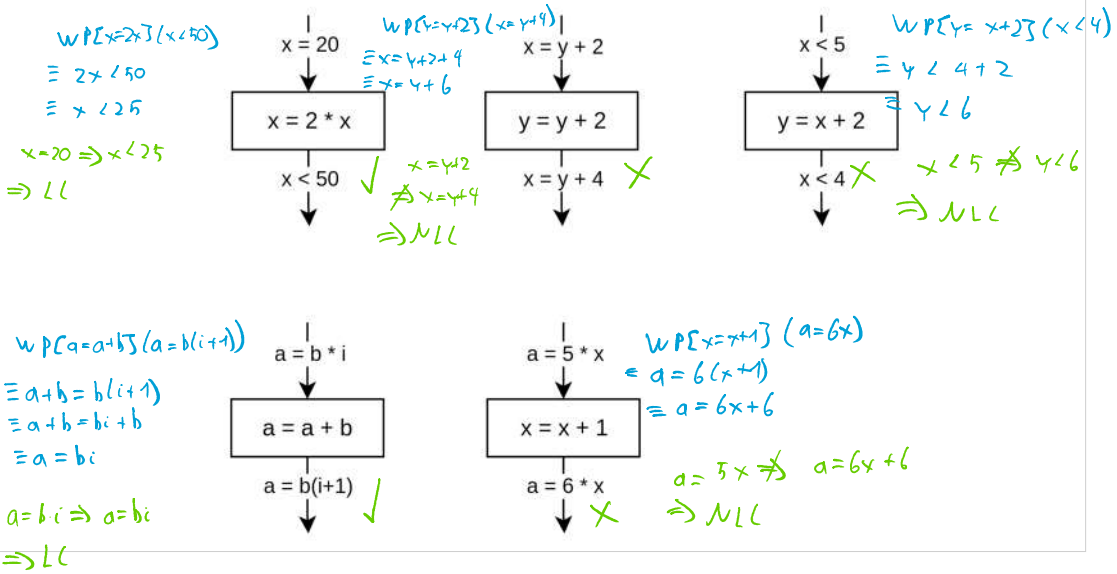
Local Consistency

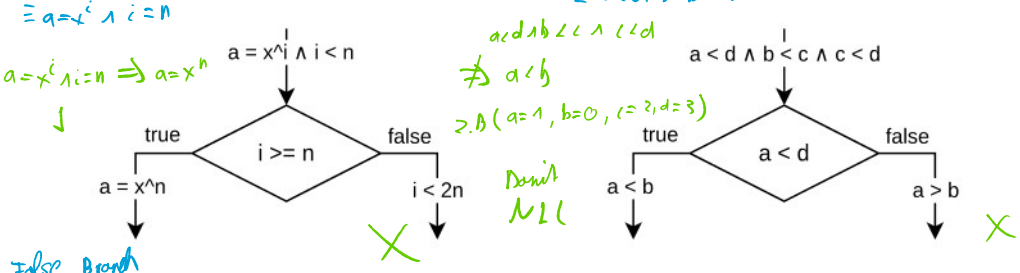
Montag, 25. September 2023 10:45

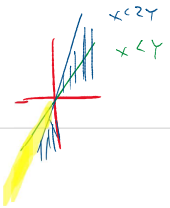
local_consistency

Determine whether the following Statements are Locally consistent



Determine whether the following Statements are Locally consistent





