$$
\begin{array}{rcl}
p & ::= & p \cup p \mid cxp \\
cxp & ::= & /lp \mid lp \\
lp & ::= & lp/lp \mid axis{::}test[q] \\
q & ::= & q \wedge q \mid q \vee q \mid \neg q \mid \mathrm{true} \mid cxp
\end{array}
$$

where

- p is the root nonterminal of the grammar,
- $axis$ is one of {self, child, parent, $\mathsf{descendant}$, $\mathsf{descendant\text{-}or\text{-}self}$, $\mathsf{ancestor}$, $\mathsf{ancestor\text{-}or\text{-}self}$, $\mathsf{following\text{-}sibling}$, $\mathsf{preceding\text{-}sibling}$, $\mathsf{following}$, $\mathsf{preceding}$}, and
- $test$ is one of $\{*\} \cup \Sigma$.

Figure 1: Syntax of CoreXPath over alphabet Σ.

$$
\begin{array}{lcl}
[\![p_1 \cup p_2]\!]_{NodeSet}(n) & := & [\![p_1]\!]_{NodeSet}(n) \cup [\![p_2]\!]_{NodeSet}(n) \\
[\![/p]\!]_{NodeSet}(n) & := & [\![p]\!]_{NodeSet}(n_0) \\
[\![p_1/p_2]\!]_{NodeSet}(n) & := & \bigcup_{n' \in [\![p_1]\!]_{NodeSet}(n)} [\![p_2]\!]_{NodeSet}(n') \\
[\![axis{::}test[q]]\!]_{NodeSet}(n) & := & \{n' \in T(test) \mid (n, n') \in R_{axis} \wedge [\![q]\!]_{Boolean}(n')\} \\
[\![q_1 \wedge q_2]\!]_{Boolean}(n) & := & [\![q_1]\!]_{Boolean}(n) \wedge [\![q_2]\!]_{Boolean}(n) \\
[\![q_1 \vee q_2]\!]_{Boolean}(n) & := & [\![q_1]\!]_{Boolean}(n) \vee [\![q_2]\!]_{Boolean}(n) \\
[\![\neg q]\!]_{Boolean}(n) & := & \neg [\![q]\!]_{Boolean}(n) \\
[\![\mathrm{true}]\!]_{Boolean}(n) & := & \mathrm{true} \\
[\![p]\!]_{Boolean}(n) & := & [\![p]\!]_{NodeSet}(n) \neq \emptyset
\end{array}
$$

where n_0 is the root node of the tree document under consideration,

- $T(*) = \mathsf{Node}$, and
- $T(\sigma) = \mathsf{Lab}_\sigma$ for every $\sigma \in \Sigma$.

Figure 2: Semantic functions for CoreXPath.