Instruction Graph Statics

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1 Validity

$$\frac{}{\texttt{EmptyProgram valid}}$$

$$\frac{\texttt{vdecls definesvertices V} \qquad \texttt{s connectsto}_{\texttt{index}}\ \texttt{V in V}}{\texttt{Program(vdecls, Start(s)) valid}}$$

2 Defined Vertices

$$\frac{}{\texttt{Singleton(vdecl) definesvertices } \{\texttt{vdecl}\}}$$

$$\frac{\texttt{vdecls definesvertices U} \qquad \texttt{vdecl} \notin \texttt{U}}{\texttt{Cons(vdecl, vdecls) definesvertices U} \cup \{\texttt{vdecl}\}}$$

3 Connected Vertices

$$\frac{\texttt{Vertex(n, vcontent)} \in V \qquad \texttt{Vertex(n, vcontent) connectsto U in V}}{\texttt{n connectsto}_{\texttt{index}}\ \texttt{U in V}}$$

$$\frac{\texttt{vcontent accesses U in V}}{\texttt{Vertex(n, vcontent) connectsto U} \cup \{\texttt{Vertex(n, vcontent)}\}\ \texttt{in V}}$$

$$\frac{\texttt{Vertex(n, vcontent)} \in V \qquad \texttt{Vertex(n, vcontent) connectsto U in V}}{\texttt{Do(action, Next(n)) accesses U in V}}$$

$$\frac{\texttt{Vertex(n, vcontent)} \in V \qquad \texttt{Vertex(n, vcontent) connectsto U in V}}{\texttt{DoUntil(action, condition, Next(n)) accesses U in V}}$$

$$\frac{\begin{array}{c}\texttt{Vertex(n, vcontent)} \in V \\ \texttt{Vertex(m, vcontent)} \in V \qquad \texttt{Vertex(n, vcontent) connectsto U in V}\end{array}}{\texttt{Conditional(condition, Next(n), Next(m)) accesses U in V}}$$

$$\frac{\texttt{Vertex(n, vcontent)} \in V \qquad \texttt{Vertex(n, vcontent) connectsto U in V}}{\texttt{GoTo(Next(n)) accesses U in V}}$$