$$
\begin{array}{lll}
\Pi & ::= & \overline{\text{defmodtype } X \text{ do } \overline{P}\,\overline{D} \text{ end}} \\
I & ::= & x \\
 & | & X \\
S & ::= & \$\text{behaviour } X \\
 & | & \$\text{param } x = t \\
P & ::= & \$\text{param } x \\
B & ::= & \$\text{defmodule } X \text{ do } \overline{P}\,\overline{S}\,\overline{B} \text{ end} \\
 & | & x = v \\
 & | & \$\text{type } x = T \\
 & | & \$\text{opaque } x = T \\
E & ::= & v \\
 & | & x \\
 & | & E\,E \\
 & | & \%\,\{\overline{l = E}\} \\
 & | & E.l \\
 & | & (E \in t)?E : E \\
 & | & \overline{{\color{red} I\,\overline{[x = t]}\,.}} \\
v & ::= & c \\
 & | & \%\,\{\overline{l = v}\} \\
 & | & \$ \wedge \overline{t \rightarrow t}\,\text{fn}\,\overline{x} \rightarrow E \\
 & | & {\color{red} \$ \cap \overline{(I : T)} \rightarrow T\,\text{fn}\,\overline{I} \rightarrow E} \\
T & ::= & t \\
 & | & \overline{(I : T)} \rightarrow T \\
 & | & M \\
M & ::= & \overline{I\,\overline{[x = t]}\,.} \\
 & | & \{\overline{D}\} \\
 & | & M \cap M \\
 & | & M \cup M \\
t & ::= & \text{int} \\
 & | & t \rightarrow t \\
 & | & \%\,\{\overline{f}\} \\
 & | & t \vee t \\
 & | & t \wedge t \\
 & | & \neg t \\
 & | & \alpha \\
 & | & \mathbb{O} \\
 & | & \overline{I\,\overline{[x = t]}}\,.x \\
\text{D} & ::= & \$\text{module } X : T \\
 & | & \$\text{callback } x : T \\
 & | & \$\text{opaque } x \\
 & | & \$\text{type } x = T \\
\end{array}
$$

Figure 1: Syntax of the surface language