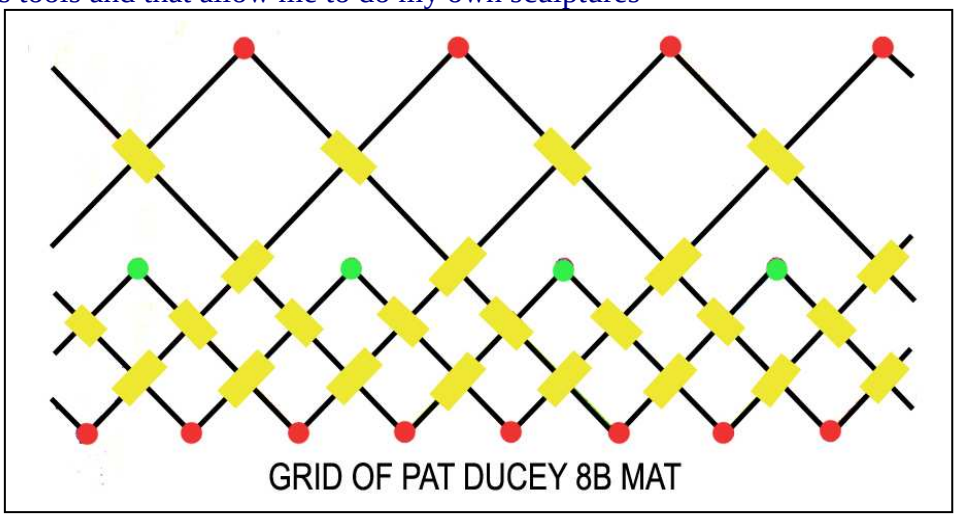
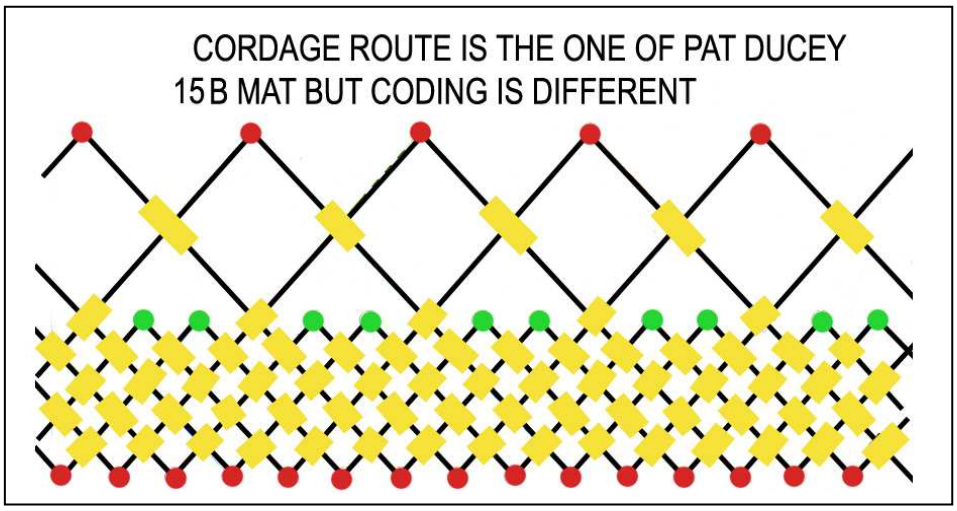
SOME 'NEWLY INVENTED'SPHERICAL COVERING

(often called GLOBE KNOTS by egregious mistake***)

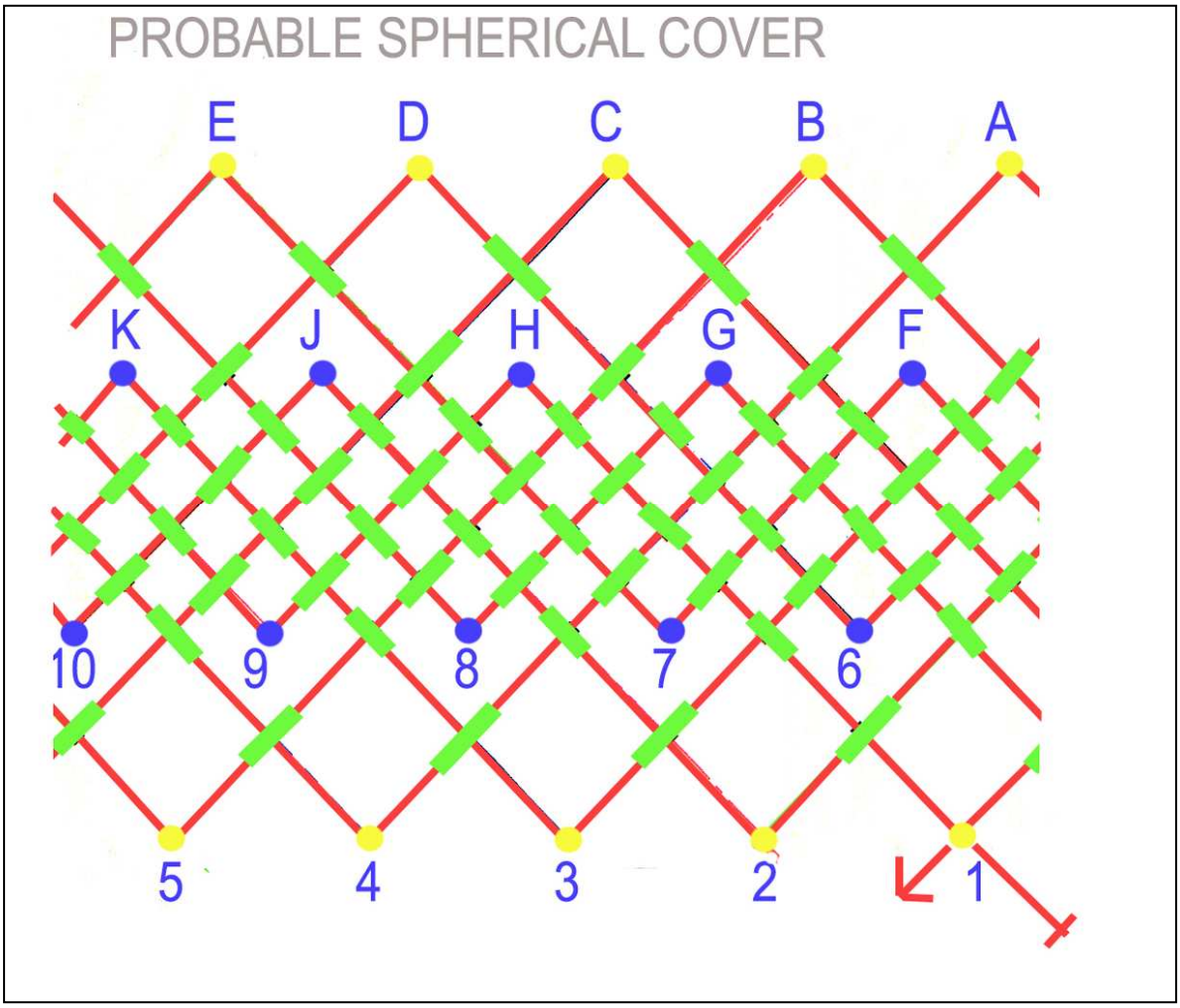
I derived them being inspired both by Nono (Norbert Trupiano and by Pat Ducey.
NONO used the 24B MAT by Pat DUCEY to derive a 360 FACES spherical covering, I used the 8B and 15B MATS to get a 60 FACES and a 125 FACES
It is like Pat DUCEY furnished the squared wood block, Nono the demo of how to use sculptor's tools and that allow me to do my own sculptures





