(prefix order) Give axioms to define the prefix partial order on strings. String $S$ comes before string $T$ in this order if and only if $S$ is an initial segment of $T$.

§ Use $\preceq$ for the prefix partial order. It can be defined as

\[
\begin{align*}
\text{nil} & \preceq S \\
S & \preceq \text{nil} \iff S = \text{nil} \\
i;S & \preceq j;T \iff i = j \land S \preceq T
\end{align*}
\]

where $S$ and $T$ are strings, and $i$ and $j$ are items. After we meet quantification it can be defined as

\[
S \preceq T = \exists U: \forall X: S;U = T
\]

where $X$ is the alphabet of symbols.