

Xmm(NASA)'F2L 公式记忆顺序

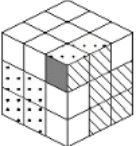
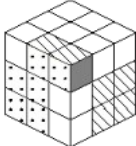
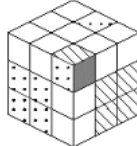
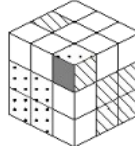
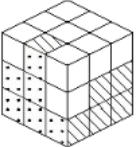
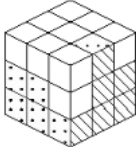
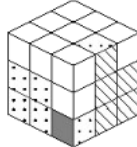
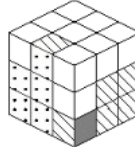
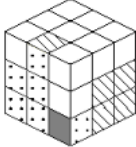
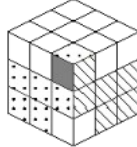
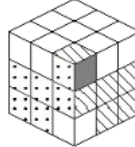
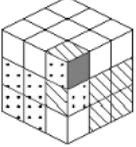
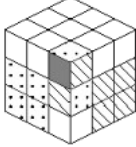
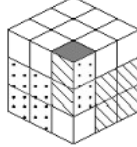
此文送给在 CFOP 的 F2L 学习过程中遇到困难的朋友们，希望我的思路能对你有所帮助，同时感谢青年农民、臭虫、Gan 等高手写的相关文章，感谢所有帮助过我的魔友介绍的宝贵经验，谢谢。

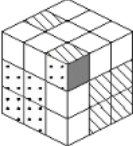
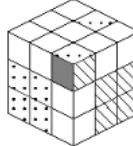
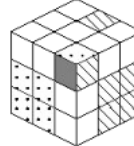
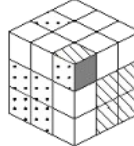
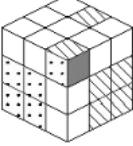
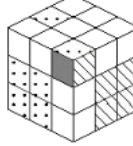
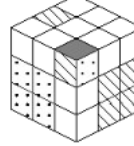
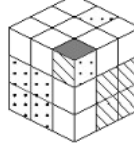
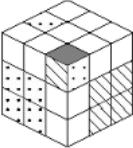
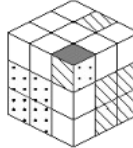
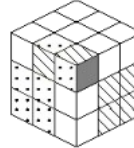
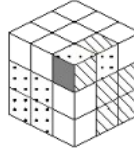
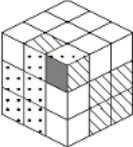
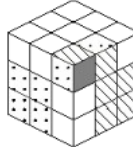
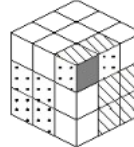
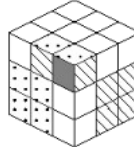
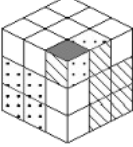
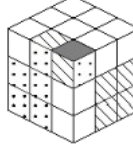
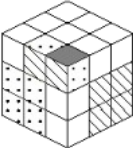
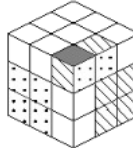
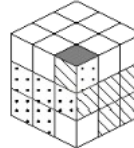
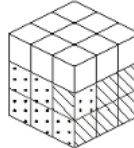
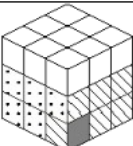
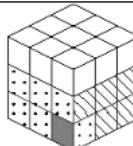
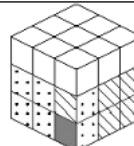
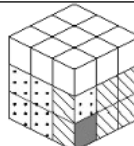
当你因为追求速度而开始 CFOP 之路的时候，记忆大量的公式是没有办法避免的事情，没有什么捷径。不过背公式的方法就因人而异，由于我不够刻苦，每天也没有大量的时间去练习，所以我开始学 CFOP 的 F2L 公式时，走了不少弯路，只知道死记公式，却是记的慢，忘的快，十分的郁闷，以致大大打击了积极性，一度不再摸魔方，而去追《越狱》，第一季很快就看完了，第二季已经播出的也全看完了，人家一周才一集，还是趁等的时候再研究 F2L 吧！

首先我经过研究和比较（各种相关资料青年农民已经在论坛中有专贴收集整理的差不多了 <http://bbs.mf8.com.cn/dispbbs.asp?boardID=2&ID=2258&page=1>，另此贴的第 7 楼也很重要），对 F2L 有了个整体的认识，发现 Gan 的公式系统是比较科学的，虽然在网上或者魔方吧内就可以找到同一种 case 的很多种不同解法，但 Gan 的公式我个人认为是整体最优（魔方吧 QQ 群共享内有下载，文件名 gan's_f2l_oll_pll(06.05.20).doc），很多公式为下一步打基础，减少无谓的魔方整体转动，而且是右撇子适用，所以就以 Gan 的公式为蓝本研究吧。

