Consider the proof of the program assertion \{ \text{X} \geq 0 \} \text{ X := X+1} \{ \text{X} > 0 \}.

It is clear that this assertion is true, and so we want our deduction system to provide its proof. Using the axiom of assignment we have

\[ \vdash \{ \text{X+1} > 0 \} \text{ X := X+1} \{ \text{X} > 0 \} \]

Now \text{X+1} > 0 is logically equivalent to \text{X} > -1, and if the domain for the variable \text{X} is the Integers then \text{X} > -1 is in turn logically equivalent to \text{X} \geq 0, and hence the assertion is proven in this one step for the Integer domain.

However, if the domain for variable \text{X} is the real numbers (or float), then \text{X} > -1 is not logically equivalent to \text{X} \geq 0 (e.g., \text{-0.5} > -1 is true, but \text{-0.5} \geq 0 is not). But for the real number domain, we do have that \[ \vdash \text{X} \geq 0 \Rightarrow \text{X} > -1 \]. Therefore, we must use another proof step of strengthening the pre-condition in the first step to generate a valid proof for this domain.