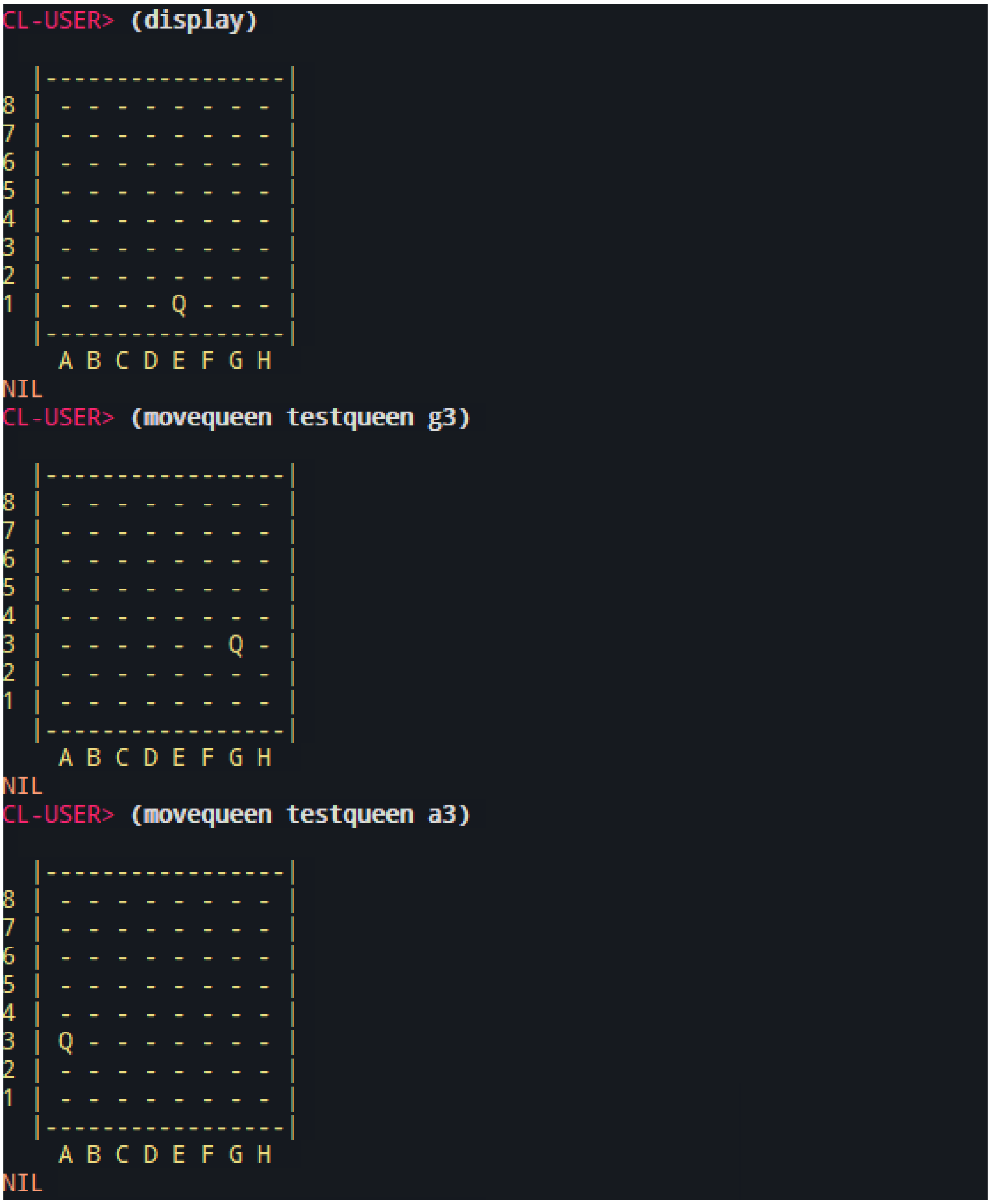
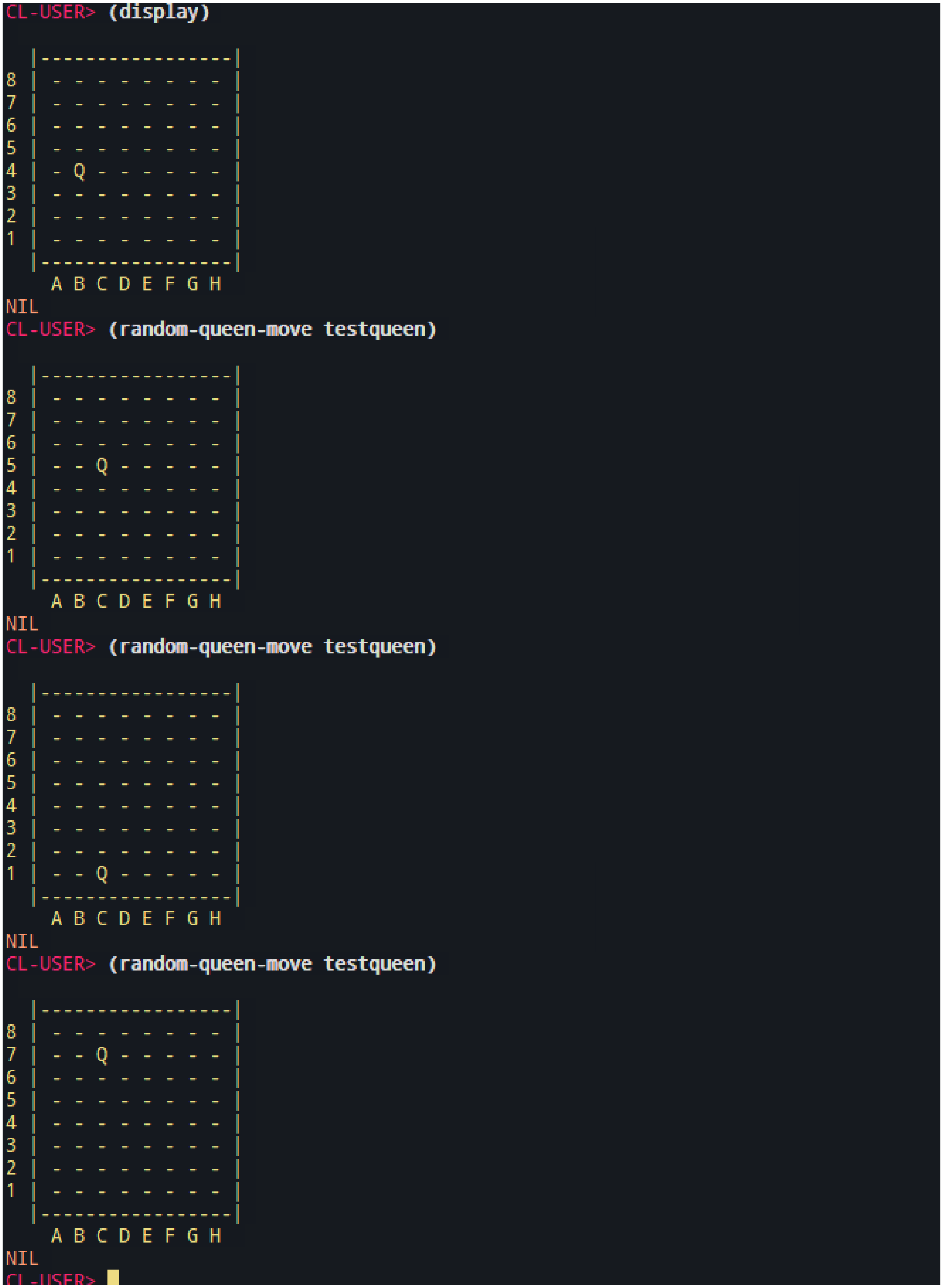
Chess AI Player Task 8: Queen Piece

Abstract: The goal of this task was to take the created queen piece and to have a human move the piece around the board. Also I am combining the random moves task to this task so it will also contain moving the piece around the board randomly. This piece works by using the method for the rook and the bishop pieces. I combined the list of squares that the bishops and rooks would be able to move to and randomly pick one.

