KP] R U R'$
1001		1. $(U) R U R' [KP] R2 B' R' B R'$ 2. $(U) F R U' R' U2 [OP] R U R' F'$ 3. $(U') R' U2 R U' R' U' R D' U' [KP] D$ 4. $(U) L' U2 L U' L' U' L D U [KP] D'$
1002		1. $(U2) M [OP] M'$ 2. $(U') F U R' [KP] R F' R' U2 R$ 3. $(U2) R2 D R' U2 R D' R2' [KP] R U' R'$
1010		1. $[OP] U2 R U R' U R U2 R'$ 2. $(U) R U2 R' U2 R' F R U [KP] F'$ 3. $(U) [KP] R U' R' U' R' F R F' R U2 R'$ 4. $[KP] R U' R' U2 R' D' R U R' D R U' R U' R'$
1011		1. $[OP] U' R U R' U R U2 R'$ 2. $(U) R U' R' F R F' [KP] R U R2$ 3. $(U') L F U [KP] F' U2 L'$ 4. $(U) R U2 F U [KP] F' R'$ 5. $(U2) F U F U [KP] F' U F'$
1012		1. $(U2) [OP] F R U R' U' F'$ 2. $L F U [KP] F' U2 L'$ 3. $R' D F R U [KP] R' F' D' R$ 4. $(U2) R2 U2 [KP] R' U R U2 R' U R'$ 5. $(U) R U R' U R U' R' U [KP] U R U2 R'$ 6. $(U2) R2 U2 R2 [KP] R U R U2 R' U R'$

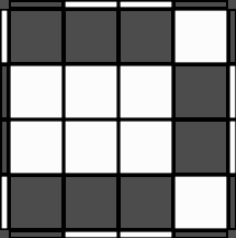
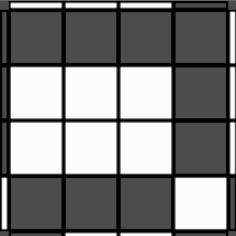
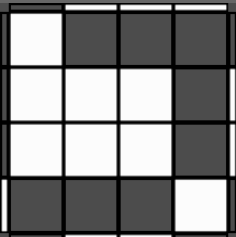
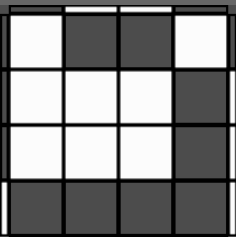
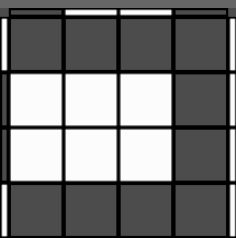
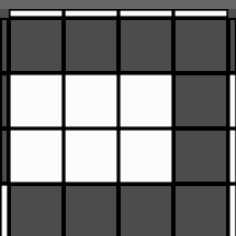
1020		1. $R U R' U R U^2 R' [OP]$ 2. $(U^2) R U R' [KP] F' U^2 F$ 3. $(U) F R' F' R U R U R' [KP] R U' R'$ 4. $(U') F R U D' [KP] D R' F'$ 5. $(U^2) L F [KP] U F' L'$
1021		1. $[OP] R U R' U R U^2 R'$ 2. $(U') R U R' U R D' [KP] D U' R'$ 3. $(U^2) R U R' U' R' F R U [KP] F'$ 4. $F U F' U F U' [KP] F'$ 5. $(U^2) R' U [KP] R U R' F' U^2 F U R$
1022		1. $(U^2) F R U R' [KP] F'$ 2. $(U') R' U [OP] R' F R F' R$
1100		1. $[OP] R U^2 R' U' R U' R'$ 2. $R' U' R U R' U [KP] R U R' U' R$ 3. $(U) F R U R' [KP] U R U' R' F'$
1101		1. $M' U R U' 3Rw' [KP] R U R'$ 2. $F U' [KP] U' R U^2 R' U^2 F'$ 3. $R U R' U R' F R F' [KP] R U' R'$
1102		1. $(U) R' D' R U^2 R' D R U [KP]$ 2. $[OP] R' U' R U' R' U^2 R$ 3. $R^2 F R F' [KP] R U R' U' R$ 4. $(U^2) R U^2 R^2 F R F' [KP] R U' R'$

