Assigning Meaning to Programs
Due: September 30, end of lecture

Answer each of the following questions. Label your answer with the specified question tag.

**Floyd 1** Explain why the antecedent of the $i > n$ ? node in Figure 1 (page 20) is correct. In your explanation, consider the consequents of nodes $S ← 0$ and $i ← i + 1$.

**Floyd 2** Regarding the program in Figure 1 (page 20), will this program terminate? If not, then explain why not. If yes, then give the termination condition (when will it terminate) and explain how execution approaches this termination condition.

**Floyd 3** On page 25, the author states “this fact offers the possibility of automatic verification of programs, the programmer merely tagging entrances and one edge in each innermost loop; the verifying program would extend the interpretation and verify it, if possible, by mechanical theorem-proving techniques.”

Give a brief overview of the state of formal verification (yes, you can just Google this). You may also find it interesting to look at this [Digital Library article](#).

**Floyd 4** Explain the intuition behind verification conditions 3 (go-to statement) and 4 (labeled statement) on page 27.