

## F2L Algorithms – All Four Slot Angles

Developed by Feliks Zemdeg  
and Andy Klise

Images sourced from Conrad Rider's VisualCube - <http://cube.crider.co.uk/visualcube.php>

### Algorithm Presentation Format



**Suggested algorithm here**

Alternative algorithms here

Set up F2L pair // Solve F2L pair

It is not recommended to learn any of these algorithms before learning intuitive F2L.

The black part of each algorithm sets up the pieces to a basic insertion case, which is then written in blue.

### Basic Inserts



**U (R U' R')**

**y' U' (R' U R)**  
y U' (L' U L)



**y' (R' U' R)**  
y (L' U' L)

**(R U R')**



### F2L Case 1



**U' (R U' R' U) y' (R' U' R)**  
y' U (R' U' R U') (R' U' R)

**U' (R U R' U) (R U R')**



**U' (R U2' R' U) y' (R' U' R)**  
U' (R U2' R') d (R' U' R)

**R' U2' R2 U R2' U R**  
y' U (R' U2 R) U' y (R U R')  
(R U' R' U) (R U' R') U2 (R U' R')



**y' U (R' U R U') (R' U' R)**

**U' (R U' R' U) (R U R')**



### F2L Case 2



**(U' R U R') U2 (R U' R')**

**y' (U R' U' R) U2' (R' U R)**  
d (R' U' R) U2' (R' U R)  
Note – (y' U) and (d) are interchangeable



**U' (R U2' R') U2 (R U' R')**

**y' U (R' U2 R) U2' (R' U R)**  
d (R' U2 R) U2' (R' U R)



### F2L Case 3



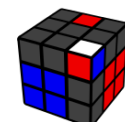
**U (R U2' R') U (R U' R')**

**y' U' (R' U2 R) U' (R' U R)**



**U2 (R U R' U) (R U' R')**  
(R U' R') U2 (R U R')

**y' U2 (R' U' R) U' (R' U R)**  
F' L' U2 L F  
Note – The second algorithm is fewer moves, but less intuitive and less finger-friendly.



## Incorrectly Connected Pieces



$y' (R' U R) U2' y (R U R')$   
 $(R U R') U2 (R U' R' U) (R U' R')$

$(R U' R' U2) y' (R' U' R)$   
 $U F (R U R' U') F' (U R U' R')$



$(R U2 R') U' (R U R')$

$y' (R' U2 R) U (R' U' R)$



$U (R U' R' U') (R U' R' U) (R U' R')$   
 $(R U R' U2') (R U R' U') (R U R')$

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



## Corner in Place, Edge in U Face



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

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



$(R U' R' U) (R U' R')$

$y' (R' U R U') (R' U R)$



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

$(R U R' U') (R U R')$



## Edge in Place, Corner in U face



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

$(U R U' R') (U R U' R') (U R U' R')$



$(U' R U' R') U2 (R U' R')$

$U (R U R') U2 (R U R')$



$(U' R U R') d (R' U' R)$

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



## Edge and Corner in Place



Solved Pair

$(R U' R') d (R' U2 R) U2' (R' U R)$



$(R U' R' U') R U R' U2 (R U' R')$   
 $(R U R' U') R U2 R' U' (R U R')$

$(R U' R' U) (R U2' R') U (R U' R')$   
 $(R U R') U2' (R U' R' U) (R U R')$



$(F' U F) U2 (R U R' U) (R U' R')$   
 $(R U' R') F (R U R' U') F' (R U' R')$

$(R U R' U') (R U' R') U2 y' (R' U' R)$



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## *Algorithms for slot in back-right position.*