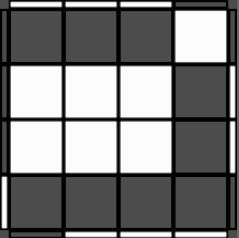
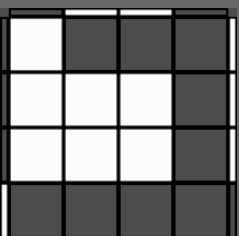
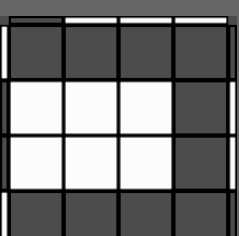
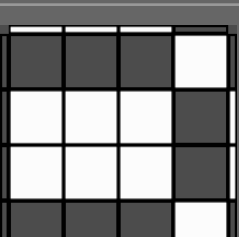
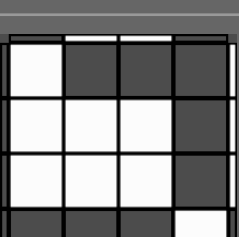
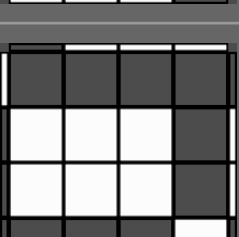
1110		1. $(U') F U [KP] F'$
1111		1. $(U) R' U' R [OP] U' R' U^2 R$ 2. $(U) R U R' [UB] U R U^2 R'$ 3. $R U R' U^2 R U' R' U [KP] U R U' R'$ 4. $R U R' U R D' [KP] D R' U R U^2 R'$
1112		1. $(U') R U^2 R' U [KP] R U' R' U^2 R U^2 R'$ 2. $(U') R U^2 R' F U [KP] F' U R U' R'$
1120		1. $L' U^2 L U L' U L [OP]$ 2. $(U^2) R U^2 R' U' [KP] U^2 F R' F' R$ 3. $(U^2) R U^2 R^2 F R F' [KP] U R U^2 R'$ 4. $(U) R' U^2 R U R' U [KP] R U' R' U' R$ 5. $(U^2) 3Fw R' F' R U^2 [KP] R U' R' U S'$
1121		1. $(U') R U R' U [KP] R U' R'$ 2. $F U R U' R' F' [OP]$
1122		1. $(U) R U R' U^2 [KP] R U' R' U R U' R'$ 2. $(U^2) R' U [KP] R U^2 R^2 F R F' R$

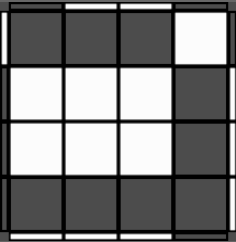
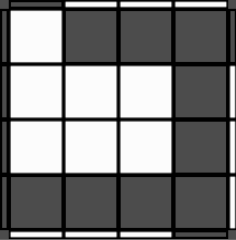
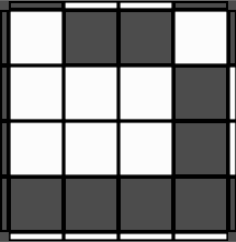
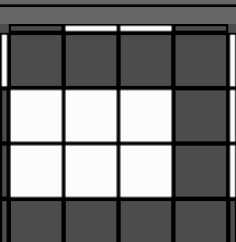
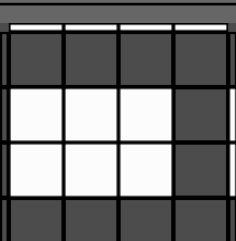
1200		1. (U) R' D' R U R' D R U2 [KP] 2. R' U [KP] R U R' F' U' F R 3. R2 F2 R2 [UB] R2 F2 R2 4. F [OP] U' F R' F' R F' 5. (U2) 3Fw U [KP] F' U2 S' 6. [KP] R U' R' U R' F R U R U' R' F'
1201		1. (U) R' U' R [OP] R' U R 2. R' F R' F' R [KP] U R 3. [KP] D' R' D R U R' D' R D 4. R' D' R D [KP] D' R' D R
1202		1. (U') R2 U R2 U R2 [KP] U' R2 2. (U') R' U2 R U' R' U2 [KP] R 3. [OP] U' R U2 R' U' R U' R' 4. (U') [KP] R U' R' U2 S' R U' R' S
1210		1. [KP] R U' R' U2 R U' R' 2. F R U R' U' F' [OP]
1211		1. (U') R U R' U [KP] U R U2 R' 2. (U2) [KP] R U' R' U R' F R2 U R' U' F' 3. (U) R' U' R U2 R' U2 [KP] R 4. (U) R' U' [KP] R U' R' U R U2 R' U R
1212		1. (U) R U' R' U R U' R' [KP] U R U R' 2. R U2 R' U' R U' R' [OP] 3. (U) R U2 R' U' R U R' [KP] R U' R'

