

If the innermost quantifier is a universal quantifier $\forall x_n$, then the formula is replaced by $\{\exists, \forall\}x_1 \dots \{\exists, \forall\}x_{n-1} \neg \exists x_n. \neg \phi$ and the above steps for negation normal form and DNF are repeated for $\neg \phi$ resulting in an equivalent formula

$\{\exists, \forall\}x_1 \dots \{\exists, \forall\}x_{n-1} \neg \exists x_n. \phi'$ where ϕ' is in DNF and does not contain negation symbols nor atoms $s \neq t$.

Then the FM rules Substitute, Eliminate are applied to the variable x_n for each conjunct C_i of $\phi' = C_1 \vee \dots \vee C_n$. The result is an equivalent formula $\{\exists, \forall\}x_1 \dots \{\exists, \forall\}x_{n-1}. \neg(C'_1 \vee \dots \vee C'_n)$. Finally, the above steps for negation normal form and DNF are repeated for $\neg(C'_1 \vee \dots \vee C'_n)$ resulting in an equivalent formula $\{\exists, \forall\}x_1 \dots \{\exists, \forall\}x_{n-1}. \phi''$ where ϕ'' is in DNF and does not contain negation symbols nor atoms $s \neq t$. This completes for FM decision procedure for LRA formulas.

