

IST 597A HW3

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Problem 1.

① add a "halt" statement to the Mini C syntax.

Statements $S ::= x = e \mid S_1; S_2 \mid \text{if } e \text{ then } S_1 \text{ else } S_2 \mid \text{while } e \text{ do } S \mid \text{halt}$

② evaluation rules

$$\frac{}{\langle \Delta, (\text{halt}; S) \rangle \mapsto \langle \Delta \rangle} \text{EvalStmHalt}$$

③ Safety proof:

The Halt statement itself is a termination signal. It does not imply any reduction rules that affect type safety. It does not have effect on existing reduction rules. Given original syntax is type safety, after adding the "halt" statement, Mini C is still type safety.