

Burali-Forti's Paradox in Naproche

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Burali-Forti's Paradox, named after Cesare Burali-Forti, demonstrates that the collection \mathbb{O} of all ordinal numbers is a proper class [1].

Theorem 1 (Burali-Forti's Paradox). \mathbb{O} is not a set.

Proof. Assume the contrary. \mathbb{O} is transitive and every element of \mathbb{O} is transitive. Hence \mathbb{O} is an ordinal. Thus $\mathbb{O} \in \mathbb{O}$. Contradiction. ■

References

- [1] Cesare Burali-Forti. “Una questione sui numeri transfiniti”. In: *Rendiconti del Circolo Matematico di Palermo* 11 (1897), pp. 154–164. DOI: [10.1007/BF03015911](https://doi.org/10.1007/BF03015911).

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