

VISUAL PERMUTATIONS: TOWARDS 2D AND 3D SYMMETRIES AND FRACTALS

PART 2

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(For biographical data and *Abstract* see Part1)

4 FRACTAL SYMMETRY

The same visual words as defined by the random permutations outlined in Part 1 are used to further the concept of symmetry to understand the visual impact of scaling. A simple imbedding algorithm is applied to create visual meta-words that could in turn be used to generate (meta) sentences similarly to the approach described in Section 3 of Part 1. These imbedded words could then be used to analyze the impact of up/down scaling. Figure 7 shows the case of central fractal symmetry while Fig. 8 illustrates that of skewed fractal symmetry. In both case the same self-similarity principle has been used.

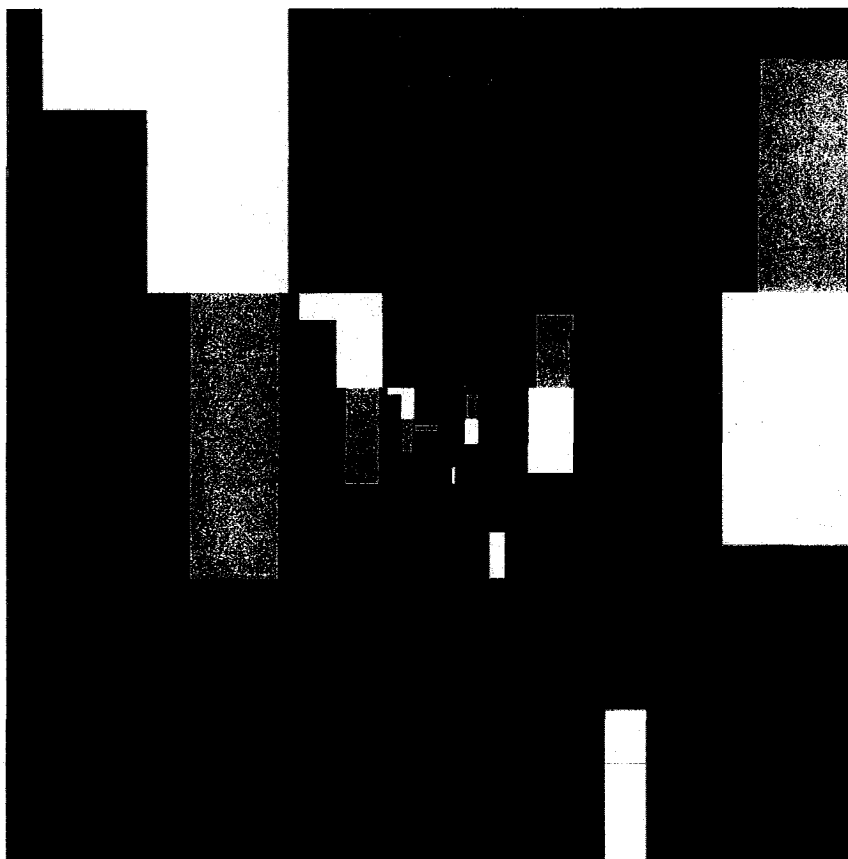


Figure 7

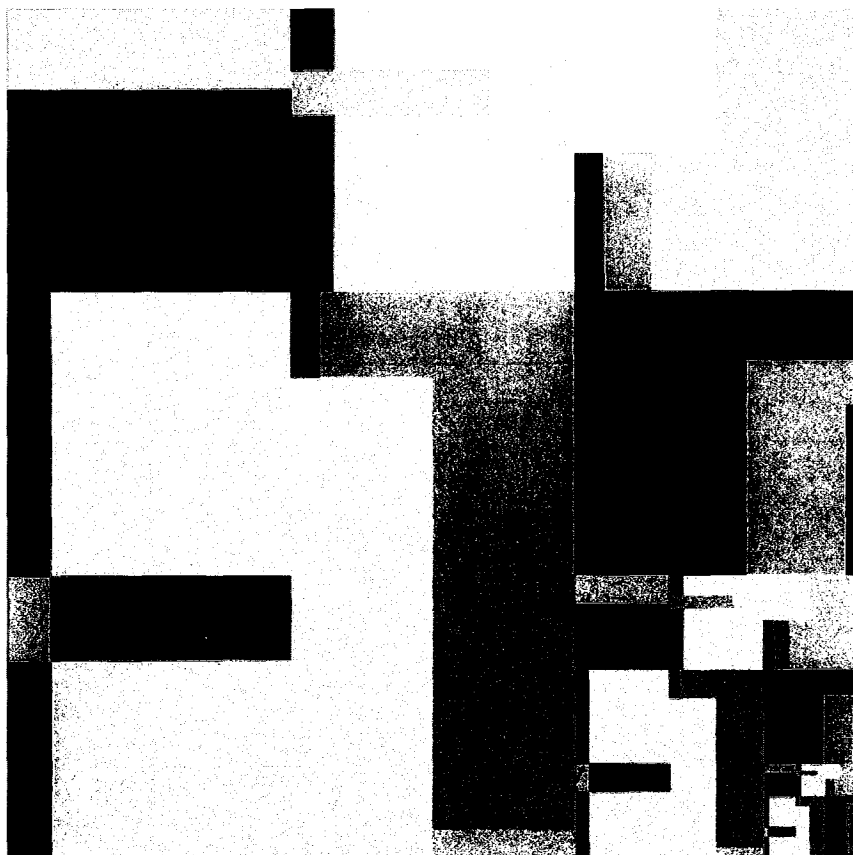


Figure 8

5 THE THREE-DIMENSIONAL CASE

The very same principles are used in the 3D case. These hanging columns (*függvény* in Hungarian, *dependent* in English), shown in Fig 9 and 10, attempt to generalize what has been put forth in the preceding sections.

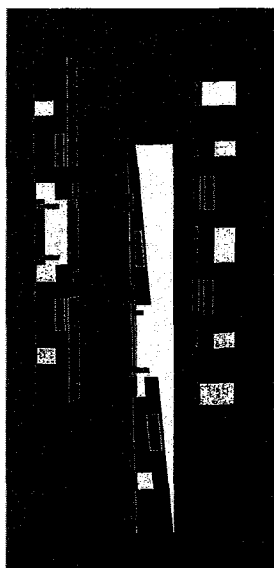


Figure 9

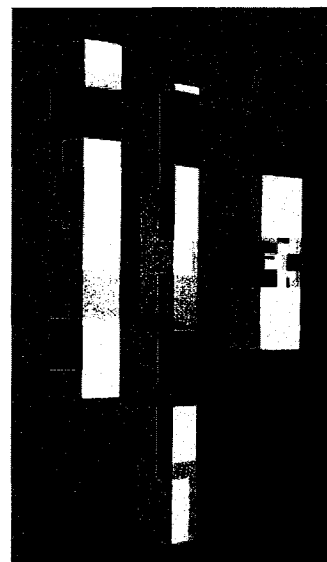


Figure 10

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References

Lin, Shu-Kun (2001) The nature of the chemical process: 1. Symmetry evolution – Revised information theory, similarity principle and ugly symmetry, *International Journal of Molecular Science*, 2, 10-39.