```
> (define froz1)
FROZ1
> (define froz2)
FROZ2
> (let ((x 0))
    (call-with-current-continuation
      (lambda (cc)
        (set! froz1 cc)
        (set! froz2 cc)))
    (set! x (1+ x))
    x)
1
```

so calls to either will return successive integers:

```
> (froz2 ())
2
> (froz1 ())
3
```

Since the value of the call/cc expression will be discarded, it doesn't matter what argument we give to froz1 and froz2.

Now that we can store the state of a computation, what do we do with it? Chapters 21–24 are devoted to applications which use continuations. Here we will consider a simple example which conveys well the flavor of programming with saved states: we have a set of trees, and we want to generate lists containing one element from each tree, until we get a combination satisfying some condition.

Trees can be represented as nested lists. Page 70 described a way to represent one kind of tree as a list. Here we use another, which allows interior nodes to have (atomic) values, and any number of children. In this representation, an interior node becomes a list; its car contains the value stored at the node, and its cdr contains the representations of the node's children. For example, the two trees shown in Figure 20.2 can be represented:

```
(define t1 '(a (b (d h)) (c e (f i) g)))
(define t2 '(1 (2 (3 6 7) 4 5)))
```

Figure 20.3 contains functions which do depth-first traversals on such trees. In a real program we would want to do something with the nodes as we encountered them. Here we just print them. The function dft, given for comparison, does an ordinary depth-first traversal:

```
> (dft t1)
```

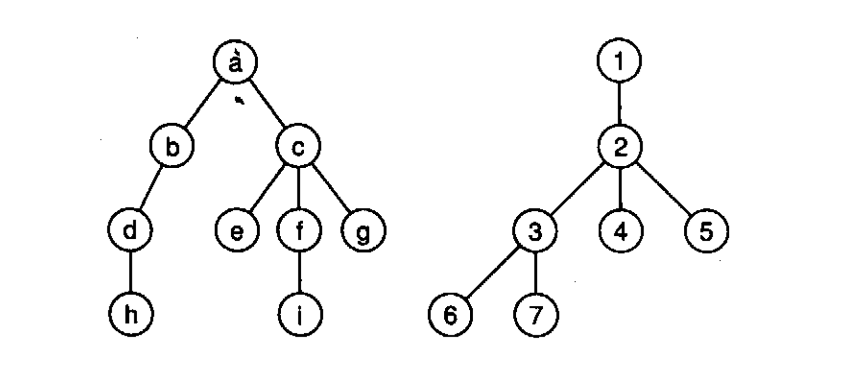

Figure 20.2: Two Trees.

The function dft-node follows the same path through the tree, but deals out nodes one at a time. When dft-node reaches a node, it follows the car of the node, and pushes onto *saved* a continuation to explore the cdr.

```
> (dft-node t1)
A
```

Calling restart continues the traversal, by popping the most recently saved continuation and calling it.

```
> (restart)
B
```

Eventually there will be no saved states left, a fact which restart signals by returning done:

```
:
> (restart)
G
> (restart)
DONE
```

Finally, the function dft2 neatly packages up what we just did by hand:

```
> (dft2 t1)
ABDHCEFIG()
```