I found it useful to translate $\exists b : (SS0) = c$ (leaving $c$ as a free variable) before I started to worry about the second quantifier. Proceeding directly, this says “There exists a number $b$ such that two times $b = c$.” Thinking about the meaning of this phrase, I arrive at “$c$ is a multiple of 2”, or simply “$c$ is even”. Then the entire expression becomes $\neg \forall c : c$ is even and direct translation gives “It is not the case that every number $c$ is even”, or simply “Not all numbers are even”. This is certainly true.

I’m most comfortable with $\neg (SS0) = c$ as “$2 \times b \neq c$”. Then, working to the left, I see “There exists a $b$ such that $2 \times b \neq c$” and I handle the second quantifier as “For every number $c$ there is a number $b$ such that $2 \times b \neq c$” or “Given the number $c$, I can find a number $b$ that forces the inequality $2 \times b \neq c$”. This is true even when $c$ is even; for example, take $b$ to be 1 if $c$ is not 2, and take $b$ to be 2 if $c$ is 2.

I find it useful again to start on the left. I understand $\forall c : (SS0) = c$ as “For every number $c$, $2 \times b = c$”. Then the entire sentence becomes “It is not the case that there exists a number $b$ with the property that for every number $c$, $2 \times b = c$” or, if you like, “There is no single number $b$ for which the equation $2 \times b = c$ holds for every $c$”. This is true.
Well, it is almost certainly true that the statement \(2b=c\) holds for every \(c\) is false, so that our \(\neg\forall c: (SS0 \times b)=c\) is almost certainly true, no matter what \(b\) we choose to work with.

Let me be specific. “There exists a number \(b\) such that the statement \(2b=c\) holds for every \(c\)” is not true”. With \(b=10\), for example, the equality \(2b=c\) only holds for \(c=20\) and not for every \(c\).

In fact, you can make a stronger true statement: \(\exists b:\forall c: (SS0 \times b)=c\), because for any \(b\) you choose, \(2b=c\) will only hold for one value of \(c\) and not for every \(c\).

\[\exists b: \forall c: (SS0 \times b)=c \quad \text{FALSE}\]

While the last expression had us working with “it is not the case that equality holds for every \(c\)”, this one has us consider “it is the case that inequality holds for every \(c\)”. Thus the statement is “There exists a number \(b\) such that no matter what number \(c\) you choose \(2b \neq c\)”. This is false: given \(b=10\), for example, choose \(c=20\) causing the inequality to fail.