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## ”72 TILINGS 1995” NEW AUTOMATIC COMPOSITIONS OF STOCHASTIC FLOORS

### *Abstract*

*My art work “72 Tilings, 1995” exhibited for the first time at the MLAC Museum of the University of Rome La Sapienza in 1995, then at AAM gallery in 1997 and published in previous articles since 1994, was here considered. New automatic compositions of the 72 tiles were shown. A floor of 40 cells (8x5) was tiled according to some different automatic procedures. Results are shown and discussed, on the light of the Eventualist Theory.*

A set of 72 square tilings repeatable and rotatable exhibited for the first time 1995 at the university of Rome “La Sapienza” (Calvesi, Mirolla 1995) then at the AAM gallery in 1997 (Moschini and Briguglio 1997) and published in previous articles (Lombardo 1994, Greco 2001, Calvesi and Mirolla 1995, Greco and Muller 2010) are here employed to fill a 8 x 5 cells floors. Each tile can be laid in 4 orientations and each tile can be chosen repeatedly. Any side by side orientation of the tiles can change the composition, but it does not interrupt the continuity of the drawing.

The original 72 tilings, shown in Fig. 1 (a, b, c, d, e, f), responded to different properties as shown in Tab. 1.

To create patterns with different aesthetic properties many different procedures were used. Some new automatic procedures are created as following.

Tab. 1

TYPE	STYLE	COMPLEXITY	ROTATION
A	RECT CURVE MIXED	0 5 10 20	NORTH EAST SOUTH WEST
B	RECT CURVE MIXED	0 5 10 20	NORTH EAST SOUTH WEST
C	RECT CURVE MIXED	0 5 10 20	NORTH EAST SOUTH WEST
D	RECT CURVE MIXED	0 5 10 20	NORTH EAST SOUTH WEST
E	RECT CURVE MIXED	0 5 10 20	NORTH EAST SOUTH WEST
F	RECT CURVE MIXED	0 5 10 20	NORTH EAST SOUTH WEST



Fig. 1a



Fig. 1b



Fig. 1c

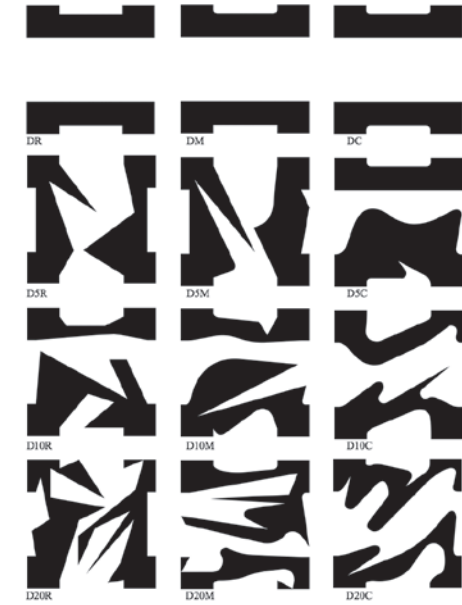


Fig. 1c



Fig. 1e



Fig. 1f

### 1 - Random choice of all parameters

Since the complete set of non rotated tiles is 72 and each tile is 4 rotatable and repeatable any times, the possible ways for tiling a floor  $8 \times 5 = 40$  cells is:

$$(72 \times 4)^{40} = 2,375196313 \times 10^{98}$$

A tile out of 72 and its orientation out of 4, are random selected in Fig. 2.



Fig. 2

## 2 - Rotation of columns and rows

Odd columns: dex-rotating A 20 C and alternating it with F 5 M also dex-rotating;  
 even columns: dex-rotating B 20 C and alternating it with F 5 M also dex-rotating. Fig. 3



Fig. 3

## 3 - Perfect disorder of 4 tiles

The perfect disorder positioning of 4 different tiles is represented in Tab. 2. Each tile is named with numbers 1, 2, 3, 4. Each tile is placed 10 times, in 10 different positions never adjacent. The sum of the rows is always 20. The sum of the columns is 4 times 13 and 4 times 12.

A string of 4 different tiles: B 20 C, E 5 M, A 5 M, A 20 M, dex-rotating from up to down and from left to right are laid according to the scheme of Tab. 2.

See a perfect disorder placement of 4 tilings in a 5 x 8 cells floor in Fig. 4.



Fig. 4

#### 4 - Perfect disorder of 5 tiles

The perfect disorder positioning of 5 different tiles is represented in Tab. 3. Each tile is named with numbers 1, 2, 3, 4, 5. Each tile is placed 8 times, in 8 different positions never adjacent. The sum of the rows is always 24. The sum of the columns is always 15. A string of 5 different tiles: A 5 R, A 5 C, A 5 M, A 10 C, A 20 C, dex-rotating from up to down and from left to right are laid according to the scheme of Tab. 3. See a perfect disorder placement of 5 tilings in a 5 x 8 cells floor in Fig. 5.



Fig. 5

#### 5 - Strings with rotations and insertions

Laid two tiles F 20 C and A 20 C repeatedly from up to down and from left to right, dex rotating at any time. After a string of 7 tiles, insert a different tile, F 5 M, dex rotating at any insertion. Fig. 6.



Fig. 6

Using a single tile, dex-rotate odd columns, dex-rotate each tile in even columns. See in Fig. 7 a possible result using only the tile F 20 M (type F, complexity 20, style mixed). The same procedure was applied to the tiles F 5 R and E 20 R to create the floors in Figg. 8 and 9.

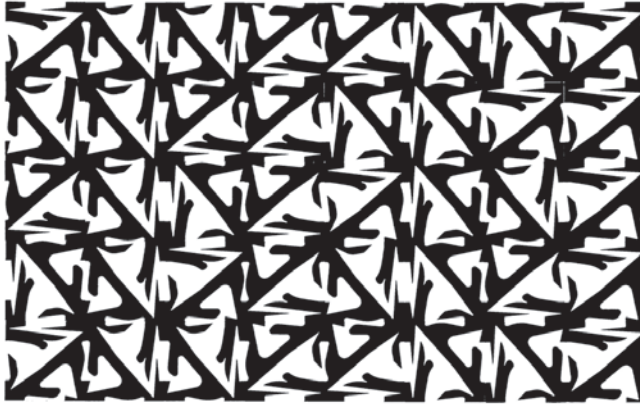


Fig. 7



Fig. 8



Fig. 9

### 6 - Perfect disorder of rotations

Tab. 2 can be used for rotations too. In fig. 10 is used only one tile: A 10 R. In fig. 11 only two tiles: A 5 R and B 20 M in chess-board distribution.



Fig. 10



Fig. 11

Tab. 2 - perfect disorder of 4 tiles

1	2	4	2	3	1	4	3
3	4	2	4	1	2	3	1
4	1	4	3	2	3	1	2
1	2	1	2	3	4	3	4
4	3	2	1	4	3	1	2

Tab. 3 - perfect disorder of 5 tiles

2	4	1	5	1	5	1	5
5	3	4	2	4	1	3	2
3	1	3	4	3	2	5	3
1	4	5	1	2	5	2	4
4	3	2	3	5	2	4	1

### References

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