1220		1. [OP] 2. (U) R' D' R U' R' D R [KP] 3. R' D R [KP] R' D' R
1221		1. (U) R D' R2 U' [KP] R U' R D R' 2. (U) R' U2 R2 U R2 U R [KP] R U' R' 3. (U2) F U R U' R' [KP] U F' L' U2 L 4. [KP] R U' R2' D' R U2 R' D R2 U' R' 5. [KP] R U' R' U R U' R' U2 R U' R' U2 R U R' 6. (U) R' [KP] F R U R' U' F' R U' R' U' R 7. (U) R U2 R2 U' R2 U' R2 U2 [KP] R U' R' U' R
1222		1. (U) R U R' U R U' R' U [KP] R U' R' 2. (U') R' U' R U R' [KP] R U2 R' U2 R 3. (U') R' U2 R U [OP] R' U R 4. (U') R U R' [KP] U2 F R' F' R 5. (U) R U R' U R U' R' U [KP] R U' R' 6. (U2) R' F R U R' F' R F [KP] F'
3000		1. (U') R' U2 [KP] F' U' F U' R 2. [KP] R' D' F' U' F U D R 3. (U') R U2 R' [KP] U' M' U R U' 3Rw'
3001		1. R U2 R' U [KP] R U' R2 F R F' 2. 3Fw R U R' U' S' U [KP] F' 3. R U R' U' R' F R F' U' R U R' U [KP] R U' R'
3002		1. F U2 [KP] R U' R' U F' 2. (U) F U [KP] R' F' R U R U' R' 3. (U2) R' U' R [OP] R' F' U F R

3010		1. F U R' F R F' [KP] F' 2. (U) F R U' R' U2 R U2 R' [KP] F'
3011		1. (U') R' F' U' [OP] U F R 2. (U2) F R U' R' [KP] R U' R' U2 F' 3. (U2) R U2 R' [KP] R B U' B' R'
3012		1. (U2) [KP] R U' R' U M' U R U' 3Rw' 2. F R' F' R U2 [KP] U R U2 R'
3020		1. (U2) F U' R [OP] R' U F' 2. (U) F U F R' F' R [KP] U R U' R' F' 3. (U2) F' U2 L' F U [KP] F' U L U2 F 4. (U') R U2 R' [KP] F' U' F U R U2 R'
3021		1. F R' F' R U2 [KP] R U' R' 2. (U) [OP] R' U' R' F R F' U R
3022		1. (U) F U R U2 R' [OP] R U R' F' 2. (U2) R' F D R2 U R' [KP] R' D' F' R 3. (U) R' U' F U R [KP] F' U F' U' F 4. (U') R' F' R U2 [KP] R U' R' F U2 R U' R' 5. (U2) R U R' U' R' F R F' U R U2 R' [KP] R U' R' 6. (U') R' F' R U2 [KP] U' R' F R U R U' R' U2 R U' R'

