

```
Last login: Wed Dec 3 10:42:41 on ttys003
carbon:Intervals$ cd v5
carbon:v5$ ls
intInterval.ml  intervals.ml
carbon:v5$ utop
```

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

Findlib has been successfully loaded. Additional directives:

```
#require "package";;      to load a package
#list;;                  to list the available packages
#camlp4o;;               to load camlp4 (standard syntax)
#camlp4r;;               to load camlp4 (revised syntax)
#predicates "p,q,...";;  to set these predicates
Topfind.reset();;        to force that packages will be reloaded
#thread;;                to enable threads
```

Type #utop\_help for help about using utop.

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

```
utop # #mod_use "intervals.ml" ;;
```

```
module Intervals :
```

```
sig
```

```
  module type Comparable =
```

```
    sig type t val compare : t -> t -> int val to_string : t -> string end
```

```
  module type Interval_intf =
```

```
    sig
```

```
      type t
```

```
      type endpoint
```

```
      val create : endpoint -> endpoint -> t
```

```
      val is_empty : t -> bool
```

```
      val contains : t -> endpoint -> bool
```

```
      val intersect : t -> t -> t
```

```
      val to_string : t -> string
```

```
    end
```

```
  module Make_interval : functor (Endpoint : Comparable) -> Interval_intf
```

```
end
```

```
-( 11:22:49 )-< command 1 >-----{ counter: 0 }-
```

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

```
module Int_interval :
```

```
sig
```

```
  type t = Intervals.Make_interval(Core.Std.Int).t
```

```
  type endpoint = Intervals.Make_interval(Core.Std.Int).endpoint
```

```
  val create : endpoint -> endpoint -> t
```

```
  val is_empty : t -> bool
```

```
  val contains : t -> endpoint -> bool
```

```
  val intersect : t -> t -> t
```

```
  val to_string : t -> string
```

```
end
```

File "intInterval.ml", line 22, characters 28-29:

```
Error: This expression has type int but an expression was expected of type
      Int_interval.endpoint
```

```
-( 11:23:01 )-< command 2 >-----{ counter: 0 }-  
utop # #quit ;;  
carbon:v5$ cd ../v6  
carbon:v6$ utop
```

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

Findlib has been successfully loaded. Additional directives:

```
#require "package";;      to load a package  
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#camlp4o;;                to load camlp4 (standard syntax)  
#camlp4r;;                to load camlp4 (revised syntax)  
#predicates "p,q,...";;  to set these predicates  
Topfind.reset();;         to force that packages will be reloaded  
#thread;;                 to enable threads
```

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```
-( 18:00:00 )-< command 0 >-----{ counter: 0 }-  
utop # #mod_use "intervals.ml" ;;  
module Intervals :  
sig  
  module type Comparable =  
    sig type t val compare : t -> t -> int val to_string : t -> string end  
  module type Interval_intf =  
    sig  
      type t  
      type endpoint  
      val create : endpoint -> endpoint -> t  
      val is_empty : t -> bool  
      val contains : t -> endpoint -> bool  
      val intersect : t -> t -> t  
      val to_string : t -> string  
    end  
  module Make_interval :  
    functor (Endpoint : Comparable) ->  
      sig  
        type t  
        type endpoint = Endpoint.t  
        val create : endpoint -> endpoint -> t  
        val is_empty : t -> bool  
        val contains : t -> endpoint -> bool  
        val intersect : t -> t -> t  
        val to_string : t -> string  
      end  
end  
end  
-( 11:29:02 )-< command 1 >-----{ counter: 0 }-  
utop # #use "intInterval.ml";;  
module Int_comparable :  
  sig type t = int val compare : t -> t -> int val to_string : t -> string end  
module Int_interval :  
  sig
```

```

    type t = Intervals.Make_interval(Int_comparable).t
    type endpoint = int
    val create : endpoint -> endpoint -> t
    val is_empty : t -> bool
    val contains : t -> endpoint -> bool
    val intersect : t -> t -> t
    val to_string : t -> string
end
val i : Int_interval.t = <abstr>
-( 11:29:09 )-< command 2 >-----{ counter: 0 }-
utop # #use "intInterval.ml";;
module Int_comparable : Intervals.Comparable
module Int_interval :
  sig
    type t = Intervals.Make_interval(Int_comparable).t
    type endpoint = Int_comparable.t
    val create : endpoint -> endpoint -> t
    val is_empty : t -> bool
    val contains : t -> endpoint -> bool
    val intersect : t -> t -> t
    val to_string : t -> string
  end
File "intInterval.ml", line 16, characters 28-29:
Error: This expression has type int but an expression was expected of type
      Int_interval.endpoint
-( 11:29:24 )-< command 3 >-----{ counter: 0 }-
utop # #quit ;;;
carbon:v6$ cd ../v7
carbon:v7$ utop

```

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

Findlib has been successfully loaded. Additional directives:

```

#require "package";;      to load a package
#list;;                  to list the available packages
#camlp4o;;               to load camlp4 (standard syntax)
#camlp4r;;               to load camlp4 (revised syntax)
#predicates "p,q,...";;  to set these predicates
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```

Type #utop\_help for help about using utop.

```

-( 18:00:00 )-< command 0 >-----{ counter: 0 }-
utop # #mod_use "intervals.ml" ;;
module Intervals :
  sig
    module type Comparable =
      sig type t val compare : t -> t -> int val to_string : t -> string end
    module type Interval_intf =
      sig
        type t

```

```

    type endpoint
    val create : endpoint -> endpoint -> t
    val is_empty : t -> bool
    val contains : t -> endpoint -> bool
    val intersect : t -> t -> t
    val to_string : t -> string
end
module Make_interval :
  functor (Endpoint : Comparable) ->
    sig
      type t
      val create : Endpoint.t -> Endpoint.t -> t
      val is_empty : t -> bool
      val contains : t -> Endpoint.t -> bool
      val intersect : t -> t -> t
      val to_string : t -> string
    end
end
end
-( 11:41:57 )-< command 1 >-----{ counter: 0 }
-top #
-utop #
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
-( 11:41:57 )-< command 1 >-----{ counter: 0 }-
-utop # #quit ;;
carbon:v7$

```