

```
1: bash-9$ rlwrap ocaml
2:      OCaml version 4.09.0
3:
4: (* $Id: .ocamlinit,v 1.6 2019-01-24 18:40:26-08 - - $ *)
5: \033[K# \033[K# \033[K\033[?1034h# #use "using";;# \033[K#use "using";;
6: val rcs : string = "(* $Id: using,v 1.3 2019-01-24 17:15:07-08 - - $ *)"
7: (* $Id: using,v 1.3 2019-01-24 17:15:07-08 - - $ *)
8: - : unit = ()
9: module Absyn :
10:   sig
11:     type linenr = int
12:     type ident = string
13:     type label = string
14:     type number = float
15:     type oper = string
16:     and memref = Arrayref of ident * expr | Variable of ident
17:     and expr =
18:       Number of number
19:       | Memref of memref
20:       | Unary of oper * expr
21:       | Binary of oper * expr * expr
22:     type printable = Printexpr of expr | String of string
23:     type stmt =
24:       Dim of ident * expr
25:       | Let of memref * expr
26:       | Goto of label
27:       | If of expr * label
28:       | Print of printable list
29:       | Input of memref list
30:     type propline = linenr * label option * stmt option
31:     type program = propline list
32:   end
33: module Etc :
34:   sig
35:     val execname : string
36:     val exit_status_ref : int ref
37:     val quit : unit -> unit
38:     val eprint_list : string list -> unit
39:     val warn : string list -> unit
40:     val die : string list -> unit
41:     val syntax_error : Lexing.position -> string list -> unit
42:     val usage_exit : string list -> unit
43:     val buffer : string list ref
44:     val read_number : unit -> float
45:   end
46: \033[Kmodule Parser :
47:   sig
48:     type token =
49:       RELOP of string
50:       | EQUAL of string
51:       | ADDOP of string
52:       | MULOP of string
53:       | POWOP of string
54:       | IDENT of string
55:       | NUMBER of string
56:       | STRING of string
57:       COLON
58:       COMMA
```

```
59:      LPAR
60:      RPAR
61:      LSUB
62:      RSUB
63:      EOL
64:      EOF
65:      DIM
66:      LET
67:      GOTO
68:      IF
69:      PRINT
70:      INPUT
71:      val linenr : unit -> int
72:      val syntax : unit -> unit
73:      val yytransl_const : int array
74:      val yytransl_block : int array
75:      val yylhs : string
76:      val yylen : string
77:      val yydefred : string
78:      val yydgoto : string
79:      val yysindex : string
80:      val yyrintex : string
81:      val yygindex : string
82:      val yytablesize : int
83:      val yytable : string
84:      val yycheck : string
85:      val yynames_const : string
86:      val yynames_block : string
87:      val yyact : (Parsing.parser_env -> Obj.t) array
88:      val yytables : Parsing.parse_tables
89:      val program : (Lexing.lexbuf -> token) -> Lexing.lexbuf -> Absyn.pro
gram
90:      end
91:      module Scanner :
92:      sig
93:      val lexerror : Lexing.lexbuf -> unit
94:      val newline : Lexing.lexbuf -> unit
95:      val lexeme : Lexing.lexbuf -> string
96:      val __ocaml_lex_tables : Lexing.lex_tables
97:      val token : Lexing.lexbuf -> Parser.token
98:      val __ocaml_lex_token_rec : Lexing.lexbuf -> int -> Parser.token
99:      end
100:      module Tables :
101:      sig
102:      type variable_table_t = (string, float) Hashtbl.t
103:      type array_table_t = (string, float array) Hashtbl.t
104:      type unary_fn_table_t = (string, float -> float) Hashtbl.t
105:      type binary_fn_table_t = (string, float -> float -> float) Hashtbl.t
106:      type label_table_t = (string, Absyn.program) Hashtbl.t
107:      val variable_table : variable_table_t
108:      val array_table : array_table_t
109:      val unary_fn_table : unary_fn_table_t
110:      val binary_fn_table : binary_fn_table_t
111:      val label_table : label_table_t
112:      val init_label_table : Absyn.program -> unit
113:      val dump_label_table : unit -> unit
114:      end
115:      module Dumper :
