

Instruction Graph Grammar

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Program	p	$::=$	$\mathbf{P}(v, vs)$	programs
Vertices	vs	$::=$	nil	empty
			$v :: vs$	cons
Vertex	v	$::=$	$\mathbf{V}(n, c)$	vertex
Content	c	$::=$	$\mathbf{do } a \mathbf{ then } n$	single action
			$\mathbf{do } a \mathbf{ until } cnd \mathbf{ then } n$	open loop action
			$\mathbf{if } cnd \mathbf{ then } n \mathbf{ else } n$	conditional
			$\mathbf{goto } n$	goto
			\mathbf{end}	termination

We let $n \in \mathbb{Z}$, the integers.

We let $a \in \mathbf{Action}$, a sort describing classes of actions, like movement, that a robot might be able to perform. A grammar defining \mathbf{Action} is assumed.

We let $cnd \in \mathbf{Condition}$, a sort describing classes of conditions, like whether an object is some distance ahead, that a robot might be able to detect. A grammar defining $\mathbf{Condition}$ is assumed.