

## **Recursive Distinctioning: The Root of Nature's Cosmic Intelligence**

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I have been asked to describe for readers, in layperson terms, Recursive Distinctioning (RD), the scientific term for a fundamental natural process in the universe discovered by Dr. Joel D. Isaacson at Goddard Space Flight Center in 1964. Readers not familiar with astrophysics, cybernetics, or advanced mathematics must realize that attempts to describe complex space phenomena in non-scientific terms are bound to misrepresent their substance. For example, putting Einstein's 1915 Theory of General Relativity into the popular vernacular remains a dilemma even today.

"Nature's Cosmic Intelligence," the title of Dr. Isaacson's article in the Fall 2012 issue of the *Journal of Space Philosophy*,<sup>1</sup> is the best short description we have today. The origin of RD as a natural phenomenon is unknown. We can hypothesize that it began with the Big Bang, but there will never be proof of just when it began. It was not discovered until 1964, because there had been no way of detecting it. Dr. Isaacson patented the RD process in 1981 and noted that it had a striking link to the Hegelian dialectic (i.e., thesis—antithesis—synthesis), which is believed to underlie patterns of human thought processes. RD processes are also generators of patterns of elementary particles, called baryons, described through their quark constituents, and RD also seems to be a blueprint for DNA replication.

RD operates in what is called *streak mode* via recursion on units with boundaries that have distinctions from each other. RD is fundamental to human cognition and to other living things, including certain intelligent behaviors of bacteria. It may also be a universal mode of communication among diverse intelligent species in the universe. In the view of Dr. Louis H. Kauffman, Professor of Mathematics at the University of Illinois at Chicago, the properties of recursion and distinction underlie all of mathematics. RD combines distinction and recursion in a fundamental way, the consequences of which will be very important. RD work has evolved into a joint project between Joel D. Isaacson and Louis H. Kauffman. There is no demarcation line between their respective contributions in regards to RD *per se*.

There are strong indications that RD is a basis for many developments in many fields, including computing artifacts that mimic natural intelligence. The potential for significant impacts of RD across many sciences and technologies remains to be identified through research. The discovery that our universe contains information and intelligence in a process that is basic also to human perception and cognition (i.e., thinking) is a paradigm shift in scientific knowledge. Dr. Isaacson and Dr. Kauffman are making a huge contribution to Cosmos understanding. Readers should also consult Bob Krone's 2014 article, "Isaacson 1980 Aspirational Statement – Space Exploration."<sup>2</sup>

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<sup>1</sup> *Journal of Space Philosophy* 1, no. 1 (Fall 2012), 8-16.

<sup>2</sup> *Journal of Space Philosophy* 3, no. 1 (Spring 2014), 146-50.