

# Full TOLS by Justin Taylor: Organized by Shape

## New Shapes (Not seen in standard OLL)

	D' R' D R U' R' D' R D		R' D' R U' R' D R
	R U' R' U' R' F R F' R U2 R'		R U' R' U' R U R2 F R F'
	R U' R' U' R U R' U' U' R U'		F' R U' R' U' R' F r U R U' r'
	F R' F' R U' R U R'		R' F R y' R' U' R' U' R
	R U2 R' F R' F' R U R U R'		R2 r' U' R' U r U' R' U R U' R'
	R U2 R' U2 R U2 R2 F R F'		R U' R2 U' R U R U' R' U' R' U r
	R U' R' U' R U R2 F R F'		r U' R' U R U r' U R U' R'
	r U' R' U2 M U R U' R' U r U' r'		r U2 r' U2 r U' r' U2 r U2 r'

## Big S Shapes

	L F' L' U' L U F U' L'		R' F R U R' U' F' U R
	R U' R' U r U' R' U2 R U r'		R U' R' F R' F' R2 U' R' U R U R'
	R U' M' U R' U' R2 r' U R'		R U2 R' F R U' R' U' F' R U2 R'

## W Shapes

	R U R' U R U' R' U' R' F R F'		R' U' R U' R' U R U' U' R' U
	R U' U' R U M' U' R'		R U' R' U' R U' R' U' R' F R F'

## C Shapes

	R' U' R' F R F' U R		R U R' U' R' F R F'
	F R' F' R U r U' r' U' r U r'		R U M U' R' U r U' R'

## T Shapes

	F R U R' U' F'		R U R' U' R' F R F'
	R U' R' F R' F' R U' R U2 R'		R U' R2 F2 r U r' F R2 U R'

## Square Shapes

	l' U2 L U L' U l		r U2 R' U' R U' r'
	R U R' U' M' U' R U R' U M		R U R' U2 R U' R' U2 R' F R F'
	R2 U R' U' R' U' F R F' U2 R'		R U' R' U2 R U' R2 F' U' F U R
	R U' R' U2 R U' R' F' R U R' U' F'		M' U' R U' R' U2 R U' r'

## Edges Oriented

	R U R' U2 R U R'		R U' R' U R U2 R' U R U' R'
	R U2 R' U R U2 R' U2 R U R'		R U' R' U R U' R' U' R U R'
	D R D R' U' R D' R' D'		R' D' R U' R' D R
	R U' R' U' R U R' U' R U2 R'		R U' R' U2 R U' R'
	R U2 R' U' R U R' U R U R'		R U R' U R U R' U' R U2 R'
	R U2 R' U2 R U R' U R U' R'		R U' R' U' R U2 R'
	R U2 R' U R U R'		R U R' U' R U' R' U2 R U2 R'
	R U' R' U' R U' R' U R U2 R'		R U2 R' U R U R' U R U2 R' U' R U' R'
	R U R' U R U2 R'		R U2 R' U' R U' R'
	R U2 R' U' R U R' U' R U' R'		R U2 R2 U' R2 U' R2 U2 R
	R2 D R' U2 R D' R' U2 R'		r U R' U' r' F R F'
	F R' F' r U R U' r'		TOLS Skip

Blue – TOLS+

Green – TOLS-

Black – TOLSo (OLL)

Note that any corner sticker can be either the U or D color. This does not affect the algorithm.

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## P Shapes

	SRUR'U' R'FRf'		FR'FRUR RUR'UR UR'
	fRUR'U'f'		f'L'U'LUf
	R U2 R' U2 l U' R U R2		r U' r' U r U M U' R'
	R U2 R' F U R U' R' F' R U2 R'		FR'F'R2 U' R' U2 R U2 R'

## Line Shapes

	fRUR'UR UR'U'f'		FURUR'2' F'R U2 R U2 R'
	r U' r' U R U' R' U R U' R' r U' r'		R U2 R2 U' R U' R' U2 F R F'
	R U2 R' U' r U' r' U' r U' r		R U2 R2 F R2 U R' U' F' R U2 R'
	R U' R' U2 R U2 R2 F R F' R U R'		R U' R' U' F2 r U' r' F
	R U2 R' F R' F' R U R U' R'		R U2 R' U R' F R F' U2 R U' R'

## All Corners Oriented

	M' U M U2 M' U M		RUR'U'M' URU'r'
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## Small L Shapes