### Basic Inserts



**y U (R U' R')**  
**y' U (L U' L')**

**U' (R' U R)**



**(R' U' R)**

**y (R U R')**  
**y' (L U L')**



### F2L Case 1



**U (R' U' R U') (R' U' R)**

**U (R' U R U') y (R U R')**



**R U2' R2' U' (R2 U' R')**

**U (R' U2 R) U' y (R U R')**



**U (R' U R U') (R' U' R)**

**y U' (R U' R' U) (R U R')**



### F2L Case 2



**y (U' R U R') U2 (R U' R')**  
**U r' (U R U' R') U' r**

**(U R' U' R) U2' (R' U R)**



**y U' (R U2' R') U2 (R U' R')**

**U (R' U2 R) U2' (R' U R)**



### F2L Case 3



**y U (R U2' R') U (R U' R')**

**U' (R' U2 R) U' (R' U R)**



**y U2 (R U R' U) (R U' R')**

**U2 (R' U' R) U' (R' U R)**  
**R' F' U2 F R**

Note – The second algorithm is fewer moves,  
but less intuitive and less finger-friendly.



## Algorithms for slot in back-right position.

### Incorrectly Connected Pieces



$(R' U R) U2' y (R U R')$   
 $(R2' F R F' R) U2' (R' U R)$

$y (R U' R' U2) y' (R' U' R)$

$U (R U' R' U) (R' U' R)$

Note – the second algorithm should only be used when the front-right slot is empty.



$y (R U2 R') U' (R U R')$

$(R' U2' R) U (R' U' R)$



$(R' U' R U' y) (R U' R' U) (R U' R')$   
 $(U R' U2' R) y (R U2' R' U) (R U' R')$

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



### Corner in Place, Edge in U Face



$(U' R' U R) y U (R U' R')$

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

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



$y (R U' R' U) (R U' R')$   
 $R' U2 R' F R F' R$

$(R' U R U') (R' U R)$



$(R' U' R U) (R' U' R)$

$y (R U R' U') (R U R')$

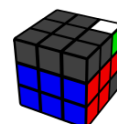


### Edge in Place, Corner in U face



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

$(U' R' U R) (U' R' U R) (U' R' U R)$



$(U' R' U' R) U2 (R' U' R)$

$U (R' U R) U2' (R' U R)$



$y (U' R U R') d (R' U' R)$

$U (R' U' R) y U' (R U R')$



### Edge and Corner in Place



Solved Pair

$(R' U R) d' (R U2' R') U2 (R U' R')$



$(R' U R U') (R' U2 R U') (R' U R)$

$(R' U' R U) (R' U2' R) U (R' U' R)$   
 $(R' U R U) (R' U' R U2') (R' U R)$



$(R' U R) U2' y (R U R' U) (R U' R')$

$(R' U R U) (R' U R U') y (R U R')$



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## *Algorithms for slot in front-left position.*

### Basic Inserts



**y' U (R U' R')**  
y U (L U' L')

**U' (L' U L)**



**(L' U' L)**

**y' (R U R')**  
y (L U L')



### F2L Case 1



**U (L' U' L U') (L' U' L)**

**U (L' U L U') y' (R U R')**



**L U2' L2' U' (L2 U' L')**

**U (L' U2 L) U' y' (R U R')**



**U (L' U L U') (L' U' L)**

**y' U' (R U' R' U) (R U R')**



### F2L Case 2



**y' (U' R U R') U2 (R U' R')**  
(L U L') y' (U R U' R')  
Note – the second algorithm should only be  
used when the back-left slot is empty.

**(U L' U' L) U2' (L' U L)**



**y' U' (R U2' R') U2 (R U' R')**

**U (L' U2 L) U2' (L' U L)**



### F2L Case 3



**y' U (R U2' R') U (R U' R')**

**U' (L' U2 L) U' (L' U L)**



**F R U2' R' F'**

**U2 (L' U' L) U' (L' U L)**



## Algorithms for slot in front-left position.

### Incorrectly Connected Pieces



$(L' U L) U2' y' (R U R')$



$y' (R U2 R') U' (R U R')$



$y' U (R U' R' U') (R U' R' U R U' R') U' (L' U L U) (L' U L U') (L' U L)$   
 $y' (R U R' U2') (R U R' U') (R U R')$   $y' F (U R U' R') F' (R U' R')$

$y' (R U' R' U2) y' (R' U' R)$

$(U' R U' R') U' (L' U' L)$

Note – the second algorithm should only be used when the front-right slot is empty.