WP

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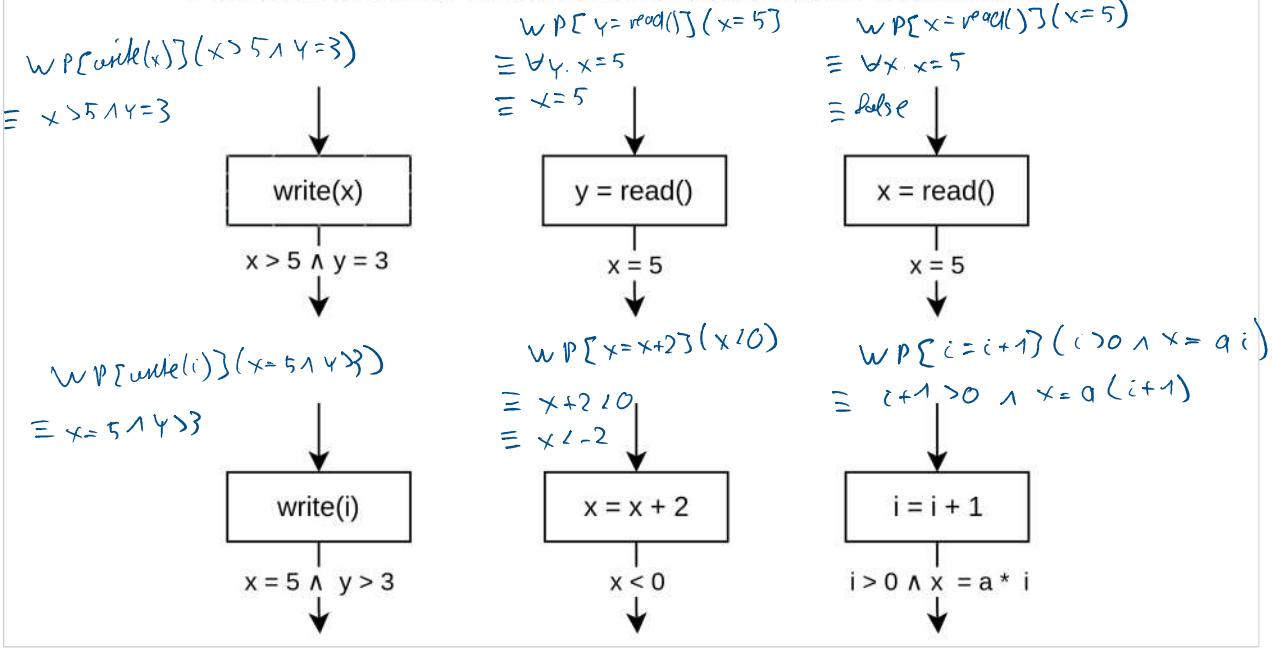
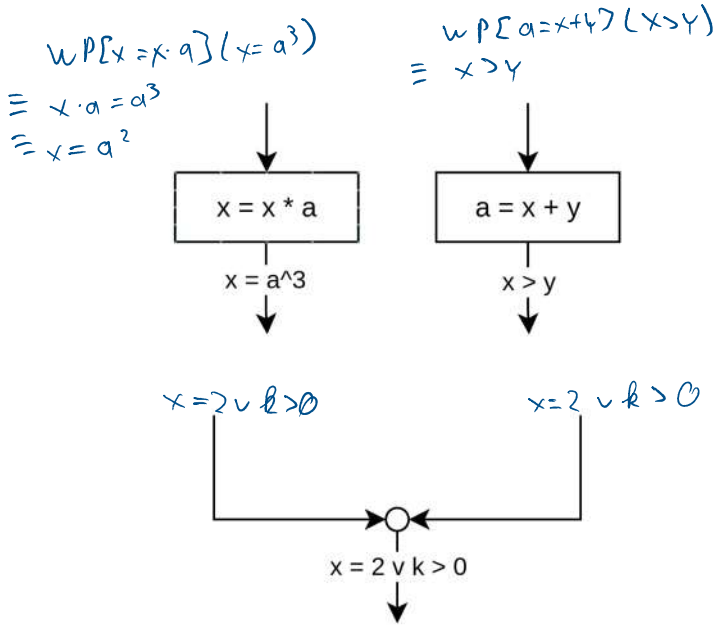
weakest_precondition

Find the Weakest Precondition for each of these Statements



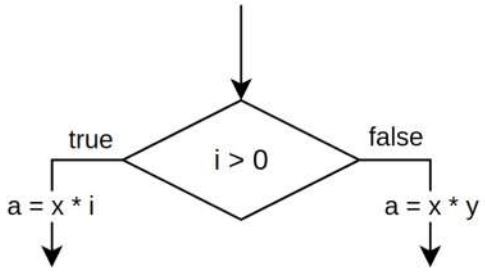
Find the Weakest Precondition for each of these Statements



