Proving the Axiom of Choice of Subsets

Ralf Donau

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A proof of ***The Axiom of Choice of Subsets*** proposed by Antoine Balan.

Introduction

Let ω be some fixed cardinal number. Let (X_i) be a family of sets such that $Card(X_i) \geq \omega$ for all i . ***The Axiom of Choice of Subsets*** proposed by Antoine Balan yields a family (Y_i) of sets such that $Y_i \subset X_i$ and $Card(Y_i) = \omega$ for all i , see **viXra:2104.0143**.

The Proof

For a set X we obtain the set $P(X)$ of all subset of X . For a given cardinal number ω we define $P_\omega(X) := \{Y \in P(X); Card(Y) = \omega\}$.

Now let (X_i) be a family of sets such that $Card(X_i) \geq \omega$, where ω is some cardinal number. We apply the Axiom of Choice to the family $(P_\omega(X_i))$ to complete the proof.