```

```
116:   sig
117:     val quote : string -> string
118:     val join : string -> string -> string -> string list -> string
119:     val string_of_option : ('a -> string) -> 'a option -> string
120:     val string_of_ctor : string -> string list -> string
121:     val string_of_list : ('a -> string) -> 'a list -> string
122:     val string_of_printable : Absyn.printable -> string
123:     val string_of_memref : Absyn.memref -> string
124:     val string_of_expr : Absyn.expr -> string
125:     val string_of_stmt : Absyn.stmt -> string
126:     val dump_procline : int * string option * Absyn.stmt option -> unit
127:     val dump_program : Absyn.program -> unit
128:   end
129: module Interp :
130:   sig
131:     exception Unimplemented of string
132:     val no_expr : string -> 'a
133:     val no_stmt : string -> 'a -> 'b
134:     val want_dump : bool ref
135:     val eval_expr : Absyn.expr -> float
136:     val interpret : Absyn.program -> unit
137:     val interp_stmt : Absyn.stmt -> Absyn.program -> unit
138:     val interp_print : Absyn.printable list -> Absyn.program -> unit
139:     val interp_input : Absyn.memref list -> Absyn.program -> unit
140:     val interpret_program : Absyn.program -> unit
141:   end
142: module Main : sig val interpret_source : string -> unit end
143: - : unit = ()
144: # \033[K# \033[K# interpret_source ".score/00-hello-world.sb";;# \033[Ki
nterpret_source ".score/00-hello-world.sb";;
145: program: 1 None: None
146: program: 2 None: None
147: program: 3 None: None
148: program: 4 None: None
149: program: 5 None: Some (Print ([String ("\"Hello, World!\")]))
150: Hello, World!
151: - : unit = ()
152: # \033[K# \033[K# interpret_source ".score/41-eratosthenes.sb";;# \033[K
interpret_source ".score/41-eratosthenes.sb";;
153: label_table: "punch" -> line 22
154: label_table: "primes" -> line 16
155: label_table: "init" -> line 9
156: label_table: "next" -> line 24
157: label_table: "loop" -> line 20
158: program: 1 None: None
159: program: 2 None: None
160: program: 3 None: Some (Let (Variable ("n"), Number (100.)))
161: program: 4 None: Some (Dim ("sieve", Memref (Variable ("n"))))
162: program: 5 None: None
163: program: 6 None: None
164: program: 7 None: None
165: program: 8 None: Some (Let (Variable ("i"), Number (2.)))
166: program: 9 Some ("init"): Some (Let (Arrayref ("sieve", Memref (Variable
("i"))), Number (1.)))
167: program: 10 None: Some (Let (Variable ("i"), Binary ("+", Memref (Variab
le ("i")), Number (1.)))
168: program: 11 None: Some (If (Binary ("<", Memref (Variable ("i")), Memref
(Variable ("n"))), "init"))
```

```
169: program: 12 None: None
170: program: 13 None: None
171: program: 14 None: None
172: program: 15 None: Some (Let (Variable ("prime"), Number (2.)))
173: program: 16 Some ("primes"): Some (If (Binary ("=", Memref (Arrayref ("sieve", Memref (Variable ("prime")))), Number (0.)), "next"))
174: program: 17 None: Some (Print ([Printexpr (Memref (Variable ("prime")))]))
175: program: 18 None: Some (Let (Variable ("i"), Binary ("*", Memref (Variable ("prime")), Number (2.))))
176: program: 19 None: Some (Goto ("punch"))
177: program: 20 Some ("loop"): Some (Let (Arrayref ("sieve", Memref (Variable ("i"))), Number (0.)))
178: program: 21 None: Some (Let (Variable ("i"), Binary ("+", Memref (Variable ("i")), Memref (Variable ("prime")))))
179: program: 22 Some ("punch"): Some (If (Binary ("<", Memref (Variable ("i")), Memref (Variable ("n"))), "loop"))
180: program: 23 None: None
181: program: 24 Some ("next"): Some (Let (Variable ("prime"), Binary ("+", Memref (Variable ("prime")), Number (1.))))
182: program: 25 None: Some (If (Binary ("<=", Memref (Variable ("prime")), Memref (Variable ("n"))), "primes"))
183: Exception: Interp.Unimplemented "Let (memref, expr)".
184: # \033[K# \033[K#
185: \033[Kbash-10$ exit
186: exit
187:
```