Verifier Core Language BNF Grammar

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\begin{array}{rll}
x, y, z & \in\ VAR & \textit{(variables)} \\
v & \in\ VAL & \textit{(values)} \\
e & \in\ EXPR & \textit{(expressions)} \\
s & \in\ STMT & \textit{(statements)} \\
o & \in\ LOC & \textit{(object Ids)} \\
f & \in\ FIELDNAME & \textit{(field names)} \\
m & \in\ METHODNAME & \textit{(method names)} \\
C, D & \in\ CLASSNAME & \textit{(class names)}
\end{array}
$$

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\begin{array}{rcl}
P & ::= & \overline{cls}\ s \\
cls & ::= & class\ C\ extends\ D\ \{\overline{field}\ \overline{A}\ \overline{method}\} \\
field & ::= & T\ f; \\
A & ::= & predicate\ \alpha_C(\overline{x}) := \widetilde{\phi} \\
T & ::= & int\ |\ C\ |\ \top \\
method & ::= & T\ m(\overline{T\ x})\ dynamic\ contract\ static\ contract\ \{s\} \\
contract & ::= & requires\ \widetilde{\phi}\ ensures\ \widetilde{\phi} \\
\oplus & ::= & +\ |\ -\ |\ *\ |\ \backslash \\
\odot & ::= & \neq\ |\ =\ |\ <\ |\ > \\
s & ::= & skip\ |\ s_1\ ;\ s_2\ |\ T\ x\ |\ x := e\ |\ if\ (x \odot y)\ \{s_1\}\ else\ \{s_2\}\ |\ x.f := y\ |\ x := new\ C \\
& & |\ y := z.m(\overline{x})\ |\ y := z.m_C(\overline{x})\ |\ assert\ \phi\ |\ release\ \phi\ |\ hold\ \phi\ \{s\} \\
e & ::= & v\ |\ x\ |\ e \oplus e\ |\ e.f \\
x & ::= & result\ |\ id\ |\ old(id)\ |\ this \\
v & ::= & n\ |\ o\ |\ null \\
\phi & ::= & true\ |\ e \odot e\ |\ \alpha(\overline{e})\ |\ acc(e.f)\ |\ \phi * \phi \\
\widetilde{\phi} & ::= & \phi\ |\ ? * \phi
\end{array}
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