Find the Weakest Precondition for each of these Statements

$wp[i>0](a=x\cdot y,\ a=x\cdot i)$ (B false: $a=x\cdot y$, B true: $a=x\cdot i$)

$\equiv (i>0 \wedge a=x\cdot i) \vee (i\leq 0 \wedge a=x\cdot y)$



$wp[x\neq 0](x=0 \wedge n=2,\ x>0 \wedge n=2)$

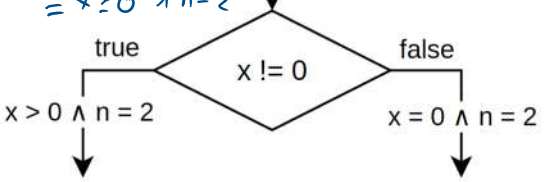
$\equiv (x\neq 0 \wedge x>0 \wedge n=2) \vee (x=0 \wedge x=0 \wedge n=2)$

$\equiv ((x\neq 0 \wedge x>0) \vee x=0) \wedge n=2$

$\equiv (x\neq 0 \vee x=0 \wedge x>0 \vee x=0) \wedge n=2$

$\equiv (\text{true} \wedge x\geq 0) \wedge n=2$

$\equiv x\geq 0 \wedge n=2$



SP

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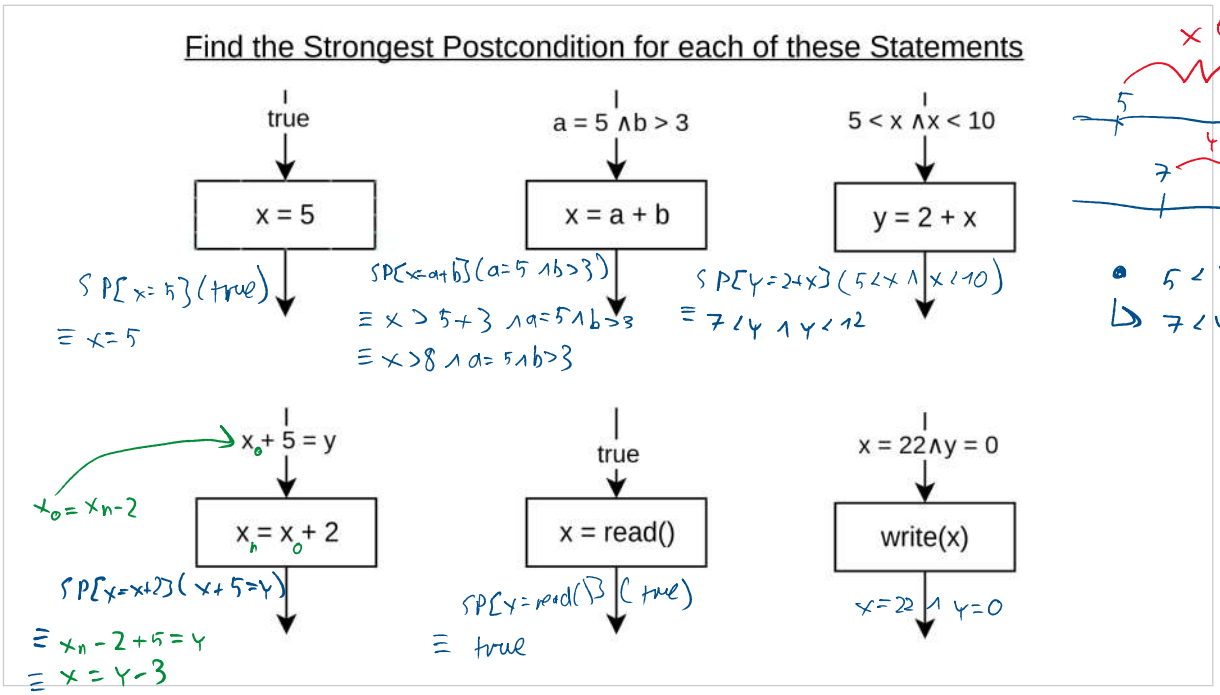
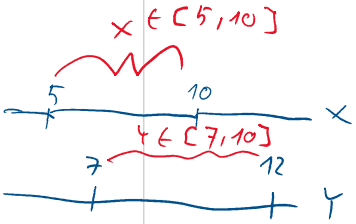
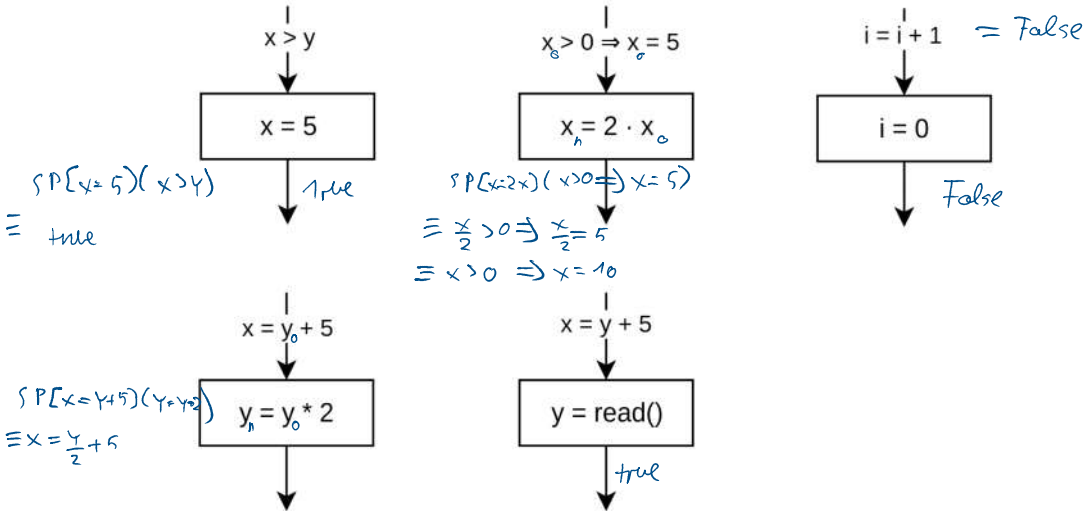
strongest_post_condi...

