

## Parallel Thinking Part 8: Feeling the Touch of God's Hand

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In order to predict the weather, meteorologists need two factors. First, they need to collect many observations of what the current weather is. Second, they need to enter those observations into a physical model. This model

is a series of equations that mathematically govern the way the atmosphere works. When enough data about the current weather is entered, the physical model can work, in most cases, to predict mid-range weather.

Yet it is nearly impossible to observe all of the global atmosphere perfectly. It is very hard, for instance, to gauge the weather over the mid-Pacific. There is room for error.

These small errors or differences can have a major effect in weather prediction. The American Mathematician Edward Lorenz discovered the effects of these small changes and errors as they relate to complex systems such as weather prediction.

Lorenz's colleague Philip Merilees famously coined the question: "Does the flap of a butterfly's wing in Texas produce a tornado in Brazil?" This soon became known as the 'butterfly effect'. The flap of the butterfly represents the tiny change in the initial conditions.

Put succinctly: "the butterfly effect is the concept that small causes can have large effects. Initially, it was used with weather prediction but later the term became a metaphor used in and out of science" ([www.scholarpedia.org/article/Butterfly\\_effect](http://www.scholarpedia.org/article/Butterfly_effect)).

By logical extension, the butterfly effect is true for every complex system; traffic flow, a football match and the countless interactions we have each day. At every moment of our lives, the decisions we

make and the interactions we have affect the future. Even the smallest differences and choices at every juncture are like forks in the road of life, leading us in different directions.

Divine Providence describes God's intervention in the world, from grand events to the minutiae of everyday life. While free will is Man's sacred prerogative, the idea that God's 'Hand' manipulates events to bring about His purpose for Creation is fundamental in Jewish thought.

While God can guide nature through open miracles, we don't necessarily see these any more. Yet He is still involved in shaping the world. When we pray, we describe God's miracles 'which are with us every day' (green siddur, page 90). What are those miracles?

Rabbi Moshe Chaim Luzzatto (d. 1746) explained that God uses natural phenomena to influence His creation, triggering the hidden miracles which guide our lives. Rabbi Yisrael ben Eliezer (d. 1760) described these interactions in more detail, such as a wisp of straw blown from a thatched roof or the path of a falling leaf. The difference that these events make appears negligible. Yet we know from Edward Lorenz that they eventually make all the difference. While we cannot see God's guiding 'Hand' directly, the butterfly effect resonates with the notion that God can intercede in the running of the world in the most subtle and yet profound way.