但是以前是直接按 Gan 的 F2L 公式顺序进行强记，效果不行，高手们经常说要理解 F2L，而我，开不了窍。终于，在我第 N 次看了臭虫的《怎么学习 F2L》一文后，明白了 F2L 的三个难度层次，结合 F2L 就是“组合+插入”的理论，立刻明白了 F2L 的每个公式都是在进行目标角块和棱块先进行组合，再插入目标位置这一过程，所有的 F2L 公式都可以认为是包括这两大步骤（请注意与 F2L 的两个基本规律相区别，这两个规律是目标角块和棱块进行组合的规律）。

由于臭虫在《怎么学习 F2L》一文中引用了大量的公式和特殊公式写法，我个人觉得学习不便，就将其 case 排列顺序保留，但所有的对应公式都换成 Gan 的，这样以来就得到了如下的 F2L 公式系统，我照此记忆，发现掌握很快，而且因为建立在理解的基础上，也不容易忘记，有兴趣的朋友就请试试吧。

 A1 U R U' R'	 A1 y' U' (R' U R)	 A2 (R U R')	 A2 y' (R' U' R)
 B1 (U R U' R' U') y' (R' U R)	 B1 y U' (L' U L U) y' (R U' R')	 B2 (R U' R' U) (R U' R')	 B2 y' (R' U) (R U') (R' U R)
 B3 (R U R' U') (R U R')	 B3 y' (R' U' R U) (R' U' R)	 B4 U' (R U') (R' U2) (R U' R')	 B4 U' (R U' U' R' U) (R U R')
 B5	 B5	 B6	

$d(R' U' R) d'(R U R')$  B7 $(d R' \underline{U}' R \underline{U}' U')(R' U R)$	$\underline{U}'(R U R') d(R' \underline{U}' R)$  B7 $U'(R U R' U')(R \underline{U}' U' R')$	$(R \underline{U}' R') y'(R' U^2 R)$  B8 $(d R' \underline{U}' R U')(R' \underline{U}' R)$	 B8 $\underline{U}'(R U R' U)(R U R')$
 B9 $d(R' U^2)(R \underline{U}' U')(R' U R)$	 B9 $U'(R \underline{U}' U')(R' U^2)(R U' R')$	 B10 $d' z \underline{U}'(R^2 U)(R' \underline{U}' R U)y' \underline{U}'(R' U^2)(R \underline{U}' R' U)R$	 B10 $U(R \underline{U}' U')(R' U R U')R'$
 B11 $(R U' R' U^2)(R U R')$	 B11 $y'(R' U R \underline{U}' U')(R' \underline{U}' R)$	 B12 $(R' U^2)(R^2 U)(R^2 U R)$ $(R U')(R' U)(R U')(R' U^2)(R U' R')$	 B12 $y'(R \underline{U}' U')R^2 \underline{U}' R^2 \underline{U}' R'$ $y'(R' U)(R U')(R' U)(R U^2)(R' U R)$ $U'(R \underline{U}' U' R' d)(R' U' R)$
 B13 $d(R' U R U')(R' \underline{U}' R)$	 B13 $\underline{U}'(R \underline{U}' R' U)(R U R')$	 B14 $(R U' R' U)(d R' \underline{U}' R)$	 B14 $y'(R' U)(R d' \underline{U}')(R U R')$
 B15 $(R \underline{U}' U')(R' \underline{U}' R U)R'$	 B15 $yz U'(R^2 U)(R \underline{U}' R' U)$ $y'(R' U^2)(R U R' \underline{U}')R$		
 C1 $(R U R')U^2(R U R' \underline{U}')(R U R')$	 C1 $y'(U^2 R^2 U^2)(R U R' U R^2)$ $(R U R' U)(R \underline{U}' U' R' d)(R' U R)$	 C2 $(R U R' \underline{U}')^2 (R U R')$	 C3 $(R \underline{U}' U' R' U)^2 y'(R' \underline{U}' R)$
 C4 $(R U' R' U)(R \underline{U}' U' R' U)(R U' R')$	 C4 $(R U R' U')(R \underline{U}' U' R' U')(R U R')$	 C5 $(R U' R U)y(R U' R' F^2)$	 C5 $R^2 y(R U R' \underline{U}')y'(R' U R')$