Rules of Derivation for TNT

All the rules for the Propositional Calculus are also rules of TNT

Rule of Specification:
>   If $\forall u: x\{u\}$ is a theorem, then so is $x\{u\}$ and so is $x\{v/u\}$ where *v* is any term
>   ***Restriction***: *v* cannot be quantified within $x\{u\}$
>   *If it's true for all, it's true for one.*

Rule of Generalization:
>   If $x\{u\}$ is a theorem, then so is $\forall u: x\{u\}$
>   ***Restriction***: ***u*** must be free
>   *If something is true for something without restrictions, then it's true for all.*

Rule of Interchange:
>   The strings $\forall u:\sim$ and $\sim\exists u:$ are interchangeable
>   *If it isn't true for all, then there doesn't exist any for which it's true*

Rule of Existence:
>   Any instance of a term may be replaced by ***u,*** if $\exists u:$ is placed in front.
>   ***Restriction***: The term cannot contain variables that aren't free.

Rules of Equality:
>   **Symmetry:** If $r = s$ is a theorem, then so is $s = r$
>   **Transitivity:** If $r = s$ and $s = t$ are theorems, then so is $s = t$

Rule of Successorship:
>   **Add S:** If $r = t$ is a theorem, then so is $Sr = St$
>   **Drop S:** If $Sr = St$ is a theorem, then so is $r = t$

Rule of Induction:
>   If $\forall u: <x\{u\} \supset x\{Su/u\}>$ is a theorem
>   and $x\{0/u\}>$ is a theorem
>   then $\forall u: x\{u\}$ is a theorem
>   ***Restrictions***: $x\{u\}$ is well-formed; ***u*** is free