Regarding Zero Factorial

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Abstract

This paper investigates two issues with factorial definition as given in the present day. Particularly a correction is made to the conventional recursive definition and the definition of zero factorial as one ($0! = 1$) is challenged. We suggest that zero factorial should be undefined, in the same way that division by zero is undefined. Treating zero factorial as the empty product leads to contradiction when factorial is used as the measure of the number of permutations of the values of a set of given size.

1 Introduction

Cite prior work using `natbib` [1].

2 Related Work

3 Methodology

Describe your model, experiment, or theoretical framework.

3.1 Mathematical Formulation

A revised definition for factorial is given for positive integers n:

$$n! = \begin{cases} 1, & \text{if } n = 1 \\ n \times (n-1)!, & \text{if } n > 1 \end{cases} \tag{1}$$

4 Results

Present experimental or analytical results.

Table 1: Example Results

Method	Accuracy	Time (s)
Method A	95%	1.2
Method B	92%	0.8

5 Discussion

Interpret the results and discuss limitations.

6 Conclusion

Summarize findings and outline future work.

References

[1] Donald E. Knuth. *The TEXbook*. Addison-Wesley, 1984.