Hints for translating TNT sentences to English

- Don't try to understand an entire sentence all at once
- Understand chunks of a sentence; replace chunks as you go along
- Usually it's easier to go right to left
- Test reasonableness as you go along

Example

\[ \neg \forall c: \exists b: (SS0 \cdot b) = c \]

\[ \neg \forall c: \exists b: 2 \cdot b = c \]

Two times \( b \) = \( c \) ... reasonable, but not so interesting.

There EXISTS some \( b \) for which this is true...

If so, then \( c \) must be even

For every \( c \), \( c \) is even...doesn't sound reasonable to me, but that's what it says. If it's true for every number \( c \), then it's true for all numbers.

\[ \neg \forall c: c \text{ is even} \]

...which is a true statement. Note that negating the statement, "All numbers are even" does NOT give "No numbers are even."

Well-Formed Formula in TNT

Do the symbol strings below qualify as “well-formed formulas of TNT”?

1) \( \exists b: < a = SS0 \wedge (a + b) = S0 > \)  \( \text{compare with} \)  \( < a = SS0 \wedge \exists b: (a + b) = S0 > \)

2) \( \forall a: < a = SS0 \supset \exists b > \)

3) \( ( \exists b: \exists c: SSb \cdot SSCe = \neg a) \)  \( \text{compare with} \)  \( ( \neg \exists b: \exists c: SSb \cdot SSCe = a ) \)

4) \( < S0 = 0 \lor S0 > \)