

简化 CFOP--CFOOP

(将 CFOP 的 OLL 拆成两步，并取消 xyz 转法)

by 三叶虫

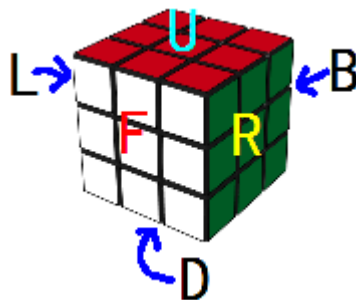
步骤介绍

这个方法一共分五步：

- (1) 在底层架好十字(CROSS)
- (2) 完成前两层(F2L)
- (3) 在顶层架好十字(OLL-1)
- (4) 顶面颜色统一(OLL-2)
- (5) 完成顶层(PLL)

字母介绍

F,B,L,R,U,D 分别代表魔方的前,后,左,右,上,下六个面(与颜色无关，只表示位置)



即：英文的 Front,Behind,Left,Right,Up,Down。

拧法介绍

- (1) 顺时针用字母表示，如 U 表示上层顺时针旋转 90 度。
- (2) 逆时针用一撇表示，如 U' 表示上层逆时针旋转 90 度。
- (3) 180 度用 2 来表示，如 U2 表示上层顺时针旋转 180 度，U'2 表示上层逆时针旋转 180 度。
- (4) 相应的小写字母 f、b、l、r、u、d 代表转动两层。

注：顺、逆是指面对该面看时的转向，故对于 B、B'、L、L'、D、D' 的转向要特别小心。

第一步、底层架十字(CROSS)

这一步较简单，自己领悟。

4 个棱块复位后是这样



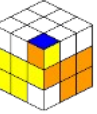
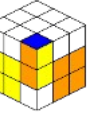
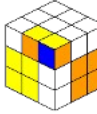
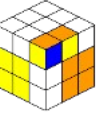
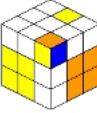
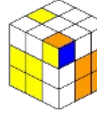
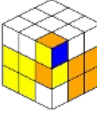
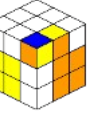
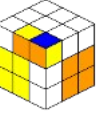
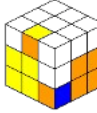
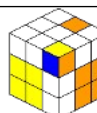
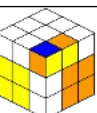
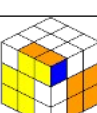
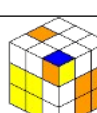
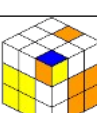
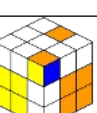
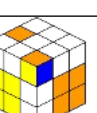
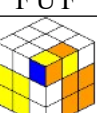
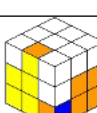
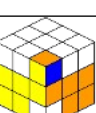
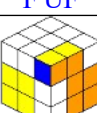
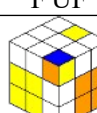
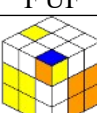
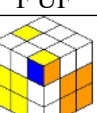
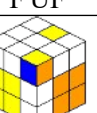
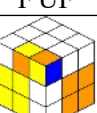
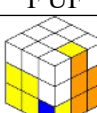
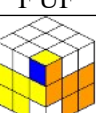
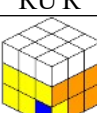
的



不要是这样

第二步、完成前两层(F2L)

共有 41 种情况

 U'F'UF URU'R'	 URU'R' U'F'UF	 (RU2R'U)2 F'UF	 (RUR'U')2 RUR'	 RU'R' F'U2F		 RBL U' L'B'R'	 F'L'B' U BLF
 RUR'	 U2RU'R'U' RUR'	 UF'U'FU' RUR'	 U'RU'R'U RUR'	 RU'2R'U' RUR'	 RUR'U'2 RUR'U' RUR'	 U' RUR'U' RUR'	
 F'UF	 U'2F'UFU F'UF	 U'RUR'U F'UF	 UF'UFU' F'UF	 F'U2FU F'UF	 F'U'FU2 F'UFU F'UF	 U F'UFU F'UF	
 U' F'UF	 U'F'U2FU' F'UF	 U2F'U'FU' F'UF	 UF'U2FU2 F'UF	 UF'U'FU2 F'UF	 (F'UFU')2U' F'UF	 F'UFU' F'UF	 U F'UFU'2 F'UF
 U RU'R'	 URU'2R'U RU'R'	 U2RUR'U RU'R'	 U'RU'2R'U2 RU'R'	 U'RUR'U2 RU'R'	 (RU'R'U)2U RU'R'	 RU'R'U RU'R'	 U'RU' R'U2 RU'R'
	 RUR'U'2 RU'R'U RUR'	 F'U'FU2 F'UFU' F'UF	 RUR'U' RU'R'U2 F'UF	 F'U'FU F'UFU'2 RUR'			

紫色 为需要首先记住的基本公式。

蓝色 为 4 种基本情况，首先掌握。

红色 为 2 个特殊公式

每一行为一组(第一行除外)，这一组每个公式最后的步骤与本行的第一个公式相同(分组原则)。

第 2 行与第 3 行上下对应的是对称的情况。

第 4 行与第 5 行上下对应的是对称的情况。

第 6 行与 4、5 行归为一类(装不下了...)。

注：这一步给出的公式中有部分并不是对应的情况的简公式，只是便于理解和顺手的公式。本步其实非常简单，不要一看到有这么多公式就头疼。需要理解这些公式原理：让角块和棱块通过转动后组合到一起(右图)，然后把它们放到正确的位置。