	R' U' l' U R U' R' U R U' x' U R		FRUR'U' RUR'U'F'
	r U' r2 U r2 U r2 U' r		r' U r2 U' r2' U' r2 U r'
	r' U' R U' R' U R U' R' U2 r		r U R' U R U' R' U R U2 r'
	l' U R U' L U' R' U R U' r'		FURUR' F' R U' R' U2 R U' R'
	R U2 R2 F R F' U R U R'		RUR'U'F' U2 F R U2 R'
	F' R U R' U R' U' R' U' l' U2 R U'		R U2 R' F R U R' U' F r U r' F
	R U2 R' F' U2 F U R U' R'		r U' r' U r U r' U R U2 R'
	D r' U' r U R' U2 R U' r' U r D'		r U r' U' R U2 R' U' r U' r'

## Fish Shapes

	FRUR'U' RUR'F'		R U2 R2 F R F' R U2 R'
	RUR'U'R' F R2 U R' U' F'		RUR'yR'F R U' R' F' R
	R U2 r' U R U R' U' M'		r U2 R U2 R' U' R U' R' U r'

## Fish Shapes (cont.)

	R U2 M' U' R' U2 R U' r'		R2 U2 r U' R2 U R' U2 R' U r'
	r U r' F' U2 F U2 r U' r'		R U' R' U r U' R' U' R U r'
	R U' R' U' R U R' U' R' F R2 U R' U' F'		M U' R U' R' U2 R U' R' U M'

## Large L Shapes

	l U' l' U' l U R' U' F U		R' F R U R' F' R F U' F'
	r' U' r R' U' R U r' U r		r U r' R U R' U' r U' r'
	R2 U R' U R U2 R2 U R' F R F'		R U' R' F R' F' R U2 R U' R'
	R U' R' F' U' F U R U R'		R F' L' U' L U F R'
	R U2 R' F' U F R U R'		R' F R U R U' R2 F' R2 U R'
	R U' R' F R' F' R2 U R'		R' U' R' F' U' F R U2 R' U' R2
	R U l U' R' U r U' R' U L'		R' F R2 U R' U' F' U R U' R'
	R' F R U2 r U r' U2 R U R' U' F'		R U' R U R' U r U2 R2 U' R U' r'

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Dot Shapes

	R U2 R2 F R F' U2 R' F R F'		R U' R2 D' r U r' D R2 U R'
	r' R2 U R' U r U2 r' U M'		r R2 U' R U' r' U2 r U' M
	r U2 r' U2 r U r' U2 r U2 r'		R2 D' r U r' D R2 r' U r U' r' U' r
	M U R U R' U' M' R' F R F'		r U R' U' M2 U R U' R' U' M'
	F R' F' R U2 r U' R' U2 R U r'		R U2 R' U' R2 D r' U' r D' R' U' R'
	F R' F' R2 U2 R2 F R F'		F2 r U r' U2 r U' L' U2
	r U' R' U2 M U' r U' R' U2 M'		R' F R U' M' U R U' r' U' F'
	R U' R' U' R' F R F' U2 I' U R U'		R U R D r' U' M' U' R D' R2
	R U R D r' U r D' R' U' R'		M U' R U' R' U' r U2 r' U' M'
	D R' U' R' D' r U r' D R U R D'		R U R D r' U' r D' R' U' R'
	R U R D r' U r D' R2 U R U2 R'		F' R U R' U R' F R F' U2 I' U2 R U'

Small S Shapes

	r U R' U R U2 r'		I' U' L U' L' U2 I
	r' R2 U R' U R U2 R' U M'		r R2 U' R U' R' U2 R U' M
	r U R' U' M U' R U R'		F R' F' R U2 R2 U R' U R U2 R2
	r U r2 F2 r2 U' r2 F2 r		R U2 R' U R U' R' U2 R U' R2 F R F'
	F' L' U2 L U2 F		F' U2 L' U2 L F
	r' U2 R2 U R2 U r U R U R'		R U' R' U' R U2 R' F R U R' U' F'
	r U r' U2 r U R' U' R U' R' U' M		R U2 R2 F R F' R U R' U2 R U' R'
	R U' R' U R' U' F U R U' F'		R U' R2 F R F' R U R'

Awkward Shapes

	R U R' U R U2 R' F R U R' U' F'		R' U' R U' R' U2 R F R U R' U' F'
	F U R U2 R' U' R U2 R' U' F'		r2 D' r U r' D r2 U' r' U' r
	F R' F' R U' R U' R' U' R U' R'		r U' R' U' R U2 R' U' M
	r U' r2 U' R U' R' U2 r2 U r'		R U' R' U' r U' R' U2 R U r'

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