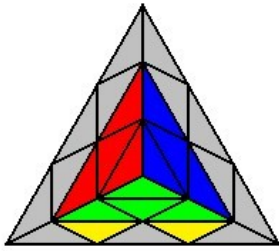
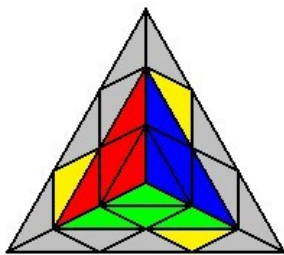


WO 法



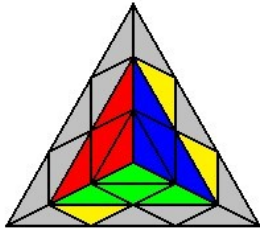
down down down up down up down up

情况 5



$LR' LDwLUL$

情况 5



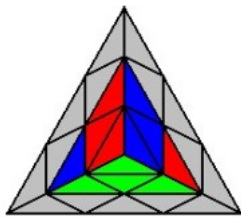
$RDw' R' Dw' R$

Nutella 法

相关资料很少，只找到 Youtube 上面的一个视频(感谢作者)

也很好用，公式可能有些难背，如果容易做第一步骤可以考虑用此方法.

步骤 1 复原一个这样的东西：

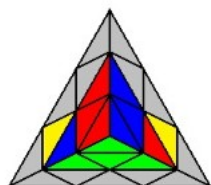


这个大家自己靠直觉就可以了 步数要尽量少

步骤2 还是搞好上层和所有中心 依然公式流 依然不给镜像了

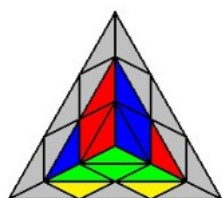
符号意义同W0法

情况2



L down up up up up down

情况3



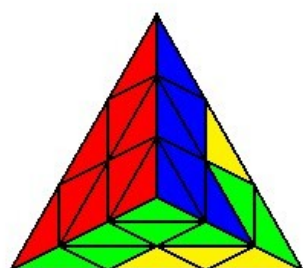
L up down down down down up

IWO

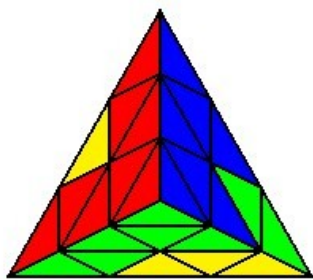
中心1篇：

位置正确

2. 右手不对 LRBR' B' L' R'

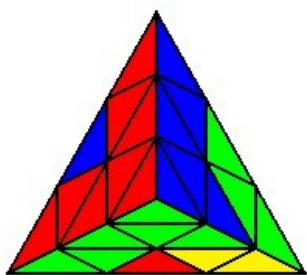


3. 左手不对 (BR' B') (L' R' LR)