Find the Strongest Postcondition for each of these Statements

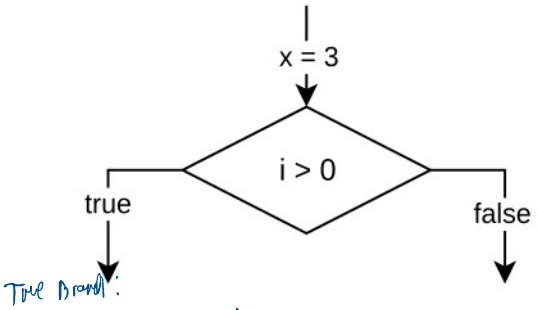




Find the Strongest Postcondition for each of these Statements



Find the Strongest Postcondition for each of these Statements



True Branch:

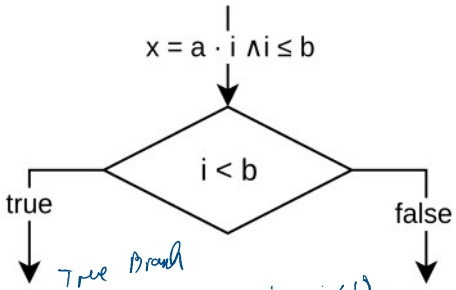
$SP[i>0](x=3)$

$\equiv x=3 \wedge i>0$

False Branch

$SP[i \leq 0](x=3)$

$\equiv i \leq 0 \wedge x=3$



True Branch

$SP[i<b](x=a \cdot i \wedge i \leq b)$

$\equiv x=a \cdot i \wedge i<b \wedge i \leq b$

$\equiv x=a \cdot i \wedge i \leq b$

False Branch:

$SP[i \geq b](x=a \cdot i \wedge i \leq b)$

$\equiv x=a \cdot i \wedge i \leq b \wedge i \geq b$

$\equiv x=a \cdot i \wedge i=b$

Find the Strongest Postcondition for each of these Statements

True Branch:

