

```
Last login: Fri Mar 3 13:12:02 on ttys018
carbon:public-class-repo$ cd SamplePrograms/Sec_10_3\:35pm/
carbon:Sec_10_3:35pm$ utop
```

```
Welcome to utop version 1.14 (using OCaml version 4.01.0)!
```

```
Type #utop_help for help about using utop.
```

```
-( 18:00:00 )-< command 0 >-----{ counter: 0 }-
```

```
utop # #use "reference.ml";;
```

File "reference.ml", line 22, characters 2-5:

Error: Syntax error

```
-( 16:11:34 )-< command 1 >-----{ counter: 0 }-
```

```
utop # #use "reference.ml";;
```

```
type box = Box of int * box ref | Nothing
```

File "reference.ml", line 25, characters 22-33:

```
Error: This expression has type box ref but an expression was expected of type
      box
```

```
-( 16:11:37 )-< command 2 >-----{ counter: 0 }-
```

```
utop # #use "reference.ml";;
```

```
type box = Box of int * box ref | Nothing
```

```
val c : box =
```

Box (1,

```
{contents =
```

Box (2,

```
{contents =
```

Box (3.

```
{contents =
```

Box (1.

```
{contents =
```

Box (2.

```
{contents =
```

Box (3.

```
{contents =
```

Box (1,

```
{contents =
```

Box (2.

```
{contents =
```

Box (3.

```
{contents =
```

Box (1,

```
{contents =
```

Box (2,

```
{contents =
```

Box (3,

```
{contents =
```

Box (1.

```
{contents =
```

Box (2,

```
{contents =
```

Box (3,

```
{contents =
```

Box (1,

[illegible]

[illegible]

[illegible]

[illegible]

Error: The variant type box has no constructor Nil

```
utop # #use "reference.ml";;
```

```
val c : box =
```

Box (1,

[illegible]

[illegible]

[illegible]


```
Box (3,  
    {contents =  
      Box (1,  
        {contents =  
          Box (2,  
            {contents =  
              Box (3,  
                {contents =  
                  Box (1,  
                    {contents =  
                      Box (2,  
                        {contents =  
                          Box (...))}}}  
))))))))))))))))))))))))))))))))))))))))))))))))))))))))  
))))))))))))))))))  
-( 16:18:23 )-< command 7 >-----{ counter: 0 }-  
utop # firstn (!c) 5 ;;  
Error: This expression has type box but an expression was expected of type  
      'a ref  
-( 16:18:29 )-< command 8 >-----{ counter: 0 }-  
utop # firstn c 5 ;;  
- : int list = [1; 2; 3; 1; 2]  
-( 16:18:38 )-< command 9 >-----{ counter: 0 }-  
utop # firstn c 50 ;;  
- : int list =  
[1; 2; 3; 1; 2; 3; 1; 2; 3; 1; 2; 3; 1; 2; 3; 1; 2; 3; 1; 2; 3; 1; 2; 3; 1; 2;  
 3; 1; 2; 3; 1; 2; 3; 1; 2; 3; 1; 2; 3; 1; 2; 3; 1; 2; 3; 1; 2; 3; 1; 2]  
-( 16:18:48 )-< command 10 >-----{ counter: 0 }-  
utop # #quit ;;  
carbon:Sec_10_3:35pm$ cd ../MyCopiesForSecs/  
carbon:MyCopiesForSecs$ utop
```

```
Welcome to utop version 1.14 (using OCaml version 4.01.0)!
```

```
Type #utop_help for help about using utop.
```

```

- ( 18:00:00 )-< command 0 >- { counter: 0 }-
utop # #use "references.ml";;
type box = Box of int * box ref
val dummy : box =
  Box (99,
    {contents =
      Box (99,
        {contents =
          Box (99,
            {contents =
              Box (99,

```

[illegible]

[illegible]

[illegible]

