One Step Universal Evolution Of Any Real Positive Number

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ABSTRACT

In this research investigation, the author has detailed the Theory Of One Step Universal Evolution Of Any Real Positive Number.

INTRODUCTION

Studying the Evolution of Numbers has been of great interest to Mathematicians who wished to quantify the Universe. For more information on this, the readers can refer to Geometrical Evolution of Numbers by classical mathematicians.

THEORY (AUTHOR'S MODEL OF ONE STEP EVOLUTION OF ANY POSITIVE REAL NUMBER)

One can note that any Natural Number 's' can be written as

$$s = (p_1)^{a_1} \cdot (p_2)^{a_2} \cdot (p_3)^{a_3} \cdot \ldots\ldots\ldots (p_{k-1})^{a_{k-1}} \cdot (p_k)^{a_k}$$

where p_1, $p_2, p_3, \ldots\ldots\ldots\ldots, p_{k-1}, p_k$ are some Primes and a_1, $a_2, a_3, \ldots\ldots\ldots\ldots,$ a_{k-1}, a_k are some positive integers.

We can write it further as

$$s = \overbrace{(p_1)(p_1)\ldots\ldots(p_1)}^{a_1 \text{ number of times}} \cdot \overbrace{(p_2)(p_2)\ldots\ldots(p_2)}^{a_2 \text{ number of times}} \cdot \overbrace{(p_3)(p_3)\ldots\ldots(p_3)}^{a_3 \text{ number of times}} \ldots\ldots$$
$$\ldots\ldots \overbrace{(p_{k-1})(p_{k-1})\ldots\ldots(p_{k-1})}^{a_{k-1} \text{ number of times}} \cdot \overbrace{(p_k)(p_k)\ldots\ldots(p_k)}^{a_k \text{ number of times}}$$

We now consider One Step Evolution of any one p_1 or p_2 or p_3 or……..or p_{k-1} or p_k (among their a_1, $a_2, a_3, \ldots\ldots\ldots\ldots, a_{k-1}$, a_k number of occurrences respectively such that the increase in s is minimal. By One Step Evolution of p_j, we mean, if p_j is the l^{th} Prime number then we consider the $(l+1)^{th}$ Prime number as the One Step Evolved version of p_j. This will be illustrated by way of an Example.

Example:

$$s = 40{,}500 = (2)^2 \cdot (3)^4 \cdot (5)^3$$

which can be written as

$$s = 40{,}500 = (2 \cdot 2) \cdot (3 \cdot 3 \cdot 3 \cdot 3)^4 \cdot (5 \cdot 5 \cdot 5)^3$$

Case 1: Now, considering One Step Evolution of 2 (of one among the two occurrences), we have

$$s = (3 \cdot 2) \cdot (3 \cdot 3 \cdot 3 \cdot 3)^4 \cdot (5 \cdot 5 \cdot 5)^3 = 60{,}750$$

Case 2: Now, considering One Step Evolution of 3 (of one among the two occurrences), we have

$$s = (2 \cdot 2) \cdot (5 \cdot 3 \cdot 3 \cdot 3)^4 \cdot (5 \cdot 5 \cdot 5)^3 = 67{,}500$$

Case 3: Now, considering One Step Evolution of 5 (of one among the two occurrences), we have

$$s = (2 \cdot 2) \cdot (5 \cdot 3 \cdot 3 \cdot 3)^4 \cdot (7 \cdot 5 \cdot 5)^3 = 56{,}700$$

Therefore, One Step Evolution of 40,500 is 56,700 as the aforementioned increase is Minimal in Case 3.

In this fashion, we can Evolve any given Positive Natural Number. We can note that any Positive Real Number can be written

as $\frac{c}{d}$ where c and d are some Positive Natural Numbers. Therefore, we can note that $E^1\left\{\frac{c}{d}\right\} = \frac{E^1(c)}{E^1(d)}$ where c and d are some Positive Numbers and E^1 represents the One Step Evolution Operator.

Furthermore, one should note that $E^1(0) = 0$ and $E^1(1) = 1$.

REFERENCES

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