*** because **GLOBE** (the globe of a breast …a foot ball,) is the **VOLUME** and **SPHERE** is the **SURFACE / AREA** so as soon as you put a core inside **IT CANNOT BE A GLOBE KNOT** but it is a **SPHERICAL COVERING**). That are mathematics decisions!
ex: a Monkey Fist WITHOUT core may be called a GLOBE KNOT but as soon it is WITH A CORE this Monkey Fist can only be a SPHERICAL COVER(ING)
(same mistaken naming exist with SPIRAL (a 2D curve) and HELIX (a 3D curve)

WARNING : I AM HERE USING , FOR EXPLORATION SAKE, A PIN NOTATION THAT I DISAPPROVE OF AND FIND ABERRANT, BUT SOME LIKE IT.

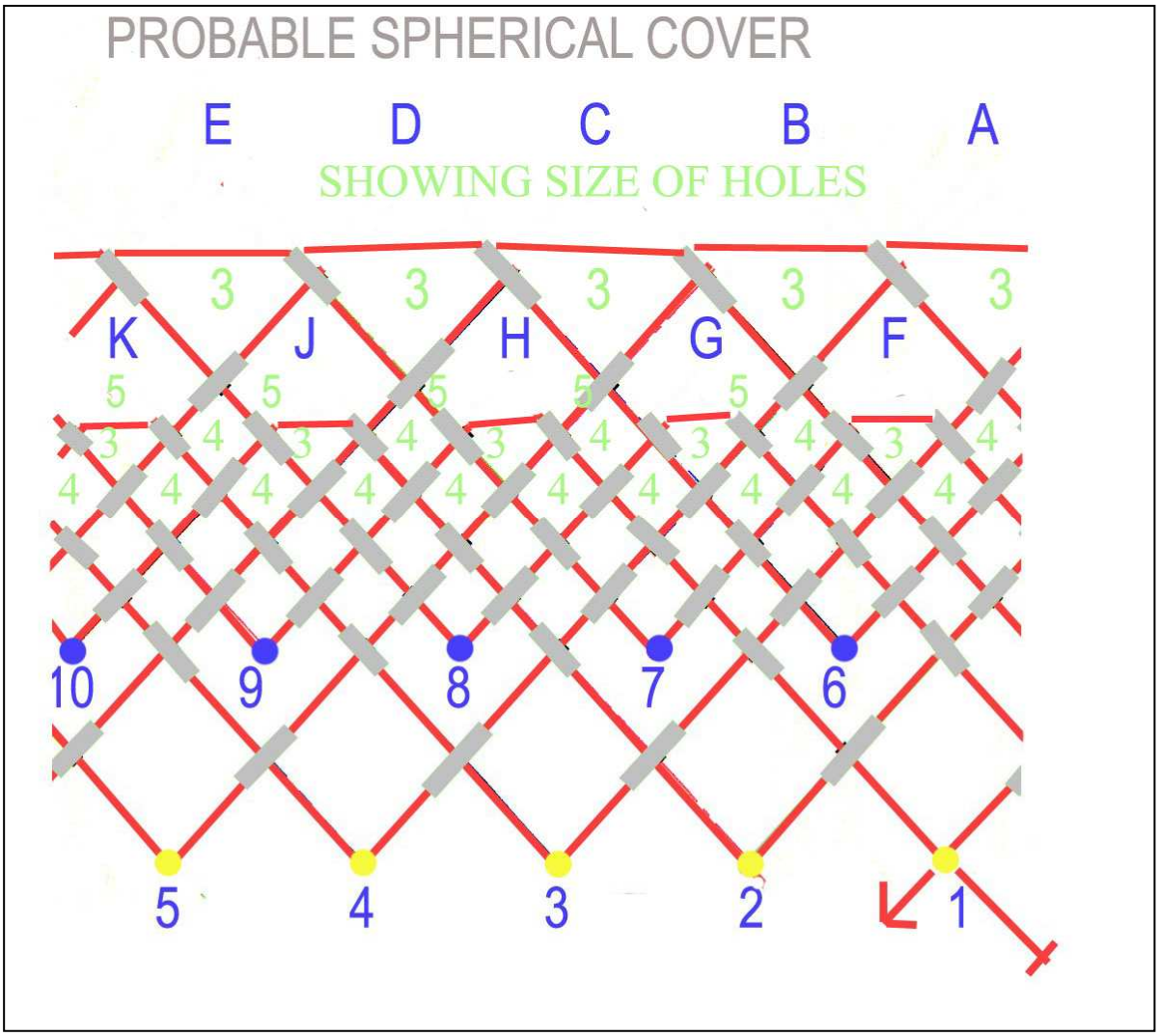


Above the **60 FACES** grid – Code in next TABLE

CAVEAT = tables of code were made by hand on a printed grid so despite careful verification there may persist some mistake(s) so exercise your attention and concentration.