3100		1. $F U' R U^2 R' [KP] U' F'$ 2. $(U') R' U R U R' [KP] U F' U^2 F R$ 3. $F R U R' U' F' R U^2 R' [KP] R U' R'$ 4. $R U R' U' R' F' R^2 U' R' U' [KP] R U' R' U^2 F'$
3101		1. $(U') R' U' [OP] F' U F R$ 2. $R' U^2 R U R' U' [KP] F' U' F U' R$ 3. $(U) F U [KP] F' R' U' F' U F R$ 4. $R' U^2 R U R' U' [KP] F' U' F U' R$ 5. $(U) 3Rw U 3Rw' U [KP] 3Rw U' R' U M$
3102		1. $R' U' R U R U^2 [KP] U' B' R' B$ 2. $(U') L U' F U^2 [KP] U' F' U L'$ 3. $(U^2) R U^2 R^2 F R F' [KP] S R U' R' S'$ 4. $(U') L U' F U^2 [KP] U' F' U L'$ 5. $(U) R' D' R U^2 R' D R U S' [KP] U^2 S$
3110		1. $(U') R U R' U [KP] U' R' F R F'$ 2. $F R' F' R^2 U^2 R' [KP] U' R U' R'$
3111		1. $F U R U' R' U [KP] F'$
3112		1. $R' F R^2 U R' [KP] F^2 U^2 F$ 2. $(U^2) F R U' R' [OP] U' R U R' F'$

3120		1. (U) R U R' U2 [KP] R U' R2 F R F' 2. R' U F' U' F U2 [KP] R 3. (U2) R U2 R' U' R U' R' F U R U' R' U [KP] F'
3121		1. (U') R U R' U [KP] U' M' U R U' 3Rw' 2. (U2) F U R U' R' U [KP] U R U' R' F' 3. (U') M R U R' U [KP] R U' R' M' 4. L F [KP] U R' F R F2 L'
3122		1. (U) F U [KP] R' F' R U2 R U2 R' 2. (U') F R' F' R U2 [KP] U' R' F R F' 3. F R U R' F U [KP] F' U F'
3200		1. (U) F U R D' [KP] D R' F' 2. (U') R U2 R' [KP] U' R' F R F' 3. (U2) L U F U' [KP] U F' L' 4. (U) F U R D' [KP] D R' F'
3201		1. R U R' U' R' F R2 U R' [KP] F' 2. (U) F R' F' R U' [OP] U' R U2 R' 3. F R' F' R2 U2 R' [KP] R U2 R' 4. (U2) R U2 R' [KP] F' U F R U' R'
3202		1. (U) F U [KP] U R U' R' F' 2. (U) F R' F' R U' [KP] R U' R' U R U' R' 3. (U') M2 R U' R' U2 R U' R' U2 M' U M' 4. M' U' M [KP] R U' R' U2 R U' R* M' U' M 5. (U) F R U R' U' F' [KP] R U' R' U M' U R U' 3Rw'

3210		1. (U) R' F' U' F [OP] U R 2. R U2 R' [KP] U' R' F R2 U R' U' F' 3. (U) R' F' R U' F [KP] F' R' F R 4. F' U F U R U' R' [KP] U F' U' F 5. (U) R U R' U' R' F' R2 U' R' [KP] R U' R' U2 F'
3211		1. F U R U' R' F' U' [UB] 2. R U R' F' U' [UB] F R U' R' 3. (U2) F U R' U' F' U R U2 [KP] R U' R' 4. F R U' R' U [OP] R U R' F'
3212		1. (U2) [KP] R U' R' U R' F R F' 2. (U) F R U' R' [OP] U R U R' F'
3220		1. F U [KP] F2 U' L' U L F 2. D [KP] D' F R U2 R' U2 F' 3. (U') B' U R' [KP] R U' B 4. (U2) F R' F' R U' [KP] R U' R2 F R F' 5. (U2) F R U R' U' [KP] F' U L' U2 L 6. (U) R' D' R U' R' D R S' [KP] U2 S 7. F R' F' R U R U R' U [KP] R U' R' U R U' R' 8. (U2) R U' R2 F R F' R U R' U2 [KP]
3221		1. (U2) F U2 R U' R' U [KP] U F' 2. (U2) R U R' [KP] F' U L' U L F 3. F2 U [KP] F U R U R' U2 F' 4. (U2) F R U R' U' F' U' [KP] R U' R' U2 R U' R'
3222		1. (U2) [OP] U F U R U' R' F' 2. R U R' U [KP] F' U F R U' R' 3. (U') R' U F' U F U [KP] R U2 R' U R 4. F U [KP] U' R' F R F2 L' U L

Made by Ulrik Bredland

Thanks to Einar Kvam Lundberg and Filip Nilsen for helping
And of course Kåre Krig for genning KP a long ago