

Fractal concepts in democracy

Although the regime of Saddam Hussein is no more, a quarter of a century of his autocratic rule made Iraqis hostile to democracy, which is personified by peaceful American troops. As a consequence, presidential elections, would they be conducted, can supply Iraq with another tyrant. Fortunately, a skillful use of the techniques of *fractional geometry* can insure that democratic elections shall deliver a democratic government even when the majority of population is totalitarian in nature.

To illustrate the basic idea of the method let us consider an electorate, consisting of 729 people, out of which only 125 (or about 17%) are affined to democracy. The fractal prescription for three-step presidential elections is as follows. All people are arranged in groups of nine and during the first step each of these $729/9 = 81$ groups elects its representative to vote in the second step of the elections. These representatives are again arranged in $81/9 = 9$ groups of nine and each group elects its delegate for the third, final, step of the elections. Ultimately nine delegates elect the president. The essence of the method is that democratic minority is distributed within the totalitarian majority as a fractal set. 125 democratic voters are assigned to 25 groups, five to each. This assures that 25 out of 81 representatives will be democratic. Afterwards 25 democratic representatives are assigned to 5 groups, five to each. This assures that five out of nine delegates will be democratic, and that a democratic president will be elected. With each election step the number of voters decreases nine times, however the number of democratic voters decreases only five times, $-\log_9 5 \cong 0.7324867$ is the fractional dimension of the democratic set. The procedure is straightforward to generalize for different number of voters or steps in the elections. By increasing the number of steps in fractal elections the fraction of voters, necessary to win the elections, can be made arbitrary small.

Fractal elections are graphically illustrated in Fig.1. In Fig. 1(a) democratic people are shown as blue squares and totalitarian as green ones. The nine-people vouting groups are 3×3 squares. In Fig. 1(b) the whole groups are coloured according to the colour of their representatives. The groups of representatives are again 3×3 squares. In Fig. 1(c) all people are coloured according the colour of their delegate. Finally (Fig. 1(d)) a democratic president is elected and we have a clear sky over country.

Figure 1. (right) Political spectrum of the country before (a), and after one (b), two (c), and three (d) steps of fractal elections

