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Sergio Lombardo:
GENERATING STOCHASTIC UNPREDICTABLE FACES

Abstract
By applying stochastic V-RAN algorithm to a set of 3 minimal maps (Prototype 1, Prototype 2 and Prototype 3) new stochastic unpredictable faces were generated. According to the principle of "expressive abstinence", the Eventualist research must avoid arbitrary choices, taking decisions only by random numbers. The purpose is not to imitate real faces, but to create nonsense unpredictable faces unexisting in nature. They would appear as utopian, dystopian, extra-human, trans-human or whatever, alien from human imagination and from reality, in such a way as to stimulate the observer at evoking the maximum of unconscious different interpretations. To this end the initial conditions (Prototype) must be minimal, neutral and deprived of any expression. On the contrary, if the faces would imitate realistic expressions they would inhibit the arbitrary projections of the observer and oblige him to make always the same realistic interpretation. Some variations of the automatic procedure V-RAN were described and 30 new unpredictable stochastic faces were published.

1- Stochastic unpredictable faces

“Stochastic unpredictable faces” are not necessarily human and/or realistic. The purpose is not of imitating real faces, but creating unexisting nonsense faces automatically generated by random numbers, far away from human imagination and from reality. Stochastic unpredictable faces are not always perceived as faces, they may be perceived in the between from a face and anything else. To this aim the initial condition (prototypical model) must be minimal, neutral and deprived of any expression. The final condition must be sufficiently unrealistic as to stimulate the observer at evoking the maximum of conscious and unconscious different interpretations. If the faces would appear realistic, the arbitrary projections of the observer would be inhibited, obliging him to make always the same evident and obvious interpretation.
The human perception evolved on the need to quickly detect faces, face expressions and gestures of humans or animals in order to prevent eventual danger coming from enemies and predators (Lombardo 1983). This is why we interpret as a face any round shape with two or three blots inside. The human perception also evolved on the need to deeply analyze face expressions, in order to anticipate the intention, the character and any future eventual possible relationship with unknown persons (Lombardo, Galeotti 1998). Seeing, interpreting and making previsions about faces is a very deep and difficult human process. We can easily get the meaning of the emojis living in our smart phones because each emoji provide only a single possible interpretation, so they represent the opposite of the Eventualist aesthetics and of my intent. In fact I don't want to communicate realistic meanings, but on the contrary I want to stimulate the observer to evoke the maximum range of different eventual interpretations coming from his conscious and unconscious imagination.
This paper follows my previous articles (2013, 2015) which indicated 3 basic problems.
- What stochastic algorithm can generate the most different unpredictable faces?
- What is the minimal graph (Prototype) which can be stretched with V-RAN and/or S-RAN algorithms as to generate nonsense shapes from which humans may recognize unpredictable faces?
- Which algorithm can generate random shapes from which humans may recognize unpredictable unexisting faces?

2 – Different V-RAN modulations

The V-RAN algorithm deforms any planar map by random changing the position of its Vertices.

Here the planar map is the map of a face (Prototype). The Prototype must be abstract, minimal, neutral and deprived of any expression, still it must remain structurally and perceptively simile-face even after many serial deformations. In this experiment 3 Prototypes (P1, P2, P3) were considered. All Prototypes were stretched with V-RAN algorithm, in 2 different modulations, as to generating 2 sets of faces (N1, N2). Both N1 and N2 were generated stretching randomly all the vertices of the Prototype, but different range of deformations were applied to N1 and N2. For N1 the range was r≤20, for N2 the range was unlimited. In such way N1 had a softer deformation, while N2 were hardly deformed. The first V-RAN deformation was applied to P1, P2 and P3 in 2 different modulations generating the first generation of 6 stochastic unpredictable faces (P1 N1, P1 N2, P2 N1, P2 N2, P3 N1, P3 N2). The 6 faces of the first generation were deformed again by V-RAN algorithms as to generate a second generation of 6 stochastic faces. The process was repeated 5 times as to create 5 generations of 6 stochastic faces, reaching 30 stochastic faces at all. This experiment was planned to investigate how far from human aspect stochastic faces could reach after soft and hard deformations and after a serial deformation.

3 - Prototype 1

Prototype 1 (P1) is a 4-chromatic planar map with 52 vertices, 67 edges, 19 regions embedded in a 100 x 140 rectangle (**Fig. 1a)**.

All 52 vertices were stretched in a new positions according to a rain of 52 random points dropped one by one. Each random point (N) attracts to its position only the nearest vertex (V) of the Prototype in a range r ≤ 20. The vertex is attracted in the new position only if all its connected elastic edges are stretched without overlapping, crossing or touching any other vertex or edge. Each vertex can be stretched only once. The random rain continues until all vertices are removed in a new position maintaining all their previous topological connections and properties.

After the stretching of all vertices, only the vertices of grade 2° were changed into tangent arks of the higher fitting diameter between 2r = 5, 10, 20, 40, 80 or 160. If there are many adjacent angles of grade 2° the bigger is changed first.

The map after V-RAN deformation maintains the same topological structure as the Prototype and it is colored with the same 4 colors. The described V-RAN algorithm was applied (in 2 different versions: range r ≤ 20 and r = unlimited) to the Prototype 1 as to create 2 “brothers”: N1 and N2 of the First Generation (**Fig.2**). The first generation were submitted again to the V-RAN algorithms generating N1 and N2 of the Second Generation (**Fig.3**). The Second Generation were submitted again to the V-RAN algorithms generating N1 and N2 of the Third Generation (**Fig.4**) and so on till 5 generations in all (**Figs.5, 6**). The 4 colors used in Figs. 2-6 are not definitive.

4 - Prototype 2

The 4-Chromatic Prototype 1 was reduced into a new simpler Prototype (P2): a 2-chromatic planar map with 46 vertices, 57 edges, 18 regions, embedded in a 100 x 140 rectangle (**Fig.1b**). From Prototype 2 a set of 10 new stochastic unpredictable faces (5 generations of 2 brothers) were generated (**Figs. 7, 8, 9, 10, 11**).

5 - Prototype 3

The 2-Chromatic Prototype 2 was reduced into a new even simpler Prototype (P3): a 2-Chromatic planar map with 43 vertices, 54 edges, 18 regions, embedded in a 100 x 140 rectangle (**Fig.1c**). From Prototype 3, a set of 10 new stochastic unpredictable faces (2 brothers of 5 generations) were generated (**Figs. 12, 13, 14, 15, 16**).

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