



## Cantor's paradise from the perspective of non-revisionist Wittgensteinianism

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### ABSTRACT

**Cantor's paradise from the perspective of non-revisionist Wittgensteinianism:** Ludwig Wittgenstein is known for his criticism of transfinite set theory. He forwards the claim that we tend to conceptualise infinity as an object due to the systematic confusion of extension with intension. There can be no mathematical symbol that directly refers to infinity: a rule is the only form by which the latter can appear in our symbolic operations. In consequence, Wittgenstein rejects such ideas as infinite cardinals, the Cantorian understanding of non-denumerability, and the view of real numbers as a continuous sequence of points on a number line. Moreover, as he understands mathematics to be an anthropological phenomenon, he rejects set theory due to its lack of application. As I argue here, it is possible to defend Georg Cantor's theory by taking a standpoint I call quietistic conventionalism. The standpoint broadly resembles Wittgenstein's formalist middle period and allows us to view transfinite set theory as a result of a series of definitions established by arbitrary decisions that have no ontological consequences. I point to the fact that we are inclined to accept such definitions because of certain psychological mechanisms such as the hypothetical Basic Metaphor of Infinity proposed by George Lakoff and Rafael E. Núñez. Regarding Wittgenstein's criterion of applicability, I argue that it presupposes a static view of science. Therefore, we should not rely on it because we are unable to foresee what will turn out to be useful in the future.

### KEYWORDS

transfinitism; set theory; conventionalism; Georg Cantor; Ludwig Wittgenstein

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