Refutation of quantified rewrite rules

Abstract: We evaluate two quantified rewrite rules linked to Handbook of automated reasoning, which are not tautologous and hence refute the rules. This forms a non tautologous fragment of the universal logic VL4.

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.)


\[\neg \exists x A \rightarrow \forall x \neg A\]
\[\neg \forall x A \rightarrow \exists x \neg A\]  
(1.1, 2.1)

[In these rules, the → symbol indicates logical implication in the formula being rewritten, and the → is the rewriting operation.]

Remark 0: We take the rewriting operation to produce a result as the equivalent connective.

\[\neg \%s\&p=(\#s\&\neg p)\] (1.2)
\[\neg \#s\&p=(\%s\&\neg p)\] (2.2)

Above, the imply connective > fares no better than the equivalence connective =.

Eqs. 1.2 and 2.2 as rendered are not tautologous, hence refuting quantified rewriting rules.