The Simple Geometry of Peace
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Abstract. The last few decades have witnessed the development of a host of ideas aimed at understanding and predicting nature’s ever-present complexity, including the one induced by the power of the air. This poster explains how the notion of multiplicative cascades, as used to accurately model fully developed turbulence, provides a suitable framework for visualizing the dynamics and consequences of mankind’s ever-present divisive traits, comprising our historical propensity to violence and the pervasive wealth inequalities and poverty present in the world today. It is argued that we may learn from the simple repetitive ways of turbulence in order to avoid the ultimately deadly consequences of corruption and greed, for it is shown that all power-law Pareto distributions, describing inequalities within and among nations, share the same dissipation implicit in the power-law Richardson distribution of wars and “love one another” indeed qualify the only economical solution regarding peace for all, which may also be described by the geometric proverb “the hypotenuse the pathway of peace.”

The Breaking of Wholeness
Multiplicative cascades may be used to study fragmentation. Let’s review.

• A chain of imbalances:
  - cut a uniform bar by p and q
  - mold p to the left and q to the right
  - repeat on each piece
  - again with same proportions
  - after few levels there are many “thorns” arranged by layers

• A chain of holes:
  - cut a uniform bar by the middle
  - mold pieces leaving a hole
  - repeat on each piece
  - process generates equal thorns that emanate from dust

• Cumulative distributions:
  - imbalances
  - holes

• Cumulative distributions are devil’s staircases with maximum lengths, irrespective of the magnitude of imbalances and the size of holes.

• The two cascades are intimately related: varying the hole size yields the structure of all layers on the multifractal given by the chain of imbalances.

The Ruler of the Power of the Air and of the World
• The cascade of imbalances is related to natural turbulence:
  - eddies, shaped as negative spirals running from + to – and carrying 70 and 30% of the energy, form a cascade until dissipation

• Cascades help us visualize the world’s political systems:
  - discrimination
  - forced equality
  - competition
  - inequalities
  - a warning to reigning system: p = 0.7 and n = 20 levels is a close fit to inequalities in USA

• Cascades may fit the skewed Pareto distributions in the world:
  - a simple “line” in log-log: 30 to 85 percentile worldwide
  - 2/3 in poverty today

• Other heavy tailed distributions of violence:
  - California quakes
  - also avalanches, floods, forest fires, volcanic eruptions

• As turbulence and violence result in power-laws, it is best to exercise the unitive power of selflessness and love one another, for 1 = 0.999...

The Unique and Faithful Solution
• Common sense suggests reversing the cascade:
  - positive spirals of love, unnaturally running from – to +, defeat selfishness and to maintain essential energies

• Such simple geometry symbolizes Jesus Christ, the salvation of God.

• The hypotenuse, without dust and thorns, is the pathway of peace.

• In the simple equation Y = X we may see Jesus’ silhouette in the cross.

• "I am the way, the truth and the life and no one comes to the Father except through me:"

• There is darkness from 6 to 9 as in the eclipse at Jesus’ crucifixion.

• It is easier for a camel to pass by the eye of a needle:

• As turbulence and violence result in power-laws, it is best to exercise the unitive power of selflessness and love one another, for 1 = 0.999...

References:
Please visit http://puente.lawr.ucdavis.edu/peace.htm