Refutation of Church's thesis as a consistency property to fulfill the minimalist foundation

Abstract: Church's thesis (CT) is *not* tautologous as an essential consistency property to fulfill the requirement of the intensional level of a constructive foundation proposed of the minimalist foundation (MF) for constructive mathematics. Therefore, this relegates CT and MF to a *non* tautologous fragment of the universal logic VŁ4.

We assume the method and apparatus of Meth8/VŁ4 with `T`autology 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 ~ 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, Ø, Null, ⊥, zero;
(%z>#z) `N` as non-contingency, Δ, ordinal 1; (%z<#z) `C` as contingency, ∇, ordinal 2;
~(y < x) (x ≤ y), (x ⊆ y), (x ⊑ y); (A=B) (A~B).
Note for clarity, we usually distribute quantifiers onto each designated variable.

From: Maietti, M.E.; Maschio, S.; Rathjen, M. (2019). arxiv.org/pdf/1905.11966.pdf
A realizability semantics for inductive formal topologies, Church's thesis and axiom of choice.

Church's thesis (CT) ... states that from any total relation on natural numbers we can extract a (code of a) recursive function by using the Kleene predicate T and the extracting function U

$$\text{(CT)}\quad (\forall x{\in}N)(\exists y{\in}N)R(x,y)\rightarrow(\exists e{\in}N)(\forall x{\in}N)(\exists z{\in}N)(T(e,x,z)\wedge R(x,U(z))) \tag{1.1}$$

LET r, s, t, u, w, x, y, z:
R, N, t, U, e, x, y, z.

```
(((#x<s)&(%y<s))&(r&(x&y)))>
((%w<s)&((#x<s)&(%z<s)))&((t&(w&(x&z)))&((r&x)&(u&z)))) ;
                    TTTT TTTT TTTT TTTT(48)
                    TTTT CCCC TTTT TTTT(16)
                    TTTT TTTT TTTT TTTT(48)
                    TTTT CCCC TTTT TTTT( 8)
                    TTTT CCCC TTTT TTTT( 3)}x2
                    TTTT TTTT TTTT TTTT( 1)}       (1.2)
```

Such a consistency property is essential to fulfill the requirement of the intensional level of a constructive foundation proposed [toward a minimalist foundation for constructive mathematics].

Eq. 1.2 as rendered is *not* tautologous, to refute Church's thesis as an essential consistency property to fulfill the requirement of the intensional level of a constructive foundation proposed of the minimalist foundation (MF) for constructive mathematics.