Refutation of the parameter free ZFC^0

Abstract: We evaluate the parameter free ZFC^0. We test the parameter free schema of comprehension and of replacement. Neither are tautologous. This refutes ZFC^0.

We assume the method and apparatus of Meth8/VŁ4 with Tautology as the designated proof value, **F** as contradiction, N as truthity (non-contingency), and C as falsity (contingency). The 16-valued truth table is row-major and horizontal, or repeating fragments of 128-tables, sometimes with table counts, for more variables. (See ersatz-systems.com.)

LET p, r, s, u, v, x, y: φ, a, b, x', y', x, y;
~ Not, ¬ ; + Or, ∨, ∪; - Not Or; & And, ∧, ∩; \ Not And;
> Imply, greater than, →, ↦, ≻, ⊃, ⊢, ⊨, ↠; < Not Imply, less than, ∈, ≺, ⊂, ⊬, ⊭, ↞;
= Equivalent, ≡, :=, ⟺, ↔, ≜; @ Not Equivalent, ≠;
% possibility, for one or some, ∃, ◊, M; # necessity, for every or all, ∀, □, L;
(z=z) T as tautology, ⊤, ordinal 3; (z@z) **F** as contradiction, ∅, Null, ⊥, zero;
(%z<#z) C as contingency, Δ, ordinal 1; (%z>#z) N as non-contingency, ∇, ordinal 2;
~(y < x) (x ≤ y), (x ⊆y); (A=B) (A~B).

From: Hester, J. (2019). Automated ZFC theorem proving with E. arxiv.org/pdf/1902.00818.pdf hesterj@ufl.edu

ZFC^o, or parameter free ZFC, is an alternative axiomatization of ZFC where the schemas of comprehension and replacement have been replaced by their parameter free counterparts, and the rest of the axioms remain the same. ZFC^o is equivalent to ZFC as every instance of the full axioms of comprehension and replacement can be derived in a finite number of steps in ZFC^o.

Parameter Free Schema of Comprehension:
Let φ(x) be any formula in the language of ZFC with a single free variable x, and let y be some variable not in φ. Then ∀a∃y∀x(x∈y↔x∈a∧φ(x)) (1.1)

((#x<%y)=(x<#r))&(#r&(p&#x)) ;
FFFF FFFF FFFF FFFF(48), FFFF FN**F**N **FFFF F**N**F**N**(16)** (1.2)

Parameter Free Schema of Replacement:
For every formula φ(x; y) of the language of ZFC,
∀x∃y∀y'(φ(x,y')↔y'=y)→∀a∃b∀y(y∈b↔∃x∈a φ(x,y)) (2.1)

(((p&(#x&#v))=(#v=%y))>
((#y<%s)=((%x<#r)&(p&(%x&#y)))))>#(p&(x&y)) ;
FFFF FFFF FFFF FFFF(32),
NNNN NNNN **FFFF FFFF(4), FFFF FFFF FFFF FFFF(4),**
NNNN NNNN **FFFF FFFF(4), FFFF FFFF FFFF FFFF(4),**
NNNN NNNN **F**N**F**N **F**N**F**N**(4), F**N**F**N **F**N**F**N **F**N**F**N **F**N**F**N**(4),**
NNNN NNNN **F**N**F**N **F**N**F**N**(4), F**N**F**N **F**N**F**N **F**N**F**N **F**N**F**N**(4)** (2.2)

Eqs. 1.2 and 2.2 as rendered are not tautologous. This refutes ZFC^0.