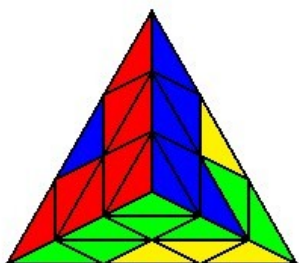


逆时针

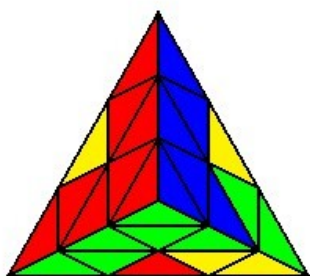
1. 方向正确 $L' U' R' U L$



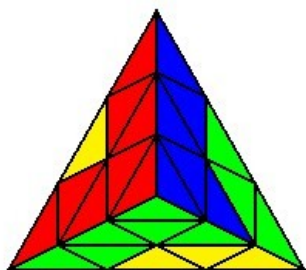
2. 右手不对 $L' R' L R' L' R L$



3. 后面不对 $y R L R' L' R L' R'$

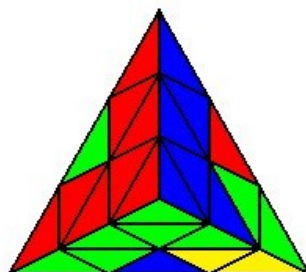


4. 左手不对 $RLBLR' L' B' L' R'$

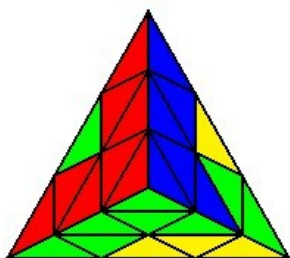


顺时针

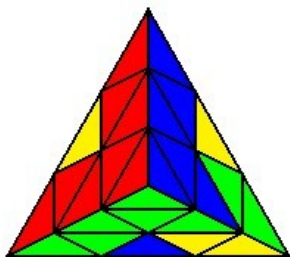
1. 方向正确 $LwULRLULU$



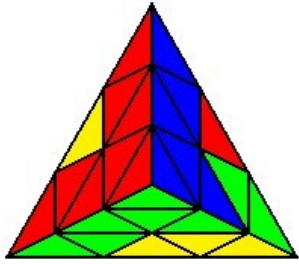
2. 右手不对 $LwUR' U' R'$



3. 后面不对 $LU' R' UBR' B' RL'$ (待优化)



4. 左手不对 $R' L' R' LR$



中心 2 篇：

位置正确

1. 方向正确 $(LR' LR) 2$
2. 右手不对 $(B' LB) (RLR' L')$
3. 左手不对 $RwRULU' L' R'$

逆时针

1. 方向正确 $RULU' R'$
2. 右手不对 $L' R' B' R' LRBRL$
3. 后面不对 $y' L' R' LRL' RL$
4. 左手不对 $RLR' LRL' R'$

顺时针

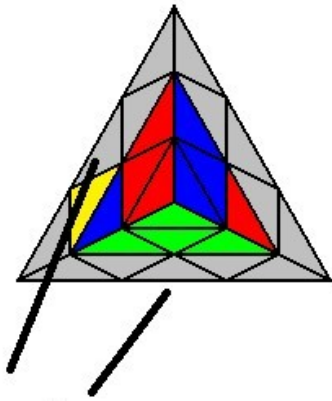
1. 方向正确 $RULU' R'$
2. 右手不对 $U' LB' R' ULBRL'$
3. 后面不对 $B' L' BLB' LB$
4. 左手不对 $RLR' LRL' R'$

Nutella 后续

对于一个中心不对的情况，可以进行类似 IWO 的优化工作：

首先认为不对的中心是在左手并且需要逆时针到位

而底层位置不对的两棱（必须是两棱位置不对）围绕着该中心：



要换

四种情况

色向全对：

$R'L'RL'RU'R'UL$

左手色向不对：

$R'LRL$

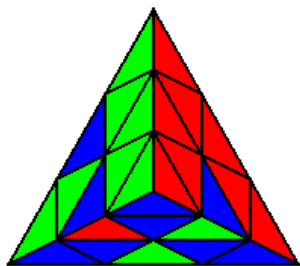
右手色向不对：

$R \text{ down down down down down } (l')LR'L'R$

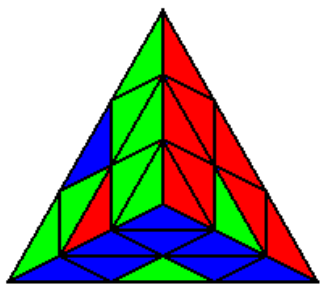
后面色向不对：

$yRU'L'U'B'R'LU'$

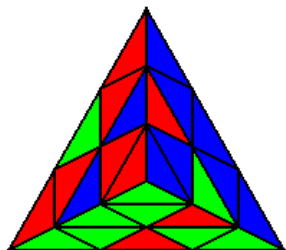
面先法



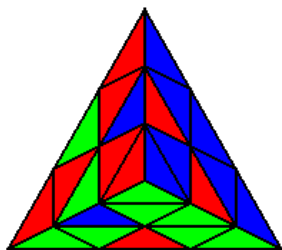
$zzRLU'RURL'$



LR'L'BR'B'R'(B 的手法自行摸索)