HP	1	FROM	1	TO	H	FREE RUN	BOTTOM	EXTERNAL	TOP	INTERNAL
HP	2	FROM	H	TO	9	FREE RUN	TOP	INTERNAL	BOTTOM	INTERNAL
HP	3	FROM	9	TO	B	FREE RUN	BOTTOM	INTERNAL	TOP	EXTERNAL
HP	4	FROM	B	TO	5	U	TOP	EXTERNAL	BOTTOM	EXTERNAL
HP	5	FROM	5	TO	G	FREE RUN	BOTTOM	EXTERNAL	TOP	INTERNAL
HP	6	FROM	G	TO	8	O	TOP	INTERNAL	BOTTOM	INTERNAL
HP	7	FROM	8	TO	A	U - O	BOTTOM	INTERNAL	TOP	EXTERNAL
HP	8	FROM	A	TO	4	U3	TOP	EXTERNAL	BOTTOM	EXTERNAL
HP	9	FROM	4	TO	F	U	BOTTOM	EXTERNAL	TOP	INTERNAL
HP	10	FROM	F	TO	7	O2	TOP	INTERNAL	BOTTOM	INTERNAL
HP	11	FROM	7	TO	E	U - O - U - O	BOTTOM	INTERNAL	TOP	EXTERNAL
HP	12	FROM	E	TO	3	U - O - U3	TOP	EXTERNAL	BOTTOM	EXTERNAL
HP	13	FROM	3	TO	K	U - O - U	BOTTOM	EXTERNAL	TOP	INTERNAL
HP	14	FROM	K	TO	6	U - O2	TOP	INTERNAL	BOTTOM	INTERNAL
HP	15	FROM	6	TO	D	U - O - U - O - U	BOTTOM	INTERNAL	TOP	EXTERNAL
HP	16	FROM	D	TO	2	U - O - U - O - U2 - O	TOP	EXTERNAL	BOTTOM	EXTERNAL
HP	17	FROM	2	TO	J	U - O - U - O - U	BOTTOM	EXTERNAL	TOP	INTERNAL
HP	18	FROM	J	TO	10	U - O - U - O	TOP	INTERNAL	BOTTOM	INTERNAL
HP	19	FROM	10	TO	C	U - O - U - O - U - O	BOTTOM	INTERNAL	TOP	EXTERNAL
HP	20	FROM	C	TO	1	U - O - U - O - U - O - U - O	TOP	EXTERNAL	BOTTOM	EXTERNAL

Illustration here under is showing the size of “holes
Immediately it is evident that when the ‘4’ holes will be ‘quite adjusted’ then the ‘3’ holes will be a bit crowded with the ‘5’holes still a bit opened. (could be acceptable if core is glass.)
The thinner the cordage used the smaller the discrepancy will be



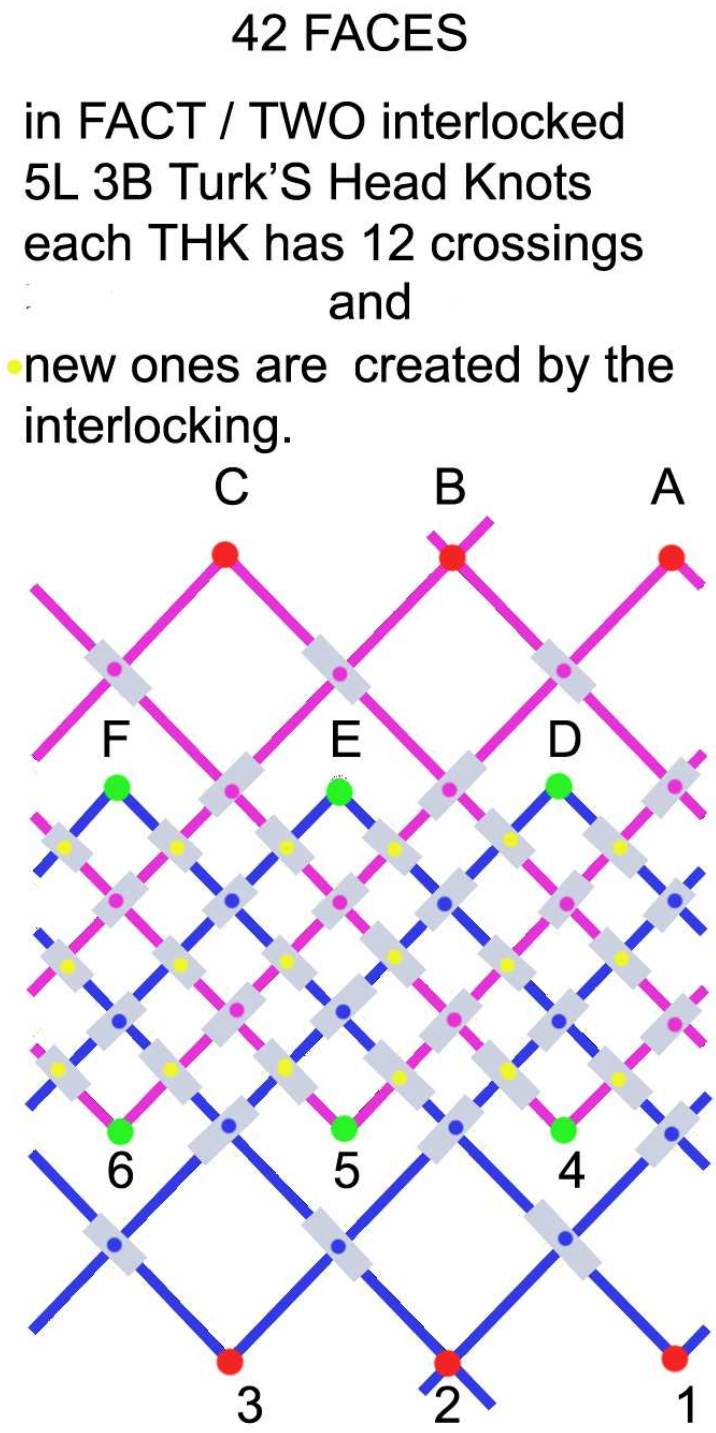
I used a quite stiff 3 mm braided cordage on a 45 mm core I made using my “non dangerous core” recipe == kitchen aluminium foil (see the formula for size in on of my pages)

