Correctness of a program

$Let\ P\ =\ \{p_b|\ p_b\ is\ \ a\ block\ of\ a\ program\ \}$

$Let\ TS\ =\ \{ts_i\ |\ ts_i\ is\ a\ set\ of\ tests\ for\ each\ p_b\}$

$Let\ ts_i\ =\ \{t_j|\ t_j\ is\ a\ test\}$

$t_j\ =\ (f_k, inputs_{fk}, output_{fk})$

$where, output_{fk}\ =\ f_k(inputs_{fk})$

$and, inputs_{fk}\ =\ \{v_s\ |\ v_s\ is\ a\ value\ \}$

$Moreover,$

$p_b\ =\ (f_c, inputs_{fc})$

$where, f_c(inputs_{fc})\ =>\ output_{fc}$

$and, inputs_{fc}\ =\ \{v_s\ |\ v_s\ is\ a\ value\ \}$

$Let\ correctness(P, TS)\ \Leftrightarrow\ \forall p_b\ \in\ P, \forall ts_i\ \in\ TS\ |\ correct(ts_i, p_b\ )$

$correct(ts_i, p_b\ )\ \Leftrightarrow\ \forall t_j\ \in\ ts_i\ |\ success(t_j, p_b\ )$

$success(t_j, p_b)\ \vDash\ \varphi$

Where $\varphi\ =\ $ x^¬x

$$success(t_j, p_b)\ \rightarrow\ \begin{cases} 1\ if\ [t_j]_{outputfk}\ =\ [p_b]_{outputfc} \\ 0, otherwise \end{cases}$$

Satisfaction of requirements

$Let\ R\ =\ \{RS|\ RS\ is\ a\ set\ of\ requirements\}$

$RS\ =\ \{r_s|\ r_s\ is\ a\ requirment\}$

$satisfyPR\ (P, TS, R)\ \Leftrightarrow \forall ts_i\ \in\ TS, \forall p_b\ \in\ P, \forall RS\ \in\ R|\ satisfaction(p_b, ts_i, RS)$

$satisfaction(p_b, ts_i, RS)\ \Leftrightarrow\ \forall t_j\ \in\ ts_i, \forall r_s\ \in\ RS\ |\ satisfy(success(t_j, p_b), r_s)$

$satisfy(success(t_j, p_b), r_s)\ \vDash\ \varphi$

Where $\varphi\ =\ $ x^¬x

$Let\ r_s\ =\ (pre-condition\ and\ post-condition)$

$conditionOutput\ =\ success(t_j, p_b)\ =\ 1\ and\ [t_j]_{outputfk}\ =\ [p_b]_{outputfc}\ =\ r_s(post-condition)$

$conditionInput\ =\ [t_j]_{inputfk}\ =\ [p_b]_{inputfc}\ =\ r_s(pre-condition)$

$$satisfy(success(t_j, p_b), r_s) \rightarrow \begin{cases} 1, if\ coditionOutput\ and\ conditionInput \\ 0, otherwise \end{cases}$$