```lisp
; vim: ts=2 sw=2 et:
(defpackage :small (:use :cl))
(in-package :small)
(defstruct our
  (help
"sbcl --script lib.lisp [OPTIONS
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Lets have some fun.")
  (options
    '((b    "-b" "asda" 23)
      (enough "-e" "enough" 512)
      (p    "-p" "asda" 2)
      (help "-h" "asda" nil)
      (license "-l" "asda" nil)
      (file "-f" "asda" "asdas")
      (seed "-s" "random number seed" 10019)
      (todo "-t" "start up action" "")
      (q    "-q" "asda" 1000)))
  (copyright "
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AUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE."))

(defvar *config* (make-our))

;;;; macros ----------------------------------------------------------------------
(defstruct (some (:constructor %make-some))
  ok (all (make-array 5 :fill-pointer 0)) max)

(defstruct (num (:constructor %make-num))
  (n 0) (w 1) (at 0) (txt "") (all (some))
  (lo most-positive-fixnum) (hi most-negative-fixnum))

(defstruct (sym (:constructor %make-sym))
  mode seen (n 0) (at 0) (txt "") (most 0))


;;;; macros ----------------------------------------------------------------------
(defmacro aif (test yes &optional no)
  "Anaphoric if (traps result of conditional in 'it')."
  `(let ((it ,test)) (if it ,yes ,no)))

(defmacro whale (expr &body body)
  "Anaphoric while (traps result of conditional in 'a')."
  `(do ((a ,expr ,expr)) ((not a)) ,@body))

(defmacro ? (s x &rest xs)
  "Nested access to slots."
  (if (null xs) `(slot-value ,s ',x) `(? (slot-value ,s ',x) ,@xs)))

(defmacro $ (x &optional (our *config*))
  "Access  a config variable name."
  `(fourth (assoc ',x (our-options ,our))))

(defmacro with-csv ((lst file &optional out) &body body)
  "File row iterator."
  `(progn (csv ,file #'(lambda (,lst) ,@body)) ,out))

(defmacro inca (x a &optional (inc  1))
  `(incf (cdr (or (assoc ,x ,a :test #'equal)
                  (car (setf ,a (cons (cons ,x 0) ,a))))) ,inc))

;;;; random -----------------------------------------------------------
(defun randf (&optional (n 1.0))
  (setf ($ seed)  (mod (* 16807.0d0 ($ seed)) 2147483647.0d0))
  (* n (- 1.0d0 (/ ($ seed)                    2147483647.0d0))))

(defun randi (&optional (n 1))
  (floor (* n (/ (randf 1000000.0) 1000000))))

;;;; strings --------------------------------------------------------------------
(defun trim (x)
  "Remove whitespace front and back."
  (string-trim '(#\Space #\Newline #\Tab) x))

(defun num?(x)
  "Return a number, if you can. Else return trimmed string."
  (let ((y (ignore-errors (read-from-string x))))
    (if (numberp y) y (let ((x (trim x)))
                        (if (equal x "?") #\? x)))))

(defun subseqs (s &optional (sep #\,) (n 0))
  "Separate string on 'sep'."
  (aif (position sep s :start n)
    (cons (subseq s n it) (subseqs s sep (1+ it)))
    (list (subseq s n))))

;;;; operating system ------------------------------------------------------------
(defun args ()
  "Return list of command line arguments."
  #+clisp (cdddr (cddr (coerce (EXT:ARGV) 'list)))
  #+sbcl  (cdr sb-ext:*posix-argv*))

(defun csv (file &optional (fn #'print))
  "Send to 'fn' one list from each line."
  (with-open-file (str file)
    (loop (funcall fn
         (subseqs (or (read-line str nil) (return-from csv)))))))

(defun cli (&optional (our (make-our)) (lst (args)))
  "Maybe update 'our' with data from command line."
  (labels ((cli1 (flag x) (aif (member flag lst :test #'equalp)
                             (cond ((equal x t)   nil) ; flip boolean
                                   ((equal x nil) t)    ; flip boolean
                                   (t              (or (num? (second it)) x)))
                             x)))
    (dolist (x (our-options our) our)
      (setf (fourth x) (cli1 (second x) (fourth x))))))
```

```lisp
;;;; num  ------------------------------------------------------------
(defmethod print-object ((o our) s)
  (format s "~a~%~%OPTIONS:~%" (our-help o))
  (dolist (x (our-options o))
    (format s " ~5a ~30a = ~a~%" (second x) (third x) (fourth x))))

(defun make-some (&key (max ($ enough)))
  (%make-some :max max))

(defmethod all ((s some))
  (unless (? s ok)
    (setf (? all) (sort (? all) #'<)
          (? s ok) t))
  (? s all))

(defmethod add ((s some) x)
  (vector-push x (? s all))
  (setf (? s ok) nil))

(defun make-num (&key init (txt "") (at 0) )
  (let ((new (%make-num :txt txt :at at :w (if (find #\< txt) -1 1))))
    (dolist (x init new) (add new x))))

(defmethod add ((n num) x &optional (inc 1))
  (unless (eql x #\?)
    (incf (? n n))
    (setf lo (min x (? n lo))
          hi (max x (? n ho))
          ok nil)
    (push x (? n all)))
  x)

;;;; sym  ------------------------------------------------------------
(defun make-sym (&key init (txt "") (at 0) )
  (let ((new (%make-sym :txt txt :at at)))
    (dolist (x init new) (add new x))))

(defmethod add ((s sym) x &optional (inc 1))
  (unless (eql x #\?)
    (incf (? s n ) inc)
    (let ((now (inca x (? s seen))))
      (if (> now (? s most))
        (setf (? s most) now
              (? s mode) x))))
  x)

;;;; ---------------------------------------------------------------------------
(defvar *tests* nil)
(defvar *fails* 0)

(defmacro deftest (name params  doc  &body body)
  `(progn (pushnew  ',name *tests*)
          (defun ,name ,params ,doc ,@body)))

(defun demos (&optional what)
  (dolist (one *tests*)
    (let ((doc (documentation one 'function)))
      (when (or (not what) (eql one what))
        (setf *config* (cli (make-our)))
        (multiple-value-bind (_ err)
          (ignore-errors (funcall one))
          (incf *fails* (if err 1 0))
          (if err
            (format t "~&~a [~a] ~a ~a~%" "FAIL" one doc err)
            (format t "~&~a [~a] ~a~%"    "PASS" one doc))))))

(defun make () (load "lib"))

(deftest _while(&aux (x '(1 2 3)))
  (whale (pop x) (print a)))

(deftest _csv()
  (let (head)
    (with-csv (line "../data/auto93.csv")
      (if head
        (format t "~s~%" (mapcar #'reads line))
        (setf head line)))))

;;;; ---------------------------------------------------------------------------
(setf *config* (cli (make-our)))
(if ($ help) (print *config*))
(if ($ license) (princ (our-copyright *config*)))
```