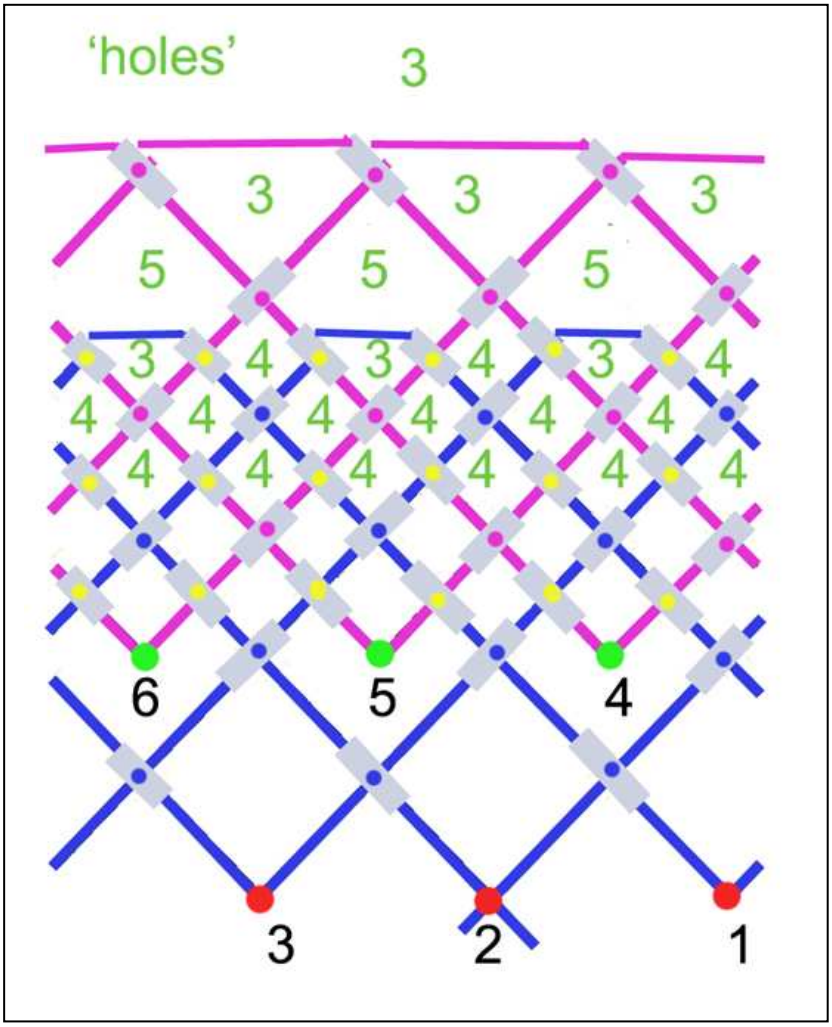
This is not a fully satisfying spherical covering but from beginning to end, it was a quite satisfying experiment.

One lesson learned here : the TREMENDOUS IMPORTANCE of respecting angles between PINS and DISTANCES BETWEEN THEM.
20 ‘3-SIDE’ holes, 30 ‘4-SIDE’ holes 12 ’5-SIDE’ holes
62 holes **32.25 % ‘3-SIDE’** , **48.40 % ‘4-SIDE’** and **19.35 % ‘5-SIDE’**

I went farther in exploring the possibilities to get a narrower range in “holes” or, at least, even if the same range have a small number of 3, a majority of and as few as possible of 5.
Another mix could be as few as possible of 4, a majority of 4 and a very small number of 5.
Furthering this exploration I even admitted 2-STRAND configurations.

42 FACES





2 polar '3- SIDE' holes
12 '3- SIDE' holes

24 '4- SIDE' holes

6 '5- SIDE' holes

44 holes

31.80 % of which are 3-SIDE

54.55 % are 4-SIDE

13.65% are 5-SIDE

HP	1	FROM	1	TO	F	FREE RUN				
HP	2	FROM	F	TO	3	O	TOP	INTERNAL	BOTTOM	EXTERNAL
HP	3	FROM	3	TO	E	U	BOTTOM	EXTERNAL	TOP	INTERNAL
HP	4	FROM	E	TO	2	O2 - U	TOP	INTERNAL	BOTTOM	EXTERNAL
HP	5	FROM	2	TO	D	O - U2	BOTTOM	EXTERNAL	TOP	INTERNAL
HP	6	FROM	D	TO	1	O3 - U	TOP	INTERNAL	BOTTOM	EXTERNAL
HP	1	FROM	A	TO	6	U3	TOP	EXTERNAL	BOTTOM	INTERNAL
HP	2	FROM	6	TO	C	O3 - U	BOTTOM	INTERNAL	TOP	EXTERNAL
HP	3	FROM	C	TO	5	U - 0 - U2	TOP	EXTERNAL	BOTTOM	INTERNAL
HP	4	FROM	5	TO	B	O - U - O2 - U - O	BOTTOM	INTERNAL	TOP	EXTERNAL
HP	5	FROM	B	TO	4	U2 - O - U - O - U	TOP	EXTERNAL	BOTTOM	INTERNAL
HP	6	FROM	4	TO	A	O - U - O - U - O - U - O	BOTTOM	INTERNAL	TOP	EXTERNAL

