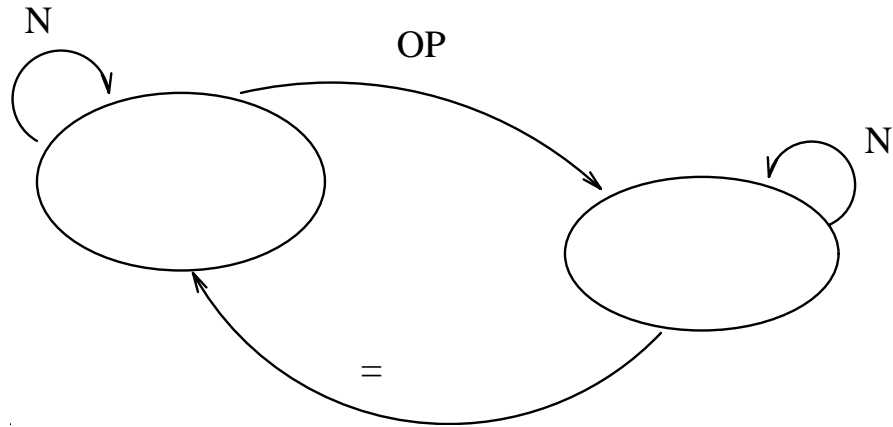


Primitive State Transition Diagram for Infix Calculator



This simple state transition diagram describes the behavior of a simple 4 function calculator. Events (button presses) are divided into 3 classes (numbers, operators, and =) which are represented by edges. The calculator has 2 basic states "entry for argument1" and "entry for argument2". The "loop backs" for N's allow the continuing entry of digits until the full number has been entered. The first occurrence of an operator (+,-,*,/) causes the calculator to transition to its 2nd state in which the 2nd argument can be entered. When the "=" key is pressed, the computation (arg1 OP arg2) is performed and the result placed in the calculator's display. The next N event (should) cause the display to be cleared, leaving the calculator prepared to perform another entry/compute cycle. This model with annotations for clearing the display on first numerical entry within a state suffices to describe "correct" behavior of the calculator as "a device that performs arithmetic" as long as the user's inputs are "legal". There are many illegal transitions including those involving the decimal, however, which will deliver results inconsistent with the user's model. Your assignment is to elaborate the diagrams and implement calculators which explicitly consider these transitions and modify the calculator's behavior to conform to user expectations.