

### Exercise 5.9.


The treatment of machine operations above permits them to labels as well as on constants and the contents of registers. Modify the expression-processing procedures to enforce the condition that operations can be used only with registers and constants.

### Answer.

We can manage it by modifying the `make-operation-exp` procedure to dispatch on operands of operation expressions so that it only generates execution procedures for register expressions and constant expressions.

```
(define (make-operation-exp exp machine labels operations)
  (let ((op (lookup-prim (operation-exp-op exp) operations))
        (aprocs
         (map (lambda (e)
                (cond ((constant-exp? e)
                       (let ((c (constant-exp-value e)))
                         (lambda () c)))
                     ((register-exp? e)
                       (let ((r (get-register machine
                                                (register-exp-reg e))))
                         (lambda () (get-contents r))))
                     (else
                      (error "Unknown expression type -- ASSEMBLE" e))))
              (operation-exp-operands exp))))
    (lambda ()
      (apply op (map (lambda (p) (p)) aprocs)))))
```

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