

## Parallel Thinking Part 3: Information Theory and the Written Law

by Rabbi Dr. Moshe Freedman, New West End United Synagogue



In 1948 the American mathematician, electrical engineer and cryptographer Claude E. Shannon published a paper entitled *A Mathematical Theory of Communication*, which determined the process of how information is

coded and transmitted through different media. Shannon broke down the process of information transfer into five parts:

There is (i) an information **source** which produces a message; (ii) a **transmitter** that processes the message into a signal; (iii) this is carried over a **channel**; (iv) the **receiver** then converts the signal back into the message so that (v) it can reach its **destination**, the person or machine for whom the message is intended.

However, this process does not occur in a vacuum. There is accompanying 'noise', meaning unintended effects which disturb the signal and may corrupt the message. All modern communication devices contain technology to reduce noise and maintain the integrity of the message.

In essence, Torah is information; the integrity of God's message can in theory be tested through applying the same principles of Information Theory which provide the basis for satellite telecommunications, mobile phones and digital broadcasting.

However, unlike modern telecommunications, the messages of Torah were not only intended to be transmitted over space, but also over time. The medium through which this is achieved is the Jewish people itself; the receivers of that information is each generation of young Jewish minds.

The transmission of the written Torah contains elements that are essential for good information transfer. The system also contains ways of eliminating sources of 'noise', such as deliberate

corruption, copying errors, mistakes in understanding or a failure to remember parts of the message.

We have laws to protect the Torah from corruption. We are forbidden to deliberately alter the text (Devarim 4:2). In addition, our Sages relate that shortly before Moshe died, he wrote 13 Torah scrolls, one for each of the 12 tribes and one to place in the Ark of the Covenant, so that if someone tried to forge something, they could refer back to the original (Midrash Devarim Rabbah 9:9). A Sefer Torah is invalid unless the entire text is precise. A scribe must copy from an existing Torah; if even one letter has been written by heart, the scroll is invalid.

Israel Prize laureate and Bible scholar, Rabbi Dr. Mordechai Breuer (d. 2007), tested Torah scrolls and manuscripts from across the world for textual differences. He revealed only twelve variances between them; these only reflect differences in spelling, equivalent to 'colour' versus 'color' in English. Remarkably, over a period of 3,300 years, the Torah we have, copied thousands of times since Moshe, is essentially the same.

In the next article we will evaluate the Oral Torah's transmission.