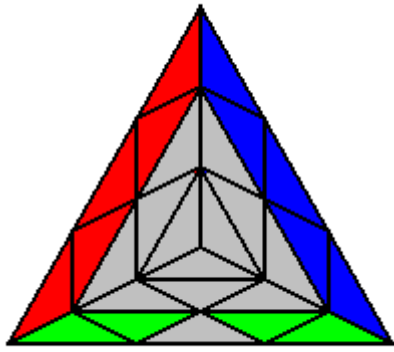


L'B'ULR'BU'R



R'UB'RL'U'BL

Polish V 法
先做一个 V



然后一步解决

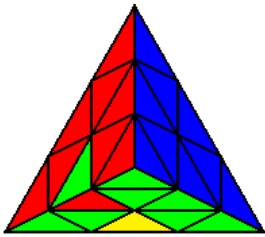
需要 12 个公式（左右手镜像算一种）

这里给出全部的公式：

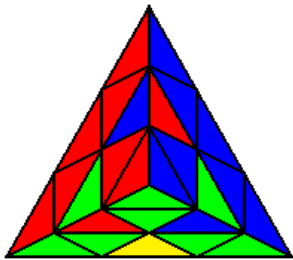
根据黄绿棱所在位置进行分类：

如果黄绿棱在原位并且方向正确，即为层先法公式

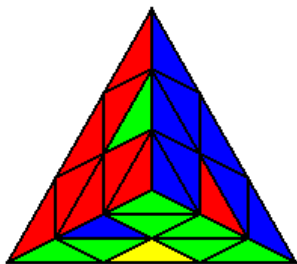
如果位置正确但方向错误，则有如下几种可能：



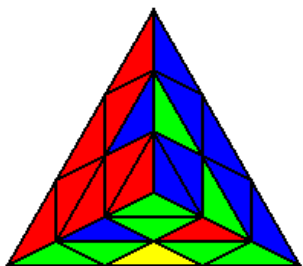
$R'LR'L'zz'RL'R'L$



$zz\ RL'RLzz'zz'RL'UL'U'R'$



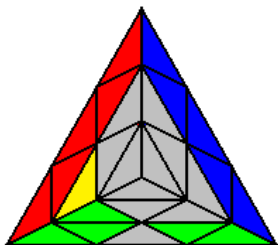
$LR'L'RULR'L'RU'$



$zz'RL'R'zz \quad zzL'R'LR'$

逆时针用左手反过来做即可

不妨认为黄绿棱在图中的红绿位置（方向）

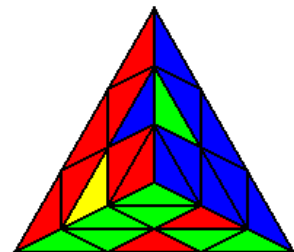


因为另一种情况可以看做左手的对称情况

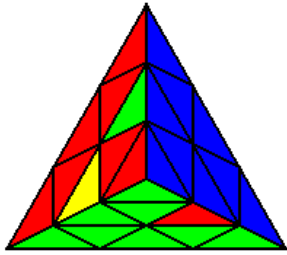
再不妨设中心棱是到位的

上层别的棱中有一个棱好的为 ELL 比如 $RU'R'U$ 略

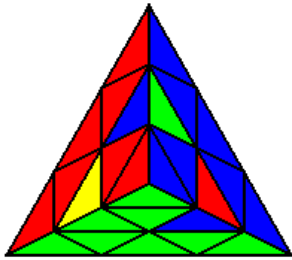
那么我们列出所有可能：



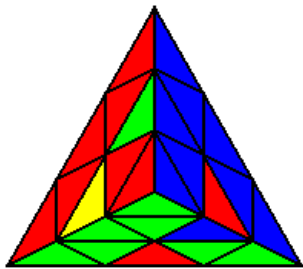
$zzL'RLzz' \quad zz' \quad RL'R$



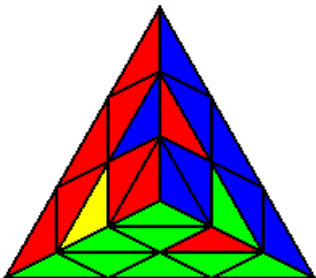
U'RU'RLRL'U'



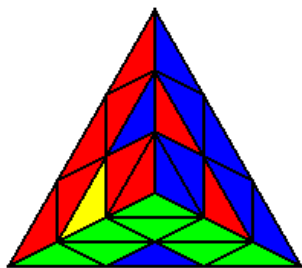
zz'L'RLR'LRL'R'(可以理解为 Oka 法的 skip 最后三棱！前四步做好 Oka Block 和中心，最后一步做所有)