Another 2-STRAND **54 FACES**

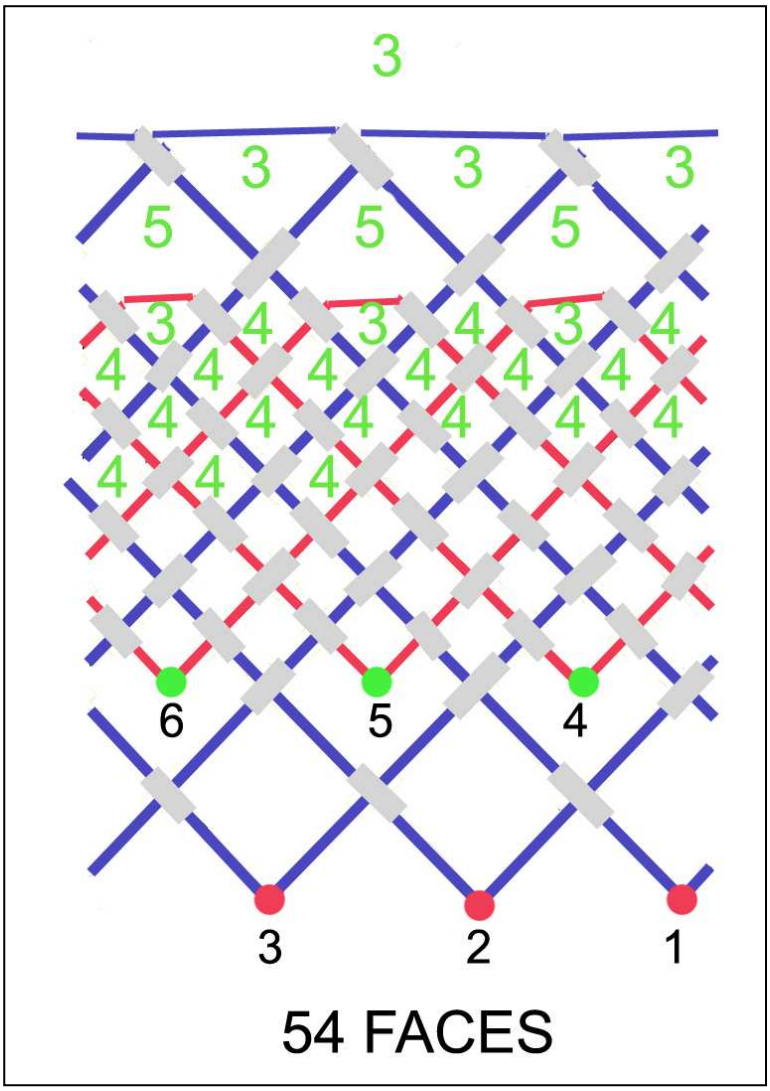
14 ‘3-SIDE’ holes
36 ‘4-SIDE’ holes
6 ‘5-SIDE’ holes

