Homework 4: Augmenting a denotational definition

Extend the language of Figure 7.2 in Schmidt’s book with pointers. In particular, set

\[\text{Denotable-value} = \text{NatLocn} + \text{PtrLocn} + \text{Nat} + \text{errvalue}\]

where \(\text{Natlocn} = \text{Location}\) (locations that hold numbers)

\(\text{Ptrlocn} = \text{Location}\) (locations that hold pointers)

\(\text{Errvalue} = \text{Unit}\)

You will need to augment the syntax of the language, and write or alter existing valuation functions. for:

- pointer declaration
- dereferencing
- assignment
- dynamic storage allocation

There are many correct ways to achieve the four changes. Your goal should be to alter the existing definition as little as possible, while maintaining clarity of purpose.

You may get help from other people in the class. Please indicate on your answer sheet whom you collaborated with. Any indication of unauthorized copying may be penalized with a zero for the assignment.

Due date: November 2\(^{nd}\), in class