

List of Rubik patterns

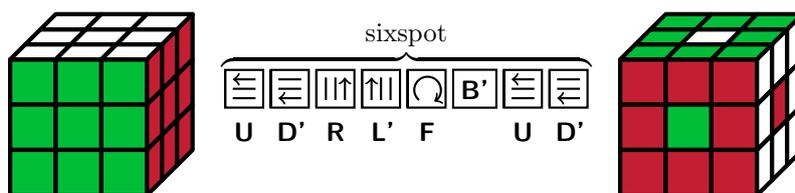
www.ctan.org/tex-archives/macros/latex/contrib/rubik/rubikpatternsLIST.pdf*

RWD Nickalls[†] & A Syropoulos[‡]

25 February 2018 (Rubik bundle v5.0)

1 Rubik patterns

A Rubik pattern is the configuration generated by a sequence of rotations (or ‘moves’) from some initial starting configuration (typically a ‘solved’ configuration). For example, ‘sixspot’ is a well known pattern generated from a solved Rubik cube by the rotation sequence $U, Dp, R, Lp, F, Bp, U, Dp$, as follows:



The code for this image is as follows:

```
\usepackage{tikz}
\usepackage{rubikcube,rubikrotation,rubikpatterns}
...
\noindent\hfil%
\RubikCubeSolvedWB%
\ShowCube{2.4cm}{0.6}{\DrawRubikCubeRU}%
\RubikRotation{\sixspot}%
\quad\SequenceBraceA{sixspot}{%
\ShowSequence-}{\Rubik}{\SequenceLong}%
}%
\quad\ShowCube{2.4cm}{0.6}{\DrawRubikCubeRU}%
\hfil%
```

Note that the appearance of a pattern generated by a given rotation sequence is, of course, sensitive to (a) the particular colour configuration of the solved cube used, and (b) the initial orientation of the cube.

*This file is part of the Rubik bundle v5.0, 2018. To generate this file, use the following command:

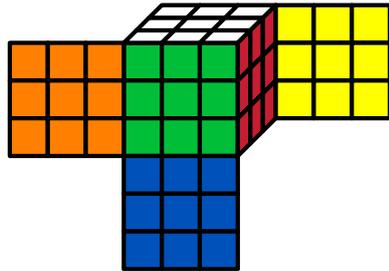
```
$ pdflatex --shell-escape rubikpatternsLIST.tex
```

[†]email: dick@nickalls.org

[‡]email: asyropoulos@yahoo.com

The initial condition associated with all the pattern images shown in this document is the solved form of the ‘WB’ colour configuration (White opposite Blue), since this is the solved cube colour configuration used by the Reid website, from which nearly all these patterns are drawn.

The following image shows the WB cube form (set up using the command `\RubikCubeSolvedWB`) displayed in a semi-flat (SF) mode (`\DrawRubikCubeSF`) so we can see all the faces —see the RUBIKCUBE documentation for details.



```
\usepackage{tikz}
\usepackage{rubikcube,rubikrotation}
...
\RubikCubeSolvedWB%
\ShowCube{2cm}{0.5}{\DrawRubikCubeSF}%
```

2 Typesetting

The remainder of this document just displays the various patterns made available with the RUBIKPATTERNS package. We display the patterns using the following `\ShowPattern` command, which uses the `\RubikRotation` command (from the RUBIKROTATION package), and takes the pattern macro-name as the argument: This command draws the cube from the right-upper (RU) viewpoint, and shows the rotation sequence and metadata.

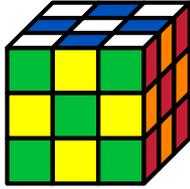
Note that since each sequence starts with a `[name]`, we include a negative thin space (`$\!`) just before the `\ShowSequence` command to adjust the position of the narrow initial `[` character in order to align it correctly with the subsequent line.

```
%-----
\usepackage{tikz}
\usepackage{rubikcube,rubikrotation,rubikpatterns}
...
\newcommand{\ShowPattern}[1]{%
\noindent%
  \RubikCubeSolvedWB
  \RubikRotation{#1}
  \ShowCube{2.4cm}{0.6}{\DrawRubikCubeRU}
  \hspace{0.5cm}%
\begin{minipage}{9cm}
\noindent$\!$\ShowSequence{, \ }{\texttt}{\SequenceShort},
\newline\noindent\texttt{\SequenceInfo}.
\end{minipage}
}
%-----
```

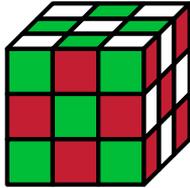
For example, the first pattern below (Pons Asinorum) is typeset using the following command:

```
\bigskip\ShowPattern{\ponsasinorum}
```

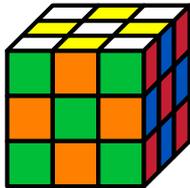
3 List of Patterns



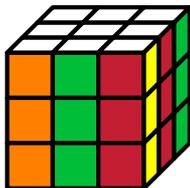
[PonsAsinorum], F2, B2, R2, L2, U2, D2,
(12q*; 6f*).



