Refutation of Lean theorem prover from Microsoft

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). Results are a 16-valued truth table in row-major and horizontal, or repeating fragments of 128-tables for more variables.

LET p, r, s: p, r, x;
~ Not; & And; > Imply, →; = Equivalent, ↔;
# necessity, ∀, for all or every; % possibility, ∃, for one or some.

From: Avigad, J.; de Moura, L.; Kong, S. (2018). Theorem proving in Lean. Rel. 3.40. leanprover.github.io/theorem_proving_in_lean/quantifiers_and_equality.html

example: (∀ x, p x → r) ↔ (∃ x, p x) → r (4.4.1.1)

((#s&(p&s))>r)=((%s&(p&s))>r) ; TTTT TTTT TNTN TTTT (4.4.1.2)

example: (∃ x, p x → r) ↔ (∀ x, p x) → r (4.4.2.1)

((%s&(p&s))>r)=((#s&(p&s))>r) ; TTTT TTTT TNTN TTTT (4.4.2.2)

example: (∃ x, r → p x) ↔ (r → ∃ x, p x) (4.4.3.1)

(%s&(r>(p&s)))=(r>(%s&(p&s))) ; CCCC TTTT TTTT TTTT (4.4.3.2)

Eqs. 4.4.1.2, /.2.2, and /.3.2 are *not* tautologous. Hence Lean prover from Microsoft is not bivalent and refuted.