Syntax

Action Fields	f_i	::=	$f_{a_1} \mid \cdots \mid f_{a_k}$	
Result Fields	f_r	::=	$f_{r_1} \mid \cdots \mid f_{r_k}$	
Fields	?	?		
Actions	i	::=	$\{f_{a_1} = v_{a_1},\ \ldots\ ,\ f_{a_k} = v_{a_k}\}$	
Results	r	::=	$\{f_{r_1} = v_{r_1},\ \ldots\ ,\ f_{r_k} = v_{r_k}\}$	
Predicates	a, b	::=	0	*Identity*
			$\mid\ 1$	*False*
			$\mid\ f_i = n$	*Test Action*
			$\mid\ f_r = n$	*Test Result*
			$\mid\ a + b$	*Sum*
			$\mid\ a \cdot b$	*Product*
			$\mid\ \neg\ a$	*Inverse*
Policies	p, q	::=	a	*Test*
			$\mid\ act(p)$	*Slice Actions*
			$\mid\ res(p)$	*Slice Results*
			$\mid\ inj_i$	*Injection Action*
			$\mid\ inj_r$	*Injection Result*
			$\mid\ f_i \leftarrow n$	*Functional Map Actions*
			$\mid\ f_r \leftarrow n$	*Functional Map Results*
			$\mid\ p + q$	*Choice*
			$\mid\ p \cdot q$	*Sequential Concatenation*
			$\mid\ p^*$	*Kleene Star*

Semantics

Def $\Phi = \{(is, rs)\}$
Where Φ is the infinite possibility set of (is, rs).

$$
\begin{aligned}
[\![0]\!](-,-) &\triangleq \varnothing \\
[\![1]\!](is, rs) &\triangleq \{(is, rs)\} \\
[\![act(p)]\!](is, rs) &\triangleq \{[\![p]\!](is, rs)\} \cap \{a_s\} \\
[\![res(p)]\!](is, rs) &\triangleq \{[\![p]\!](is, rs)\} \cap \{r_s\} \\
[\![f_A = n]\!]\ action :: (is, rs) &\triangleq \begin{cases} \{action :: (is, rs)\} & \text{if } action[f_A = n] \\ \varnothing & \text{else} \end{cases} \\
[\![f_R = n]\!]\ result :: (is, rs) &\triangleq \begin{cases} \{result :: (is, rs)\} & \text{if } result[f_R = n] \\ \varnothing & \text{else} \end{cases} \\
[\![inj_A]\!](is, rs) &\triangleq \{A :: (is, rs)\} \\
[\![inj_R]\!](is, rs) &\triangleq \{R :: (is, rs)\} \\
[\![f_A \leftarrow n]\!]\ action :: (is, rs) &\triangleq action[f_A := n] :: (is, rs) \\
[\![f_R \leftarrow n]\!]\ result :: (is, rs) &\triangleq result[f_R := n] :: (is, rs) \\
[\![\neg\ a]\!](is, rs) &\triangleq \{(is, rs)\} \setminus \{[\![a]\!](is, rs)\} \\
[\![p + q]\!](is, rs) &\triangleq [\![p]\!](is, rs) \cup [\![q]\!](is, rs) \\
&\cdots\cdots\cdots \\
[\![p \cdot q]\!](is, rs) &\triangleq ([\![p]\!] \cdot [\![q]\!])(is, rs) \\
[\![p^*]\!](is, rs) &\triangleq ()?
\end{aligned}
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