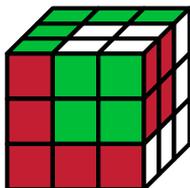
[CheckerboardsThree], F, B2, Rp, D2, B, R, U, Dp, R, Lp, Dp,
Fp, R2, D, F2, Bp,
(20q*; 16f*); order 3.



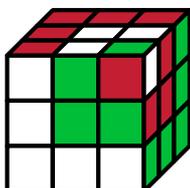
[CheckerboardsSix], R2, L2, U, B, L2, Dp, F, B2, R, Lp, Fp,
B, R, D, F2, Lp, Up,
(17f*; 22q); order 6.



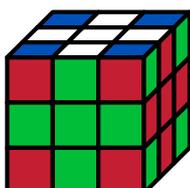
[Stripes], F, U, F, R, L2, B, Dp, R, D2, L, Dp, B, R2, L, F, U,
F,
(20q*; 17f*).



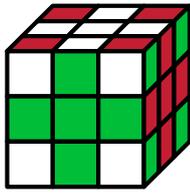
[CubeInCube], F, L, F, Up, R, U, F2, L2, Up, Lp, B, Dp, Bp,
L2, U,
(18q*; 15f*).



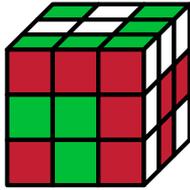
[CubeInCubeInCube], Fp, U, Bp, Rp, U, F2, U2, Fp, Up, F, U2,
D, Bp, Dp, R2, B2, Up,
(17f*; 22q).



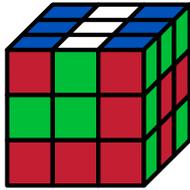
[ChristmasCross], U, F, Bp, L2, U2, L2, Fp, B, U2, L2, U,
(16q*; 11f*).



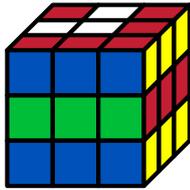
[PlummersCross], R2, Lp, D, F2, Rp, Dp, Rp, L, Up, D, R, D,
B2, Rp, U, D2,
(20q*; 16f*).



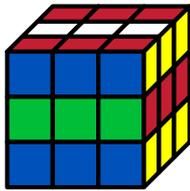
[Anaconda], L, U, Bp, Up, R, Lp, B, Rp, F, Bp, D, R, Dp, Fp,
(14q*; 14f*).



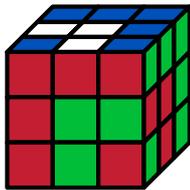
[Python], F2, Rp, Bp, U, Rp, L, Fp, L, Fp, B, Dp, R, B, L2,
(16q*; 14f*).



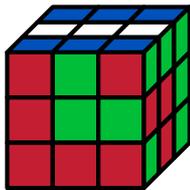
[BlackMamba], R, D, L, Fp, R, Lp, D, Rp, U, Dp, B, Up, Rp, Dp,
(14q*; 14f*).



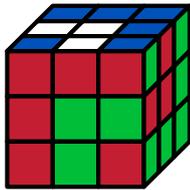
[GreenMamba], R, D, R, F, Rp, Fp, B, D, Rp, Up, Bp, U, D2,
(14q*; 13f*).



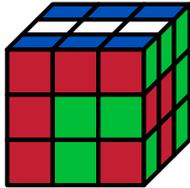
[FemaleRattlesnake], U2, Dp, L2, D, B, U, Bp, Rp, L2, U2,
F, Up, F, R,
(18q*; 14f*).



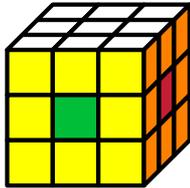
[MaleRattlesnake], Rp, Fp, U, Fp, U2, R, L2, B, Up, Bp, Dp,
L2, U2, D,
(18q*; 14f*).



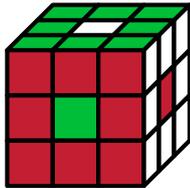
[FemaleBoa], R, Up, R2, U2, F, D2, R2, Up, Dp, R, Dp, Fp,
(16q*; 12f*).



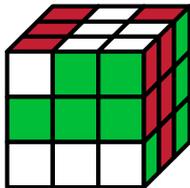
[MaleBoa], F, D, Rp, U, D, R2, D2, Fp, U2, R2, U, Rp,
(16q*; 12f*).



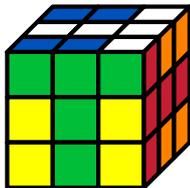
[FourSpot], F2, B2, U, Dp, R2, L2, U, Dp,
(12q*; 8f*).



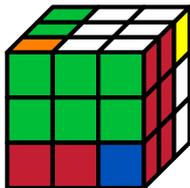
[SixSpot], U, Dp, R, Lp, F, Bp, U, Dp,
(8q*; 8f*).



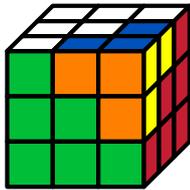
[OrthogonalBars], F, Rp, U, L, Fp, Lp, F, Up, R, U, Lp, Up,
L, Fp,
(14q*; 14f*).