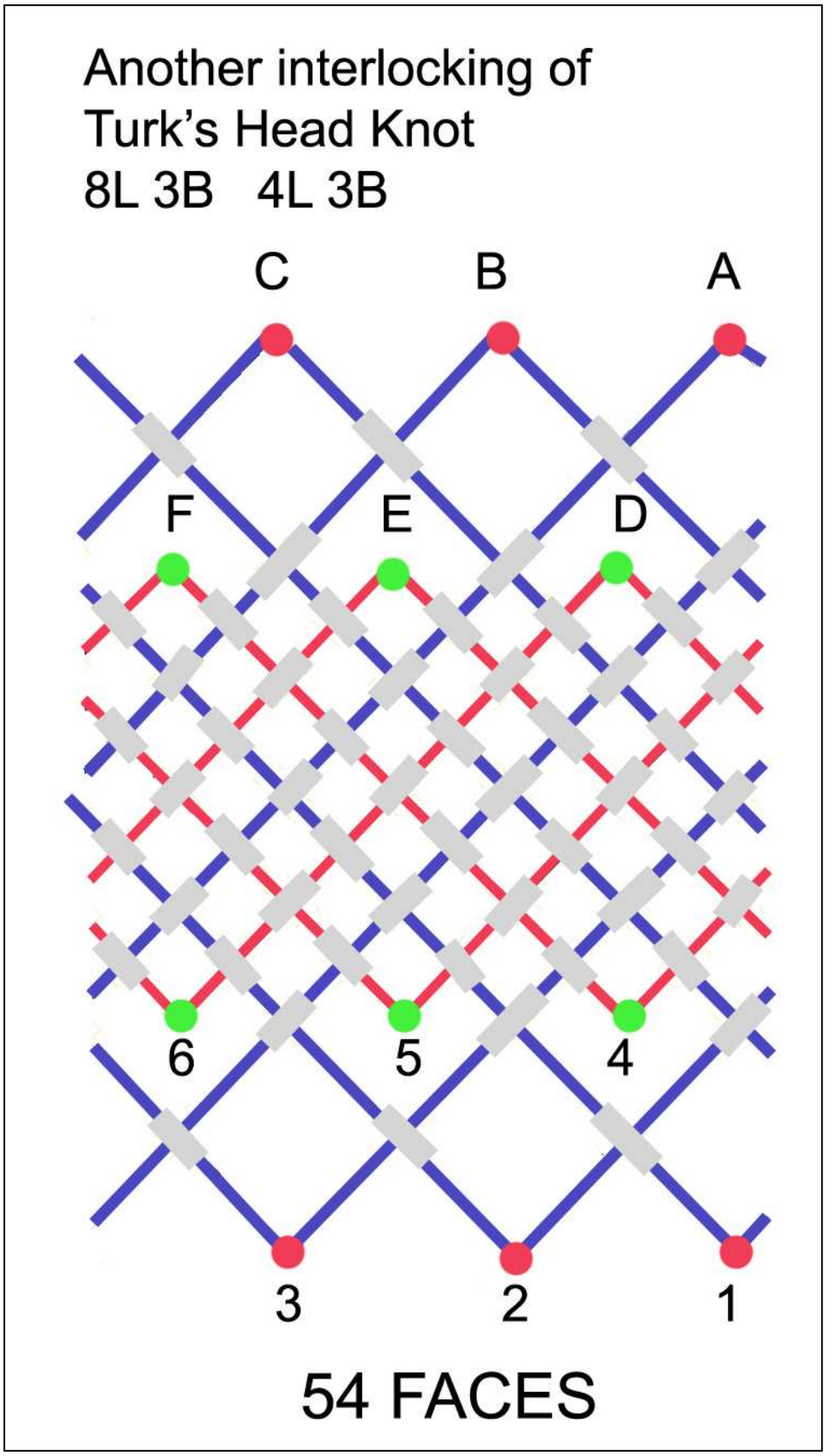
56 holes

25 % ‘3-SIDE’ holes

64.3 % ‘4-SIDE’ holes

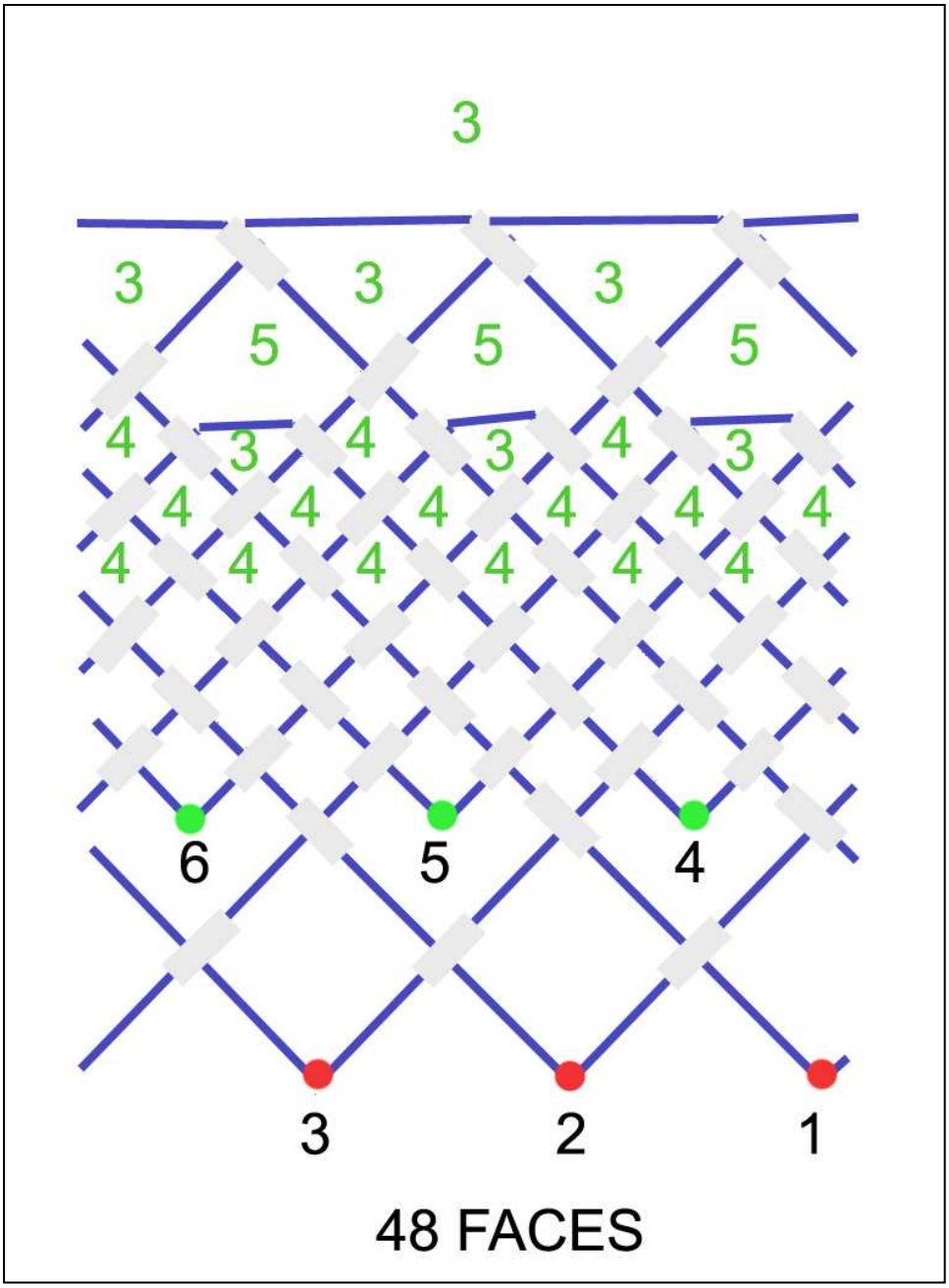
10.7% ‘5-SIDE’ holes




Another interlocking of
Turk's Head Knot
8L 3B 4L 3B
C
B
A
F
E
D
6
5
4
3
2
1
54 FACES

HP	1	FROM	1	TO	B	FREE RUN	BOTTOM	EXTERNAL	TOP	EXTERNAL
HP	2	FROM	B	TO	3	O2	TOP	EXTERNAL	BOTTOM	EXTERNAL
HP	3	FROM	3	TO	A	U2	BOTTOM	EXTERNAL	TOP	EXTERNAL
HP	4	FROM	A	TO	2	U - O3 - U	TOP	EXTERNAL	BOTTOM	EXTERNAL
HP	5	FROM	2	TO	C	O - U3 - O	BOTTOM	EXTERNAL	TOP	EXTERNAL
HP	6	FROM	C	TO	1	U - O5 - U	TOP	EXTERNAL	BOTTOM	EXTERNAL
HP	1	FROM	4	TO	F	O4	BOTTOM	INTERNAL	TOP	INTERNAL
HP	2	FROM	F	TO	5	U3 - O - U	TOP	INTERNAL	BOTTOM	INTERNAL
HP	3	FROM	5	TO	D	O3 - U - O	BOTTOM	INTERNAL	TOP	INTERNAL
HP	4	FROM	D	TO	6	U2 - O - U - O - U	TOP	INTERNAL	BOTTOM	INTERNAL
HP	5	FROM	6	TO	E	O2 - U - O - U - O	BOTTOM	INTERNAL	TOP	INTERNAL
HP	6	FROM	E	TO	4	U - O - U - O - U - O - U	TOP	INTERNAL	BOTTOM	INTERNAL

Now another one but 1-STRAND **48 FACES**



14 '3-SIDE' hole
(2 are polar)

