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Complexity of the axioms of the alternative set theory

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Abstract: If **T** is a complete theory stronger than $\mathbf{ZF}_{\mathrm{Fin}}$ such that axiom of extensionality for classes + **T** + $(\exists X)\Phi_i$ is consistent for $1 \leq i \leq k$ (each alone), where Φ_i are normal formulae then we show **AST** + $(\exists X)\Phi_1 + ... + (\exists X)\Phi_k$ + scheme of choice is consistent. As a consequence we get: there is no proper Δ_1-formula in **AST** + scheme of choice. Moreover the complexity of the axioms of **AST** is studied, e.g. we show axiom of extensionality is Π_1-formula, but not Σ_1-formula and furthermore prolongation axiom, axioms of choice and cardinalities are Π_2-formulae, but not Π_1-formulae in **AST** without the axiom in question.

Keywords: alternative set theory, complexity of formulae, Π_2-formula, extension of axiomatic systems
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