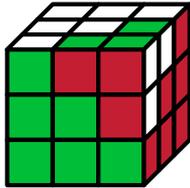
[SixTs], F2, R2, U2, Fp, B, D2, L2, F, B,
(14q*; 9f*).



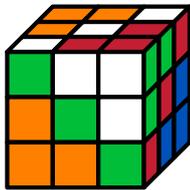
[SixTwoOne], U, B2, D2, L, Bp, Lp, Up, Lp, B, D2, B2,
(15q*; 11f*).



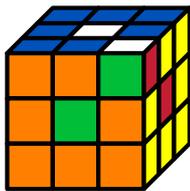
[ExchangedPeaks], F2, R2, D, R2, U, D, F2, Dp, Rp, Dp, F, L2,
Fp, D, R, Up,
(16f*; 21q).



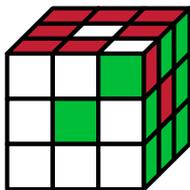
[TwoTwistedPeaks], F, D2, B, R, Bp, Lp, F, Dp, L2, F2, R, Fp,
Rp, F2, Lp, Fp,
(16f*; 20q).



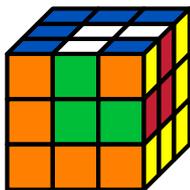
[FourTwistedPeaks], Up, D, B, Rp, F, R, Bp, Lp, Fp, B, L, F,
Rp, Bp, R, Fp, Up, D,
(18q*; 18f*).



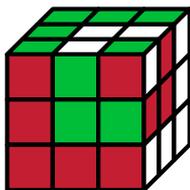
[ExchangedChickenFeet], F, Lp, Dp, Bp, L, F, U, Fp, Dp, F,
L2, Bp, Rp, U, L2, Dp, F,
(19q*; 17f*).



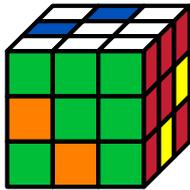
[TwistedChickenFeet], F, Lp, D, Fp, Up, B, U, F, Up, F, Rp,
F2, L, Up, Rp, D2,
(18q*; 16f*).



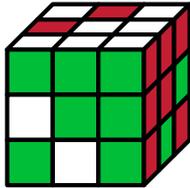
[ExchangedRings], F, U, Dp, Lp, B2, L, Up, D, F, U, R2, L2,
Up, L2, F2,
(15f*; 20q).



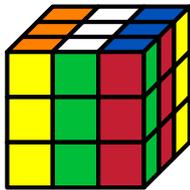
[TwistedRings], F, D, Fp, D2, Lp, Bp, U, L, D, R, U, Lp, Fp,
U, L, U2,
(18q*; 16f*).



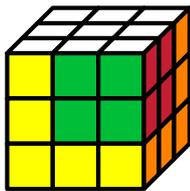
[EdgeHexagonTwo], U, B2, Up, Fp, Up, D, Lp, D2, L, U, Dp, F, Dp, L2, B2, Dp, (20q*; 16f*) order2.



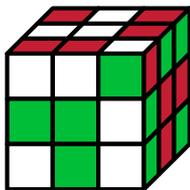
[EdgeHexagonThree], F, L, B, U, L, F2, B2, Rp, F2, B2, Up, Bp, Lp, Fp, (14f*; 18q) order 3.



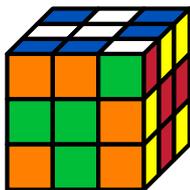
[TomParksPattern], L, U, F2, R, Lp, U2, Bp, U, D, B2, L, F, Bp, Rp, L, Fp, R, (20q*; 17f*).



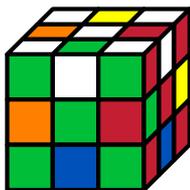
[RonsCubeInCube], L2, D2, Lp, D2, B2, L2, B2, Lp, D2, L2, B2, Lp, B2, (13f*; 23q).



[TwistedDuckFeet], F, Rp, B, R, U, Fp, Lp, Fp, U2, Lp, Up, D2, B, Dp, F, Bp, U2, (20q*; 17f*).



[ExchangedDuckFeet], U, F, R2, Fp, Dp, R, U, B2, U2, Fp, R2, F, D, B2, R, Bp, (21q*; 16f*).



[Superflip], Dp, R2, Fp, D2, F2, U2, Lp, R, Dp, R2, B, F, Rp, U2, Lp, F2, Rp, U2, Rp, Up, (20f*).

4 References

- Fridrich website (Fridrich J). <http://www.ws.binghamton.edu/fridrich/>
See the 'Pretty patterns' webpage <http://www.ws.binghamton.edu/fridrich/ptrns.html>
- Kociemba website (Kociemba H). <http://www.kociemba.org/cube.htm>
—for superflip see: <http://www.kociemba.org/math/oh.htm>
- Randelshofer website (Randelshofer W). Pretty patterns. <http://www.randelshofer.ch/rubik/patterns/U080.01.html>
- Reid patterns web page (Reid M). <http://www.cflmath.com/~reid/Rubik/patterns.html>

— END —