30 '4-SIDE

6 '5-SIDE

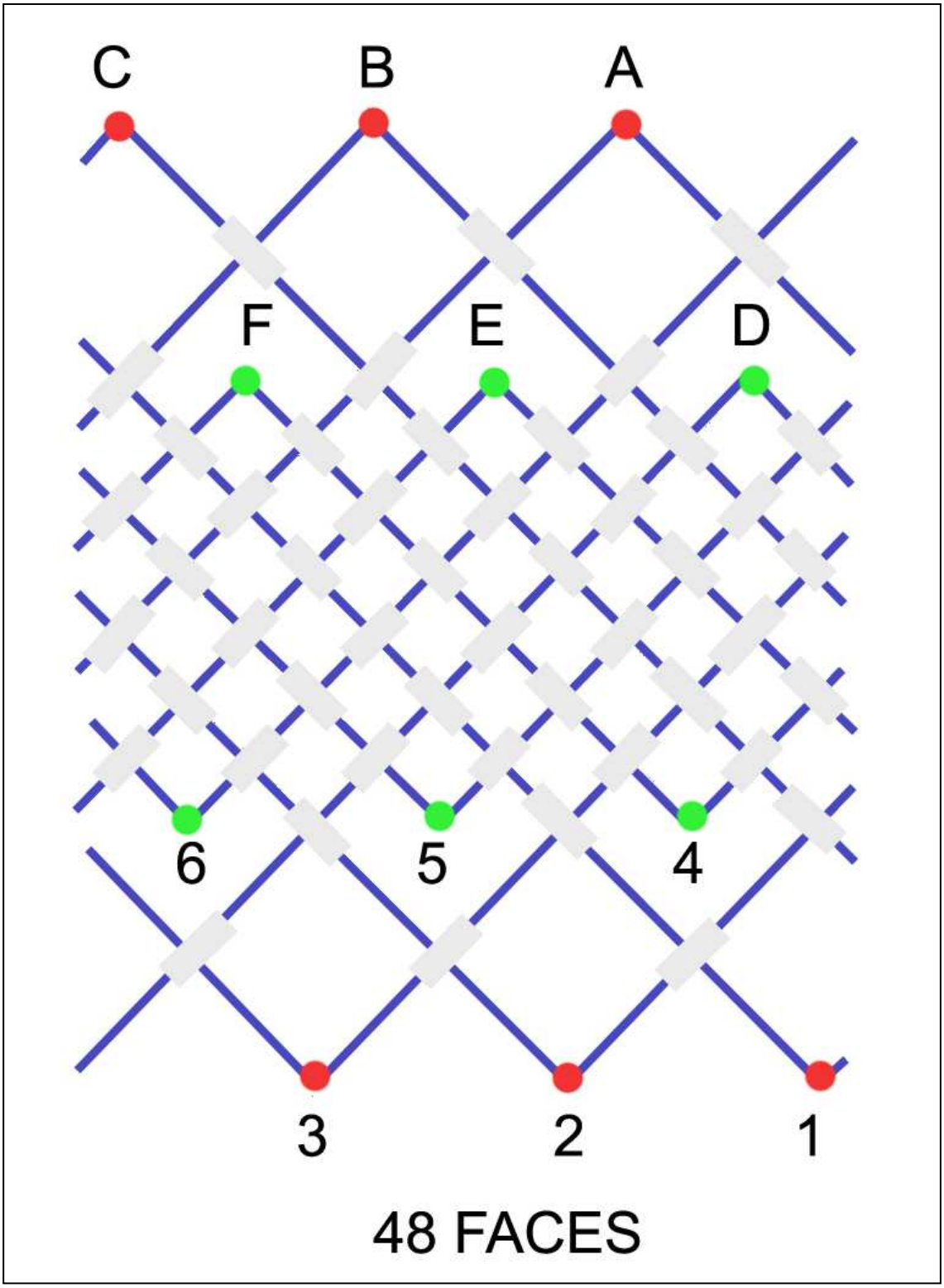
50 holes

28 % are '3-SIDE'

60 % are '4-SIDE'

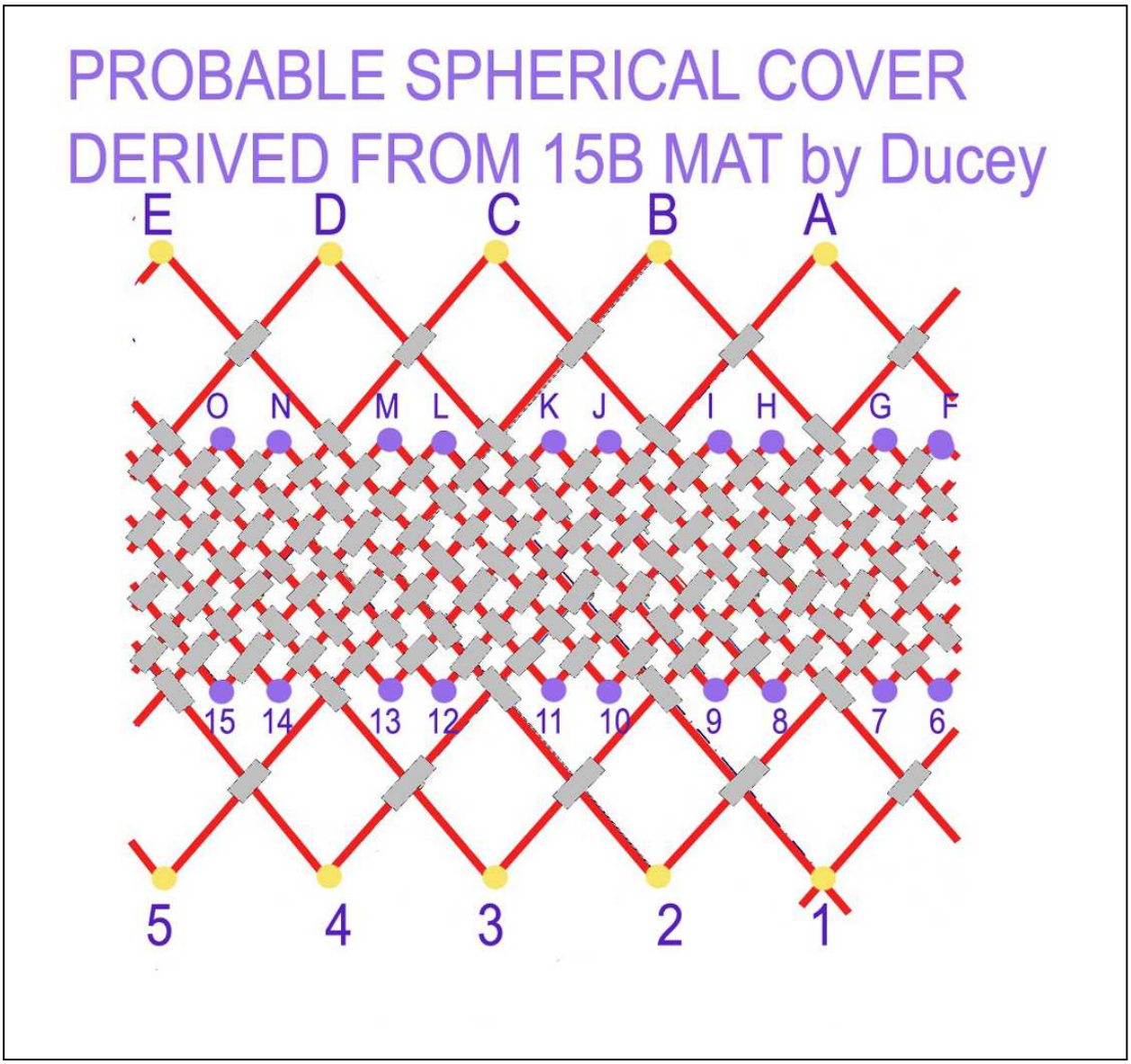
12 % are '5-SIDE'

I am ready to bet that due to the lowest ratio on 5-SIDE and higher ratio in '4-SIDE' while having a smaller ratio in 3-SIDE this one will be better than the previous ones.