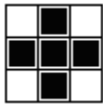


最
单，
的
后

第三步、顶面出“十”字(OLL-1)

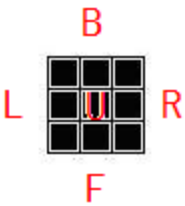
(注：从这一步开始，所有的图片为顶面的直观图)

结果：

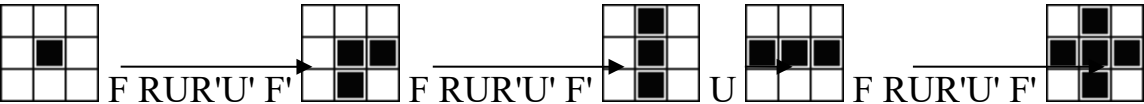


方法一：共有 3 种情况，三个公式

f R U R' U' f'	F R U R' U' F'	F R U R' U' F' f R U R' U' f'

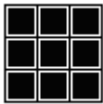


方法二：只背一个公式



第四步、顶面颜色统一(OLL-2)

结果：

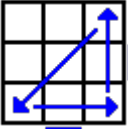
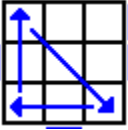
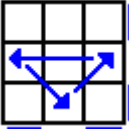
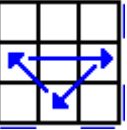
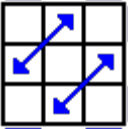
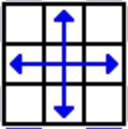
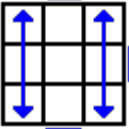
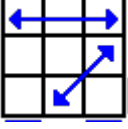
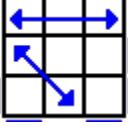
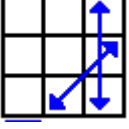
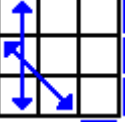
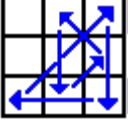
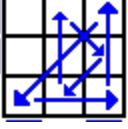
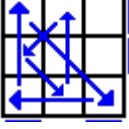
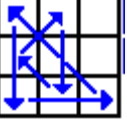
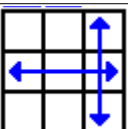
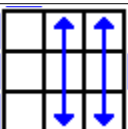
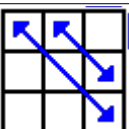
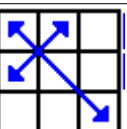
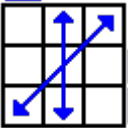
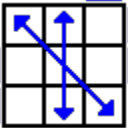


共有 7 种情况

R U'2 R' U' R U' R U' R'	R U'2 (R2 U')2 R2 U'2 R	R2 D' R U'2 R' D R U'2 R	r U R' U' r' F R F'	F' r U R' U' r' F R	R' U' R U' R' U'2 R	R U R' U' R U'2 R'

第五步、完成顶层(PLL)

共有 21 种情况

			
RB'RF2 R'BRF2 R'2	L'BL'F2 LB'LF2 L2	RU'(RURUR) U'R'U'R'2	L'U(L'U'L'U'L') ULUL2
			注： 利用对称，一个 公式就可变为两 个。这里，加括号 和分成多行是为 了便于记忆。
U(R'U'RU') (RUR) U'R'(URUR2) U'R'U	LRU2 L'R' F'B'U2FB	LRBR'FRB' R'L'BLF'L'B'	
			
R'U2 RU'2 R'F(RUR'U') R'F'R2U'	LU'2 L'U2 LF'(L'U'LU) LFL'2U	RUR'F' RUR'U' R'FR2 U'R'U'	L'U'LF L'U'LU LFL'2 ULU
			
FU'BU2F'UB'U2 L'R'U2LR	L'R'U2LR FU'BU2F'UB'U2	LRU2L'R' F'UB'U2FU'BU2	F'UB'U2FU'BU2 LRU2L'R'
			
RUR'U'R'F (R2U'R'U') RUR'F'	U'R'URU'R'2 F'U' FURF R'F'R2	R'UR'U' B'DB'D' B2 R'B' RBR	F(RU'R'U') RUR'F' RUR'U' R'FRF'
			
(L'UR'U2LU'R)2 U'	(RU'LU2R'UL')2 U		

先学会下面的 OLL 公式：（逐渐学会 OLL）

		17 (RUR'U) (R'FRF'U2) R'FRF'	18 F(RUR'd) (R'U2) (R'FRF')	19 r'(RU)2 R'U'r (R'2 FRF')	20 r'(RU)2 (R'U' r2R2') (URU')r'	
5 (l'U2) (LUL'U)l'	6 (r U'2) (R'URU')r '		33 (RUR'U') (R'FRF')	37 F(RU'R'U') (RUR'F')	57 (RUR'U'r) (R'URU'r')	28 (rUR'U') (r'RU) (RU'R')
45 F(RUR'U')F'	44 f(RUR'U')f '	43 f '(L'U'LU)f	2 (FRUR'U'F') f RUR'U'f '	4 f '(L'U'LU)f U F'(L'U'LU)F	3 f(RUR'U')f ' U' F(RUR'U')F'	51 f (RUR'U')2 f '
12 FRUR'U'F' U FRUR'U'F'	11 F'L'U'LUF U' F'L'U'LUF					

