The following are the five axioms of TNT, and roughly what they "mean." It is important to remember, however, that these meanings are not themselves part of TNT! TNT is only about strings and manipulations of strings; we "interpret" the strings to be mathematical statements, but that isn't what TNT itself is. Understanding that distinction is actually much more important than understanding the actual statements.

Axiom 1: Aa:~Sa=0

"For all numbers a, it is not true that the successor to a is zero" or, more concisely, "There are no negative numbers." (Recall again that we are restricted to "natural" numbers here.)

Axiom 2: Aa:(a+0)=a

"For all numbers a, a plus 0 = a"

Axiom 3: Aa:Aa':(a+Sa')=S(a+a')

"For all numbers a and a', a plus the successor to a' equals the successor to a plus a'"
or, in conventional algebraic notation,
"a + (a' + 1) = (a + a') + 1"

Axiom 4: Aa:(a*0)=0

"For all numbers a, a times zero equals zero"

Axiom 5: Aa:Aa':(a*Sa')=((a*a')+a)

"For all numbers a and a', a times the successor to a' equals a times a', plus a"
or, in conventional algebraic notation,
"a * (1+a') = (a*a') + a".
For instance, if you know what 5*263 is, you can bet that 5*264 will be five higher.

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