C
B
A
F
E
D
6
5
4
3
2
1
48 FACES

HP	1	FROM	1	TO	A	FREE RUN	BOTTOM	EXTERNAL	TOP	EXTERNAL
HP	2	FROM	A	TO	4	O	TOP	EXTERNAL	BOTTOM	INTERNAL
HP	3	FROM	4	TO	F	O	BOTTOM	INTERNAL	TOP	INTERNAL
HP	4	FROM	F	TO	3	U - O - U	TOP	INTERNAL	BOTTOM	EXTERNAL
HP	5	FROM	3	TO	C	U - O - U	BOTTOM	EXTERNAL	TOP	EXTERNAL
HP	6	FROM	C	TO	6	U - O - U - O	TOP	EXTERNAL	BOTTOM	INTERNAL
HP	7	FROM	6	TO	E	O - U - O	BOTTOM	INTERNAL	TOP	INTERNAL
HP	8	FROM	E	TO	2	U - O - U - O - U - O	TOP	INTERNAL	BOTTOM	EXTERNAL
HP	9	FROM	2	TO	B	U2 - O - U - O - U - O	BOTTOM	EXTERNAL	TOP	EXTERNAL
HP	10	FROM	B	TO	5	U - O2 - U - O - U - O	TOP	EXTERNAL	BOTTOM	INTERNAL
HP	11	FROM	5	TO	D	O - U - O - U - O	BOTTOM	INTERNAL	TOP	INTERNAL
HP	12	FROM	D	TO	1	U - O - U - O - U - O - U - O	TOP	INTERNAL	BOTTOM	EXTERNAL

125 FACES


PROBABLE SPHERICAL COVER
DERIVED FROM 15B MAT by Ducey
E D C B A
O N M L K J I H G F
15 14 13 12 11 10 9 8 7 6
5 4 3 2 1

HP	1	FROM	1	TO	L	free run	BOTTOM	EXTERNAL	TOP	INTERNAL
HP	2	FROM	L	TO	15	free run	TOP	INTERNAL	BOTTOM	INTERNAL
HP	3	FROM	15	TO	B	free run	BOTTOM	INTERNAL	TOP	EXTERNAL
HP	4	FROM	B	TO	14	O	TOP	EXTERNAL	BOTTOM	INTERNAL
HP	5	FROM	14	TO	G	U	BOTTOM	INTERNAL	TOP	INTERNAL
HP	6	FROM	G	TO	3	O - U	TOP	INTERNAL	BOTTOM	EXTERNAL
HP	7	FROM	3	TO	F	U - O	BOTTOM	EXTERNAL	TOP	INTERNAL
HP	8	FROM	F	TO	9	O - U	TOP	INTERNAL	BOTTOM	INTERNAL
HP	9	FROM	9	TO	D	U - O	BOTTOM	INTERNAL	TOP	EXTERNAL
HP	10	FROM	D	TO	8	O - U - O	TOP	EXTERNAL	BOTTOM	INTERNAL
HP	11	FROM	8	TO	K	U - O	BOTTOM	INTERNAL	TOP	INTERNAL
HP	12	FROM	K	TO	5	O - U2	TOP	INTERNAL	BOTTOM	EXTERNAL
HP	13	FROM	5	TO	J	U - O - U	BOTTOM	EXTERNAL	TOP	INTERNAL
HP	14	FROM	J	TO	13	O - U - O	TOP	INTERNAL	BOTTOM	INTERNAL
HP	15	FROM	13	TO	A	U - O - U - O	BOTTOM	INTERNAL	TOP	EXTERNAL
HP	16	FROM	A	TO	12	O2 - U - O - U	TOP	EXTERNAL	BOTTOM	INTERNAL
HP	17	FROM	12	TO	O	U - O - U - O	BOTTOM	INTERNAL	TOP	INTERNAL
HP	18	FROM	O	TO	2	O - U - O - U2 - O	TOP	INTERNAL	BOTTOM	EXTERNAL
HP	19	FROM	2	TO	N	U2 - O - U - O - U	BOTTOM	EXTERNAL	TOP	INTERNAL
HP	20	FROM	N	TO	7	O - U - O - U - O	TOP	INTERNAL	BOTTOM	INTERNAL
HP	21	FROM	7	TO	C	U - O - U - O2 - U	BOTTOM	INTERNAL	TOP	EXTERNAL
HP	22	FROM	C	TO	6	O2 - U - O - U - O - U	TOP	EXTERNAL	BOTTOM	INTERNAL
HP	23	FROM	6	TO	I	U - O - U - O - U	BOTTOM	INTERNAL	TOP	INTERNAL
HP	24	FROM	I	TO	4	O - U - O - U - O - U - O	TOP	INTERNAL	BOTTOM	EXTERNAL
HP	25	FROM	4	TO	H	U2 - O - U - O - U - O	BOTTOM	EXTERNAL	TOP	INTERNAL
HP	26	FROM	H	TO	11	O - U - O - U - O - U	TOP	INTERNAL	BOTTOM	INTERNAL
HP	27	FROM	11	TO	E	U - O - U - O - U - O2 - U	BOTTOM	INTERNAL	TOP	EXTERNAL
HP	28	FROM	E	TO	10	O - U - O - U - O - U - O - U - O	TOP	EXTERNAL	BOTTOM	INTERNAL
HP	29	FROM	10	TO	M	U - O - U - O - U - O - U	BOTTOM	INTERNAL	TOP	INTERNAL
HP	30	FROM	M	TO	1	O - U - O - U - O - U - O - U - O	TOP	INTERNAL	BOTTOM	EXTERNAL