C_1

C_2

C_3

C_4

C_6

$D_1 kk$

$D_1 gg$

$D_1 kg$

$D_2 kkkk$

$D_2 gggg$

$D_2 kkgg$
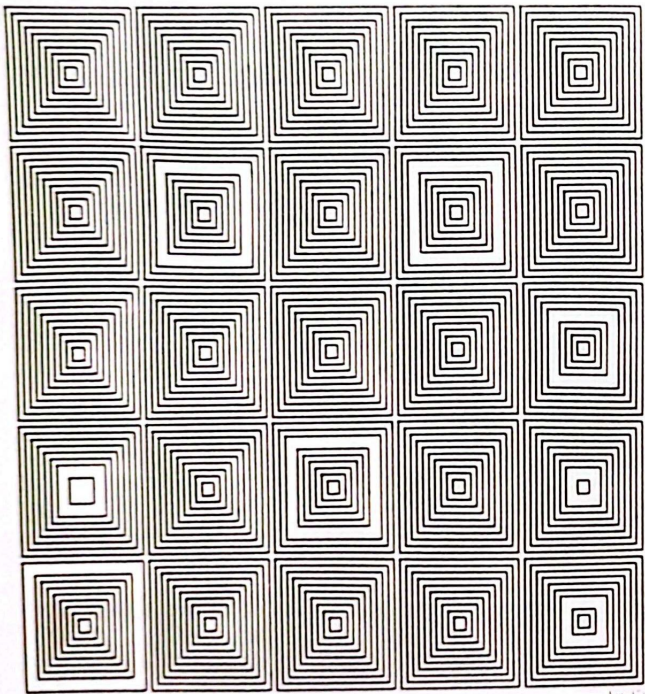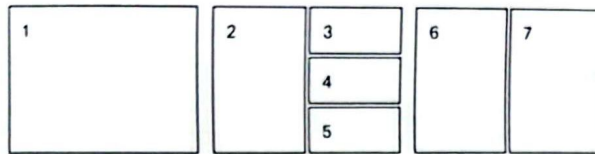
$D_2 kgkg$

D_4^*

D_4°

D_3^*

D_3°

D_6

Code as Creative Medium

Captions

1. In *Spamgetto* (2009), the Italian design agency Todo presents computationally generated wallpaper whose elements include text from thousands of spam emails.

2. Georg Pólya's illustrations (1924) of the seventeen periodic plane symmetry groups had a profound influence on the algorithmic patternmaking of M. C. Escher.

3. Zellige terracotta tiles in Marrakech (17th century) form edge-to-edge, regular, and other tessellations.

4. Casey Reas's *One Non-Narcotic Pill A Day* (2013) presents a dynamic collage pattern generated from a video recording.

5. Alison Gondek, a scenic design student at Carnegie Mellon studying introductory programming, used p5.js to create this pattern inspired by the "Circular Gallifreyan" language from *Doctor Who*.

6. Vera Molnár was among the first artists to use a computer. Her 1974 untitled plotter drawing demonstrates patterns arising from the interaction between procedural iteration and randomized omission.

7. Leah Buechley explores the intersection of computation and craft. The design of her lasercut curtain (2017), generated in Processing, features multiple forms of iteration and controlled randomness.

Additional Projects

Dave Bollinger, *Density Series*, 2007, generative image series.

Liu Chang, *Nature and Algorithm*, 2016, algorithmic images, satellite imagery, ink on paper.

Joshua Davis, *Chocolate, Honey and Mint*, 2013, generative image series.

Saskia Freeke, *Daily Art*, 2010-2020, generative image series.

Manolo Gamboa Naon, *Mantel Blue*, 2018, ink on paper.

Tyler Hobbs, *Isohedral III*, 2017, inkjet print on paper, 19 x 31".

Lia, *4jonathan*, 2001, generative image series.

Holger Lippmann, *The Abracadabra Series*, 2018, generative image series.

Jonathan McCabe, *Multi-Scale Belousov-Zhabotinsky Reaction Number Seven*, 2018, generative image series.

Vera Molnár, *Structure de Quadrilateres (Square Structures)*, 1987, ink on paper.

Nontsikelelo Mutiti, *Thread*, 2012-2014, screen print on linoleum tiles.

Nervous System, *Patchwork Amoeba Puzzle*, 2012, lasercut plywood.

Helena Sarin, *GANcommedia Erudita*, 2020, inkjet printed book.

Mary Ellen Solt, *Lilac*, 1963, concrete poetry.

Jennifer Steinkamp, *Daisy Bell*, 2008, video projection.

Victor Vasarely, *Alom (Rêve)*, 1966, collage on plywood, 99 1/5 x 99 1/5".

Marius Watz, *Wall Exploder B*, 2011, wall drawing, 9 x 3.6 m.

Readings

David Bailey, *David Bailey's World of Escher-Like Tessellations*, 2009, tess-elation.co.uk.

P. R. Cromwell, "The Search for Quasi-Periodicity in Islamic 5-fold Ornament," *The Mathematical Intelligencer* 31 (2009): 36-56.

Anne Dixon, *The Handweaver's Pattern Directory: Over 600 Weaves for 4-shaft Looms* (Loveland, CO: Interweave Press, 2007).

Ron Eglash, *African Fractals: Modern Computing and Indigenous Design* (New Brunswick, NJ: Rutgers University Press, 1999).

Samuel Goff, "Fabric Cybernetics," *Tribune* (blog), August 23, 2020.

Branko Grünbaum and G. C. Shephard, *Tilings and Patterns* (New York: W. H. Freeman & Company, 1987).

"Wallpaper Collection," Collections, Historic New England, historicnewengland.org.

Owen Jones, *The Grammar of Ornament* (London: Bernard Quaritch Ltd., 1868).

Albert-Charles-Auguste Racinet, *L'Ornement Polychrome* (Paris: Firmin Didot et Cie, 1873).

Casey Reas et al., *{Software} Structures*, 2004-2016, artport.whitney.org.

Petra Schmidt, *Patterns in Design, Art and Architecture* (Vienna: Birkhäuser, 2006).

Notes

i. This variation was contributed by Tom White (@dribnet).