$(L' U2 L) U (L' U' L)$

### Corner in Place, Edge in U Face



$(U' L' U L) d (R U' R')$



$y' (R U' R' U) (R U' R')$



$(L' U' L U) (L' U' L)$

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

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



$(L' U L U') (L' U L)$

$y' (R U R' U') (R U R')$

$(r U' r' F) (r U' r' F)$

### Edge in Place, Corner in U face



$(L' U L U') y' (R U' R')$



$(U' L' U' L) U2 (L' U' L)$



$y' (U' R U R') d (R' U' R)$

$(U' L' U L) (U' L' U L) (U' L' U L)$

$U (L' U L) U2' (L' U L)$

$U (L' U' L) y' U' (R U R')$



### Edge and Corner in Place



Solved Pair



$(L' U L U') (L' U2 L U') (L' U L)$



$(L' U L) F R U2' R' F'$

$(L' U L U') y' (R U2' R' U2 R U' R')$

$(L' U' L U) (L' U2' L) U (L' U' L)$   
 $(L' U L U) (L' U' L U2') (L' U L)$

$(L' U L U) (L' U L U') y (L U L')$



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## *Algorithms for slot in back-left position.*

### Basic Inserts



**U (L U' L')**

**y U' (R' U R)**  
**y' U' (L' U L)**



**y (R' U' R)**

**(L U L')**



### F2L Case 1



**y U (R' U' R U') (R' U' R)**

**U' (L U L' U) (L U L')**



**y R U2' R2' U' (R2 U' R')**

**L' U2 L2 U (L2' U L)**



**y U (R' U R U') (R' U' R)**

**U' (L U' L' U) (L U L')**



### F2L Case 2



**(U' L U L') U2 (L U' L')**

**y (U R' U' R) U2' (R' U R)**



**U' (L U2 L') U2 (L U' L')**

**y U (R' U2' R) U2' (R' U R)**



### F2L Case 3



**U (L U2' L') U (L U' L')**

**y U' (R' U2 R) U' (R' U R)**



**y' F R U2' R' F'**

**y U2 (R' U' R) U' (R' U R)**

**y R' F' U2 F R**

Note – The second algorithm is fewer moves,  
but less intuitive and less finger-friendly.





## Algorithms for slot in back-left position.

### Incorrectly Connected Pieces



$y (R' U R) U2' y (R U R')$   
 $U' (L' U L U') (L U' L')$

Note – the second algorithm should only be used when the front-left slot is empty.

$(L U' L' U2) y (R' U' R)$



$(L U2 L') U' (L U L')$

$y (R' U2' R) U (R' U' R)$



$U (L U' L' U') (L U' L' U) (L U' L') y U' (R' U R U) (R' U R U') (R' U R)$



### Corner in Place, Edge in U Face



$[y2] y' (U' L' U L) d (R U' R')$

$[y2] U (L U' L') d' (R' U R)$



$[y2] (L U' L' U) (L U' L')$

$[y2] y (R' U R U') (R' U R)$



$[y2] y (R' U' R U) (R' U' R)$

$[y2] (L U L' U') (L U L')$



### Edge in Place, Corner in U face



$[y2] y (R' U R' F) (R F' R)$

$[y2] (U L U' L') (U L U' L') (U L U' L')$



$[y2] (U' L U' L') U2 (L U' L')$

$[y2] U (L U L') U2 (L U L')$



$[y2] (U2' L U L') d' (R' U R)$

$[y2] y U2' (R' U R) d (L U L')$



### Edge and Corner in Place



$[y2]$   
 Solved Pair

$[y2] y (R' U R) d' (R U2' R' U2 R U' R')$



$[y2] (L U L' U') (L U2 L' U') (L U L')$

$[y2] (L U' L' U) (L U2' L') U (L U' L')$



$[y2] y (R' U R) U2' y (R U R' U R U' R')$

$[y2] (L U' L') d' (U' R' U' R U') (R' U R)$

