Instruction Graph Dynamics

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1 continuesto

$$\frac{\texttt{Vertex(n', vcontent)} \in \texttt{V}}{\texttt{Vertex(n, Do(action, Next(n')))} \text{ with (V, inputs, outputs)} \atop \texttt{continuesto Vertex(n', vcontent)} \text{ with (V, inputs, action :: output)}}$$

$$\frac{\texttt{Vertex(n', vcontent)} \in \texttt{V}}{\texttt{Vertex(n, DoUntil(action, cond, Next(n')))} \text{ with (V, true :: inputs, outputs)} \atop \texttt{continuesto Vertex(n', vcontent)} \text{ with (V, inputs, action :: output)}}$$

$$\frac{}{\texttt{Vertex(n, DoUntil(action, cond, vnext))} \text{ with (V, false :: inputs, outputs)} \atop \texttt{continuesto} \atop \texttt{Vertex(n, DoUntil(action, cond, vnext))} \text{ with (V, inputs, action :: output)}}$$

$$\frac{\texttt{Vertex(n', vcontent)} \in \texttt{V}}{\texttt{Vertex(n, Conditional(cond, Next(n'), falsecase))} \text{ with (V, true :: inputs, outputs)} \atop \texttt{continuesto Vertex(n', vcontent)} \text{ with (V, inputs, output)}}$$

$$\frac{\texttt{Vertex(n', vcontent)} \in \texttt{V}}{\texttt{Vertex(n, Conditional(cond, truecase, Next(n')))} \text{ with (V, false :: inputs, outputs)} \atop \texttt{continuesto Vertex(n', vcontent)} \text{ with (V, inputs, output)}}$$

$$\frac{\texttt{Vertex(n', vcontent)} \in \texttt{V}}{\texttt{Vertex(n, GoTo(Next(n')))} \text{ with (V, inputs, outputs)} \atop \texttt{continuesto Vertex(n', vcontent)} \text{ with (V, inputs, output)}}$$

2   more continuesto (End cases)

$$\frac{\text{Vertex(n, Do(action, End)) with (V, inputs, outputs)}}{\text{continuesto End with (V, inputs, action :: outputs)}}$$

$$\frac{\text{Vertex(n, DoUntil(action, cond, End)) with (V, true :: inputs, outputs)}}{\text{continuesto End with (V, inputs, action :: outputs)}}$$

$$\frac{\text{Vertex(n, Conditional(cond, truecase, End)) with (V, false :: inputs, outputs)}}{\text{continuesto End with (V, inputs, outputs)}}$$

$$\frac{\text{Vertex(n, Conditional(cond, End, falsecase)) with (V, true :: inputs, outputs)}}{\text{continuesto End with (V, inputs, outputs)}}$$

$$\frac{\text{Vertex(n, GoTo(End)) with (V, inputs, outputs)}}{\text{continuesto End with (V, inputs, outputs)}}$$

3   terminates

$$\frac{\text{vertexwithstate continuesto End with (V, inputs, outputs)}}{\text{vertexwithstate terminates doing outputs}}$$

$$\frac{\text{vertexwithstate1 continuesto vertexwithstate2} \quad \text{vertexwithstate2 terminates doing outputs}}{\text{vertexwithstate1 terminates doing outputs}}$$

4   dynamics

$$\frac{\text{vdecls definesvertices V} \quad \text{Vertex(n, vcontent)} \in \text{V}}{\text{Program(vdecls, Start(n)) startsat Vertex(n, vcontent) in V}}$$

$$\frac{\text{program startsat svertex in V} \quad \text{svertex with (V, inputs, [ ]) terminates doing outputs}}{\text{program does outputs on inputs}}$$