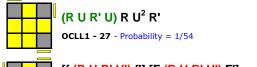
# **Orient Last Layer**

Red = R U R' U' Family, Green = R U R' U Family, Blue = R F' R' F Family

Try to recognize each pattern by viewing the fewest number of faces

### All Edges Oriented Correctly (OCLL1-OCLL8) (second part of three look last layer)



If (R U R' U') f'] [F (R U R' U') F']  $R U^2 R^2 U R^2 U R^2 U R^2$ **OCLL3 - 22** - Probability = 1/54

(r U R' U') (r' F R F') **OCLL5 - 24** - Probability = 1/54

 $R^{2}$  [D (R' U<sup>2</sup>) R] [D' (R' U<sup>2</sup>) R'] **OCLL7 - 23** - Probability = 1/54

R U<sup>2</sup> R' U' R U' R' **OCLL2 - 26** - Probability = 1/54

F (R U R' U') (R U R' U') (R U R' U') F' y (R' U' R) U' (R' U R) U' (R' U<sup>2</sup> R) **OCLL4 - 21** - Probability = 1/108

F' (r U R' U') (r' F R ) **OCLL6 - 25** - Probability = 1/54

Solved

**OCLL8 - 58** - Probability = 1/216





## Corners Correct, Edges Flipped (E1-E2)



M'UMU<sup>2</sup>M'UM **E2 - 28** - Probability = 1/54



(R U R' U) (R U' R' U') (R' F R F')

**W1 - 38** - Probability = 1/54

r U<sup>2</sup> R' U' R U' r'

**S1 - 6** - Probability = 1/54

**L1 - 48** - Probability = 1/54

**L3 - 53** - Probability = 1/54

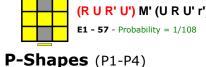
**L5 - 49** - Probability = 1/54

F (R U R' U') (R U R' U') F'

I' U' L U' L' U L U' L' U<sup>2</sup> I

y<sup>2</sup> r' U' R U' R' U R U' R' U<sup>2</sup> r

 $(R' F R' F') R^2 U^2 y (R' F R F')$ 









R U B' U' R' U R B R' R d L' d' R' U R B R' **P3 - 32** - Probability = 1/54

W-Shapes (W1-W2)

Squares (S1-S2)

L Shapes (L1-L6)

f'(L'U'LU)f

R'U'FURU'R'F'R

**P2 - 43** - Probability = 1/54

 $y^2$  L' d' R d L U' L' B' L **P4 - 31** - Probability = 1/54

**W2 - 36** - Probability = 1/54

r' U<sup>2</sup> (R U R' U) r

**S2 - 5** - Probability = 1/54

F' (L' U' L U) (L' U' L U) F

(r U R' U) R U' R' U R U<sup>2</sup>' r'

**L2 - 47** - Probability = 1/54

**L4 - 54** - Probability = 1/54

R' F R<sup>2</sup> B' R<sup>2</sup>' F' R<sup>2</sup> B R'

**L6 - 50** - Probability = 1/54

(L' U' L U') (L' U L U) (L F' L' F)







R' U<sup>2</sup> R<sup>2</sup> U R' U R U<sup>2</sup> x' U' R' U **I1 - 55** - Probability = 1/108



F (R U R' U') R F' (r U R' U') r'

**I3 - 56** - Probability = 1/108



## Knight Move Shapes (K1-K4)

**Awkward Shapes** (A1-A4)

**Lightning Bolts** (L1-L6)

R<sup>2</sup> U R' B' R U' R<sup>2</sup> U R B R'

[(R U R' U) R  $U^2$  R'] [F (R U R' U') F']

**A1 - 30** - Probability = 1/54

**A3 - 41** - Probability = 1/54

(r U R' U) R U2 r'

**L1 - 7** - Probability = 1/54

**L3 - 11** - Probability = 1/54

RB'R'U'RUBU'R'

**L5 - 39** - Probability = 1/54

F (R U R' U') F'

**T1 - 45** - Probability = 1/54

R' U' (R' F R F') U R

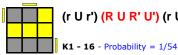
**C1 - 46** - Probability = 1/54

T-Shapes (T1-T2)

C-Shapes (C1-C2)

y<sup>2</sup> L F' (L' U' L U) F U' L'

y (r U R' U) (R' F R F') R U<sup>2</sup> r'



(r U r') (R U R' U') (r U' r')



FURU'R<sup>2</sup>F'R(URU'R')

**K3 - 13** - Probability = 1/54

# **No Edges Flipped Correctly (01-08)**



 $R U^2 R' (R' F R F') U^2 (R' F R F')$ **O1 - 1** - Probability = 1/108

[f (R U R' U') f'] U' [F (R U R' U') F' ] **03 - 3** - Probability = 1/54



[F (R U R' U) F'] y' U<sup>2</sup> (R' F R F') **05 - 18** - Probability = 1/54

 $(R U R' U) (R' F R F') U^2 (R' F R F')$ **O7 - 17** - Probability = 1/54

(R U R' U') R U' R' F' U' F R U R' [F (R U R' U') F'] U<sup>2</sup> [(R U R' U') (R' F R F')]

**A2 - 29** - Probability = 1/54



 $[R' U^2 (R U R' U) R] y [F (R U R' U') F']$ (R' F R F') (R' F R F') (R U R' U') (R U R')

**A4 - 42** - Probability = 1/54

r' U' R U' R' U<sup>2</sup> r **L2 - 8** - Probability = 1/54



[F (R U R' U') F'] U [F (R U R' U') F']

**L4 - 12** - Probability = 1/54



R' [F (R U R' U') F'] U R

**L6 - 40** - Probability = 1/54



(R U R' U') (R' F R F')

**T2 - 33** - Probability = 1/54



(R U R'2 U') (R' F) (R U) (R U') F' (R U R' U') x D' R' U R U' D x'

**C2 - 34** - Probability = 1/54



(R U R' U) R d' R U' R' F' R'U'RU'R'dR'URB

**I2 - 52** - Probability = 1/54



f (R U R' U') (R U R' U') f'

**I4 - 51** - Probability = 1/54



(I' U' I) (L' U' L U) (I' U I)

**K2 - 15** - Probability = 1/54



R' F R U R' F' R y' R U' R' **K4 - 14** - Probability = 1/54





[f (R U R' U') f'] U [F (R U R' U') F' ]

[F (R U R' U') F' ] [f (R U R' U') f']

**04 - 4** - Probability = 1/54

**O2 - 2** - Probability = 1/54



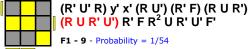
M U (R U R' U') M' (R' F R F') **06 - 19** - Probability = 1/54

M U (R U R' U') M<sup>2</sup> (U R U' r') **08 - 20** - Probability = 1/216



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# **Fish Shapes** (F1-F4)



RUR'yR'FRU'R'F'R  $(R U R' U) (R' F R F') R U^2 R'$ 



FRU'R'U'RUR'F'

 $(R U^2 R') (R' F R F') (R U^2 R')$ **F3 - 35** - Probability = 1/54

**F2 - 10** - Probability = 1/54

**F4 - 37** - Probability = 1/54

For great speedsolving video tutorials, visit -

http://www.badmephisto.com or http://www.youtube.com/user/badmephisto