

## Finding The Next Term Of Any Given Sequence Using Total Similarity & Dissimilarity {Version 3}

ISSN 1751-3030

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### Abstract

In this research investigation, the author has detailed a novel scheme of finding the next term of any given sequence.

### Theory

Given any Sequence of the kind,

$S = \{y_1, y_2, y_3, \dots, y_{n-1}, y_n\}$  which represent some Time Series data of concern, we write a Truth Statement Equation as follows:

$$y_{n+1} = \frac{\left\{ \sum_{i=1}^n \overbrace{\{Smaller(y_i, y_{n+1})\}}^{Similarity} \right\} + \left\{ \sum_{i=1}^n \overbrace{\{Larger(y_i, y_{n+1}) - Smaller(y_i, y_{n+1})\}}^{Dissimilarity} \right\}}{n} \quad \text{Equation 1}$$

The above Equation cannot be solved for  $y_{n+1}$  but can be used to find  $y_{n+1}$  by guessing its value. For the correct guess, i.e., the true value of  $y_{n+1}$ , i.e., the next Term of the Sequence, the above Equation is satisfied, i.e., LHS=RHS.

One can note that this Grand Equation can be used to find the Next Prime as well, given a sequence of Primes from the beginning, while considering 1 as Prime as well, i.e., the beginning or first Prime. One can note the concepts of Similarity & Dissimilarity from author's [1].

### References

1. Bagadi, R. (2017). Total Intra Similarity And Dissimilarity Measure For The Values Taken By A Parameter Of Concern. {Version 2}. ISSN 1751-3030. *PHILICA.COM Article number 1153*.  
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