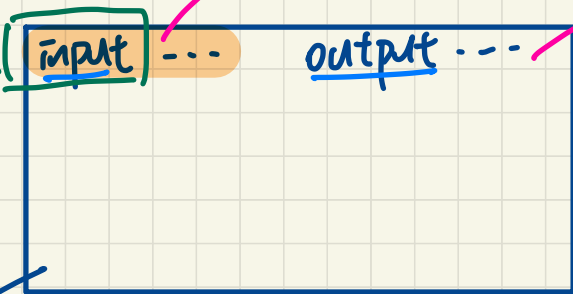


**Sunday, March 19**

**Written Test 2 Review**

# Algorithm



postcondition:  
assertions relating  
the input &  
output.

last-set value

\* assert  $\forall i. i \in [1..len(output)]$  postcondition  
:  $output[i] \leq output[i+1]$

Q. Is this postcondition correct & complete?

input:  $\langle\langle 5, 3, 1, 2 \rangle\rangle$   
output:  $\langle\langle 1, 2, 3, 5 \rangle\rangle$

- Given a correct pair of input/output, assertion should pass.

input:  $\langle\langle 5, 3, 1, 2 \rangle\rangle$   
output:  $\langle\langle 2, 46, 89, 92 \rangle\rangle$

Assertion should fail on this, but it actually passes.

- Given an incorrect pair of input/output, assertion should fail.

- syntax

↳ derivable from grammar  
↳ formal meaning

- correct or not?

S U t<sup>x</sup> vs S U (t A G(7s))<sup>✓</sup>

G( φ<sub>1</sub> U φ<sub>2</sub>  )

compare to GF φ.

$P$  : I eat

$Q$  : I go to school

---

I eat go to school

$\neg (Q \Rightarrow P)$

$$\underline{\underline{S_0}} \oplus \boxed{G} F(G\phi_1 \Rightarrow F\phi_2)$$

$$\forall \pi \cdot \pi = S_0 \rightarrow \dots \Rightarrow$$

$$\underline{\underline{H_i}} \cdot \bar{i} \geq 1 \Rightarrow$$

$$\exists \bar{j} \cdot \bar{j} \geq \bar{i} \wedge$$

$$\forall k \cdot k \geq \bar{j} \Rightarrow \pi^k F\phi_1$$

$$\Rightarrow F$$

$$\exists l \cdot l \geq \bar{j} \wedge \pi^l F\phi_2$$

$$\mathcal{S}_0 \circledast \underline{F} \left( \underline{[\phi_1 \cup \phi_2]} \right)$$

$$\forall \pi \cdot \pi = \mathcal{S}_0 \rightarrow \dots \Rightarrow$$

$$\left( \begin{array}{l} \exists \bar{i} \cdot \bar{i} \approx \underline{i} \wedge \\ \exists \bar{j} \cdot \bar{j} \approx \underline{j} \end{array} \right)$$