Correctness of a program

Let $P = \{p_i \mid p_i \text{ is block of a program}\}$

Let $T = \{T_i \mid T_i \text{ is a set of tests for each } p_i\}$

Let $T_i = \{t_j \mid t_j \text{ is a test}\}$

$t_j = (f_k, \text{inputs}_{fk}, \text{output}_{fk})$

where, $\text{output}_{fk} \iff f_k(\text{inputs}_{fk})$

and, $\text{inputs}_{fk} = \{v_s \mid v_s \text{ is a value}\}$

Similarly,

$p_i = (f_l, \text{inputs}_{fl}, \text{output}_{fl})$

where, $\text{output}_{fl} \iff f_k(\text{inputs}_{fl})$

and, $\text{inputs}_{fk} = \{v_s \mid v_s \text{ is a value}\}$

Let $R = \{R_i \mid R_i \text{ is a set of requirements for for a test } t_j\}$

$R_i = \{r_s \mid r_s \text{ is a requirement}\}$

$\text{correct}(T_i, p_i) \iff \forall t_j \in T_i \mid \text{success}(t_j, p_i)$

$\text{success}(t_j, p_i) \iff t_j.\text{output}_{fk} = p_i.\text{output}_{fl} = R_i$

So, $\text{Correctness}(P, T) \iff \forall p_i \in P, \forall T_i \in T \mid \text{correct}(T_i, p_i)$