Quaternion Finder
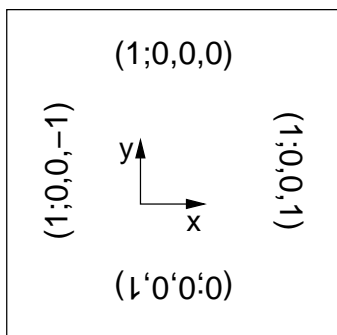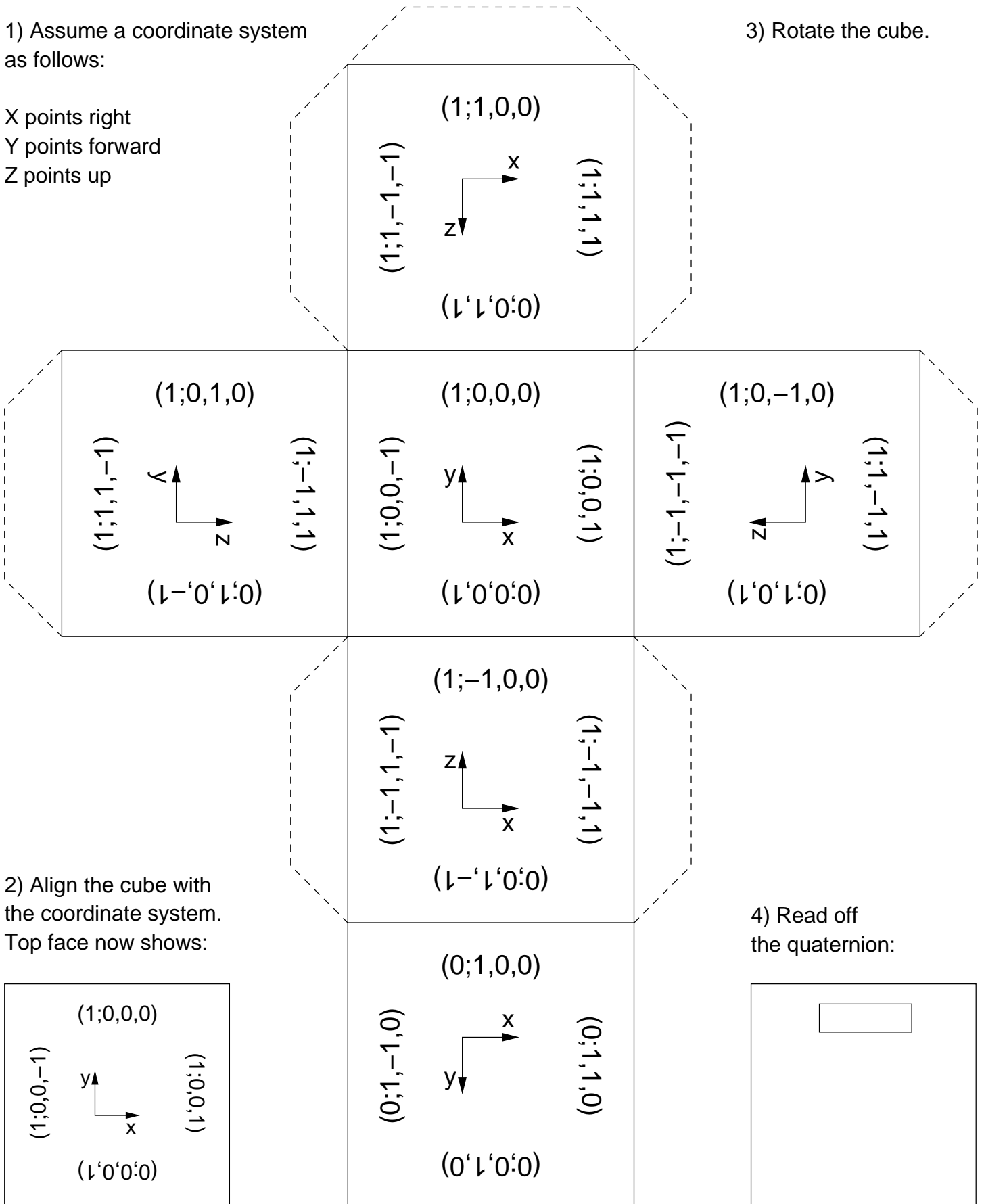
1) Assume a coordinate system
as follows:

X points right
Y points forward
Z points up

3) Rotate the cube.

(1;1,0,0)

(1;1,−1,−1)

x

z

(1;1,1,1)

(1;0,1,1)

(1;0,1,0)

(1;1,1,−1)

y

z

(1;−1,1,1)

(1;0,1,−1)

(1;0,0,0)

(1;0,0,−1)

y

x

(1;0,0,1)

(1;0,0,1)

(1;0,−1,0)

(1;−1,−1,−1)

y

z

(1;1,−1,1)

(1;0,1,1)

(1;−1,0,0)

(1;−1,1,−1)

z

x

(1;−1,−1,1)

(1;0,1,−1)

2) Align the cube with
the coordinate system.
Top face now shows:

(1;0,0,0)

(1;0,0,−1)

y

x

(1;0,0,1)

(1;0,0,1)

(0;1,0,0)

(0;1,−1,0)

x

y

(0;1,1,0)

(0;1,0,1)

4) Read off
the quaternion:

© Hans de Nivelle, 2015