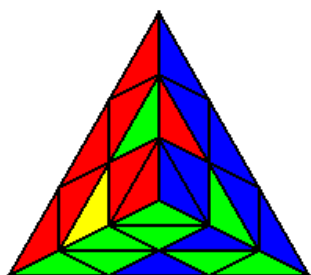
LRLUL'R'L'U'



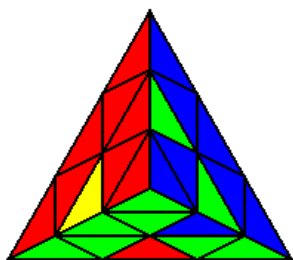
zzRL'RLR'zz'zz'RLR'



zz'RLR'LLw'LRL'U



zzR' L' R' LR' zz' zz' RL' R' L



zz'LLwULU'LLw'

蓝前红下

Scramble1:

ULB'L'UR'BU'LB'

One-flip 法:

y'LR'UL'第一步

y'LDw'(b)RR'URU'L'

Scramble2:

RUB'U'B'L'B'LB'L'BLB'RL'BUlur'

WO

(r')(b)R'L'BU'L' first three edges(the top corner)

y'R'L'R'LR(the last center

x2(黄上红后)左手握左后,右手握右后

(L'RLR')(R'FRF')D' last three edges

f'l'd

Scramble3:

UR'U'RULU'RULB'UKeywhole 法,个人认为解得很不好

(l)(b')(L'RU'L')

y' RU'R'U'L'U'前两棱和前三个中心

x(绿前蓝上)

(L'R'LR)第三个棱

(L'RLR')B'最后三棱

我的解法:Oka

(l)(b')(L'RU'L')Oka Block and three centers

y'L'RU'R' the third edge

L'RLR' last three edges

Scramble4: LUR'U'RU'BUB'U'LRL'U'B'

One-flip

(r')(l)(RLyU'yU')(差一步 L 就是 One-flip,但是后面会消掉也可以认为解法是同时做前两部的 WO,但是作为 One-flip 更自然)

(L'U'R)

(r')(r')LR'L'LwL'RLR'B'

打乱 1:

R'UL'U'Rr'

还原:

One-flip method

R'(第一步)

ULU'R(三个中心)

skip

r

打乱 2:

L'RLR'ULUL'U'LU'LRLr'uI

Oka method

L'R'L'(oka block)

Dw

R'URU'R'U'u'(centers and the third edge)

(r)LR'L'Rlr'

打乱 3:

R'LRL'UBL'U'B

Oka method

(r')(Oka Block skipped)

U'Ly'LU'R'(centers and three edges)

(l')LR'L'R

赠送一个两棱翻:

U'R'DwR'(DwB)(Dw'B).

最后一个 B 用左手中指或无名指勾.

打乱 4:

B'RBR'BL'RL'BL'B'Lu'l'r'

One-flip

(l)(b')

instead of normally solve red-yellow piece,
we use Oka approach to build 1-flip

U'RUR'(1-flip)

UyR'DwR'(centers and flip 1 edge)

(l')RU'R'Ulr'b

打乱 5:

U'LU'BLB'RLR'L'R'LR'uOka

(b)UR'(Oka block and centers)

URUR'U'(third edge)

(r')u

LR'L'RLwL'R'L

最后留了个他自己也不会的思考题:

比如说 R'L'RU'RULR

如果做 R,就产生了一个带有单棱翻的最后四棱,他不喜欢在这个情况下做 One-flip,大家可以想象怎么处理这个情况..

Oscar 在最少步一帖

<http://www.speedsolving.com/forum/showthread.php?18374-Optimal-Pyraminx-Method>

中的解法:

打乱	Oscar 的解法
----	-----------

B L B' R' U L' B' R'	B' U B' U R' B R' B' R
U' L R U' L' R L'	L R' L U R' L' U
L' R B' U R' B' L	B R B' R U' B' L R L'
U B' U B' R' U' B' U	U B R B' R L' R L R
R' U L' B R U' L U	L' B L' U' L' B' U' B' U
U L' R' U B U R' L	U R B R B L B' L' B U'
U L B' R' U B' L U	R U' B' L B U R U' R' U B'
L R U' L B U'	U L B' L U R' B' R' B R L'
U B R' B' R L' B L' R	R' L B' L' R' B R B' U'