$SP[x==y](x>0 \Leftrightarrow y<0)$

$\equiv x=y \wedge (x>0 \Leftrightarrow y<0)$

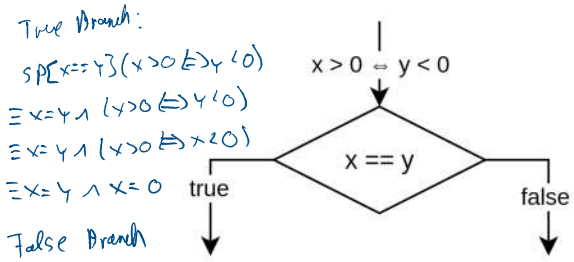
$\equiv x=y \wedge (x>0 \Leftrightarrow x<0)$

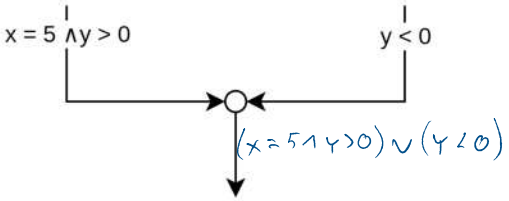
$\equiv x=y \wedge x=0$

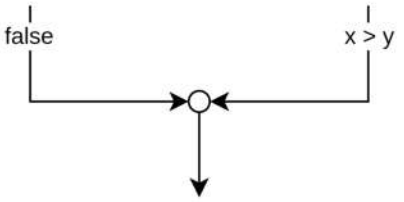
False Branch

$SP[x \neq y](x>0 \Leftrightarrow y<0)$

$\equiv x \neq y \wedge (x>0 \Leftrightarrow y<0)$

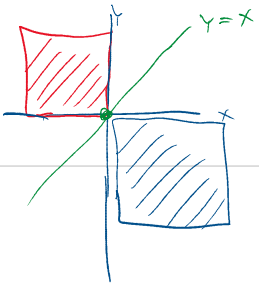






false $\vee x>y$

$\equiv x>y$

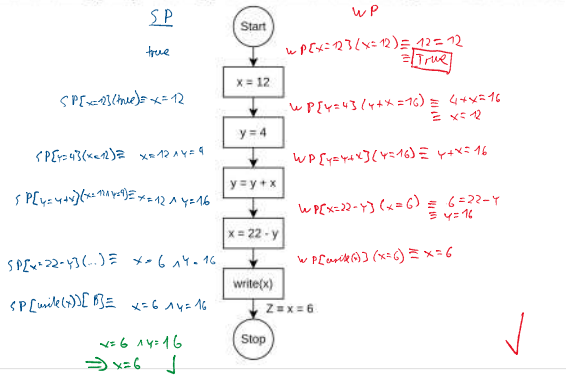


small_graphs

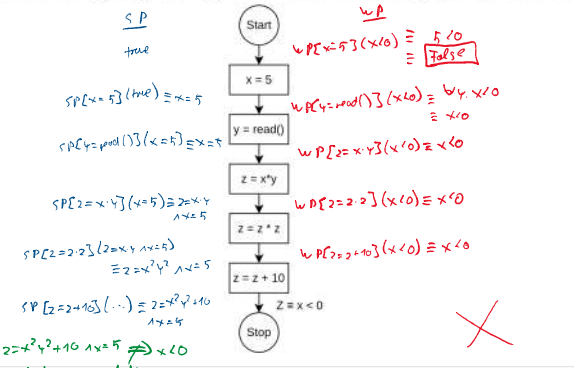
Montag, 25. September 2023 12:29

small_graphs

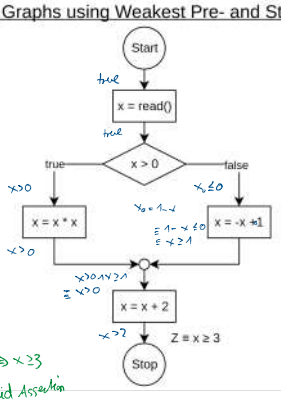
Prove the following Graphs using Weakest Pre- and Strongest PostCondition



Prove the following Graphs using Weakest Pre- and Strongest PostCondition



Prove the following Graphs using Weakest Pre- and Strongest PostCondition



Prove the following Graphs using Weakest Pre- and Strongest PostCondition