

14F-1 Bookkeeping

- 0 pts Correct

4.2 In the let Rule, the original value of x is ignored.
 And a correct let rule, we introduce the tmp ,
 which is a new variable to save the original value of x .

So $VC(\text{let } x=e \text{ in } c, B)$ is the same as

$$\begin{aligned}
 & VC(tmp:=x; x:=e; c; x=tmp; B) \\
 &= [x/tmp] VC(x:=e; c; x=tmp; B) \\
 &= [x/tmp] [e/x] VC(c; x=tmp; B) \\
 &= [x/tmp] [e/x] VC(c, VC(x=tmp, B)) \\
 &= [x/tmp] [e/x] VC(c, [tmp/x] B)
 \end{aligned}$$

So, it is $[x/tmp] [e/x] VC(c, [tmp/x] B)$

2 4F-2 VCGen for Let

- 0 pts Correct

4F-3

1. $C ::= \text{let } x=1 \text{ in skip}$

2. $B ::= x=1$

3. $\sigma(x) = 2$,

4. $\because \sigma \models VCC^c, B)$

so $VC(\text{let } x=1 \text{ skip}, x=1)$

$= [1/x] VC(\text{skip}, x=1)$

$= (x=1)$

5. $\because \langle C, \sigma \rangle \Downarrow \sigma'$, so $\sigma'(x) = 2$, which is not the same as B ,

so $\sigma' \not\models B$

4F-4.

$$\frac{\vdash \{A\} c \{B\} \quad \vdash \{B \wedge b\} c \{B\}}{\vdash \{A\} \text{do } c \text{ while } b \{B \wedge \neg b\}}$$

3 4F-3 VCGen Mistakes

- 0 pts Correct

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4 4F-4 Axiomatic Do-While

- 0 pts Correct