Equivalences between Well-Defined and Undefined Partitions of Infinity

Abrams, Max

This project explored results from the previous year's research, in which well-defined quantities of infinity appeared to be equal to undefined quantities of a larger infinite cardinality (each an expression involving infinity divided by infinity). These equivalences were all the consequence of a single mathematical assumption, and illustrated by an infinite discrete graph. This year's goal was to further investigate the equivalences through analysis of the assumption. The exhibitor believed that the assumption was the result of an identity property of this infinite discrete graph. The factorial of the first transfinite cardinality was evaluated using an adaptation of Georg Cantor's method of diagonalization. This was proven to be infinitely larger than the first transfinite number itself. This proof was needed to simply the analysis of the equivalences. As a result of this analysis, the mathematical assumption, which involved both well-defined and undefined quantities, was found to have multiple unequal answers. Since this violates the transitive property, the multiple unequal answers caused a decidability issue. The exhibitor was left with the question of deciding which answer is correct. The infinite graph identified the correct answer, thus resolving any issue of decidability. This confirmed the original assumption of equivalence between well-defined and undefined quantities of infinity.

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