Demo:

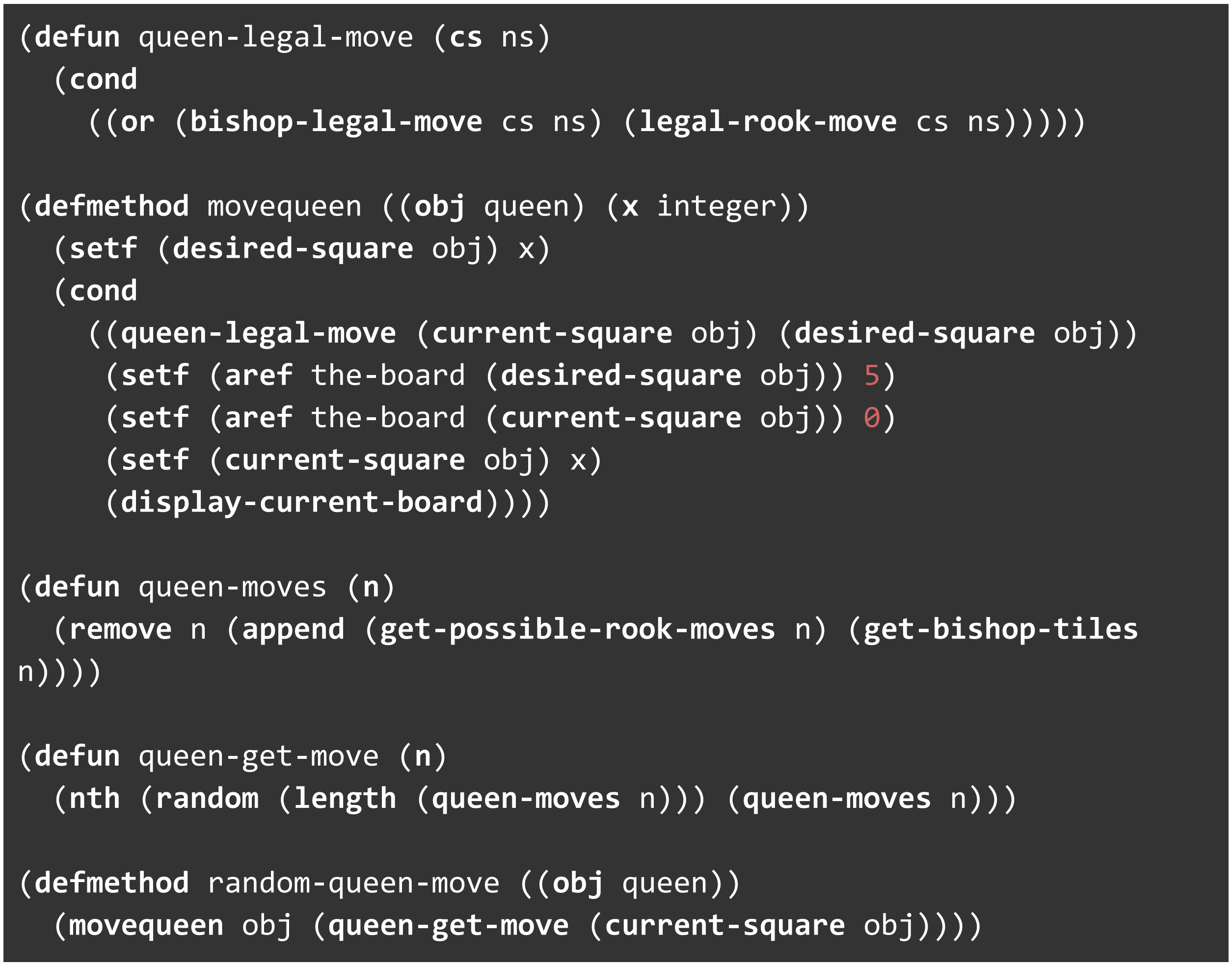


```
CL-USER> (display)

  |-----------------|
8 | - - - - - - - - |
7 | - - - - - - - - |
6 | - - - - - - - - |
5 | - - - - - - - - |
4 | - - - - - - - - |
3 | - - - - - - - - |
2 | - - - - - - - - |
1 | - - - - Q - - - |
  |-----------------|
    A B C D E F G H
NIL
CL-USER> (movequeen testqueen g3)

  |-----------------|
8 | - - - - - - - - |
7 | - - - - - - - - |
6 | - - - - - - - - |
5 | - - - - - - - - |
4 | - - - - - - - - |
3 | - - - - - - Q - |
2 | - - - - - - - - |
1 | - - - - - - - - |
  |-----------------|
    A B C D E F G H
NIL
CL-USER> (movequeen testqueen a3)

  |-----------------|
8 | - - - - - - - - |
7 | - - - - - - - - |
6 | - - - - - - - - |
5 | - - - - - - - - |
4 | - - - - - - - - |
3 | Q - - - - - - - |
2 | - - - - - - - - |
1 | - - - - - - - - |
  |-----------------|
    A B C D E F G H
NIL
```



```
CL-USER> (display)

   |-----------------|
8  | - - - - - - - - |
7  | - - - - - - - - |
6  | - - - - - - - - |
5  | - - - - - - - - |
4  | - Q - - - - - - |
3  | - - - - - - - - |
2  | - - - - - - - - |
1  | - - - - - - - - |
   |-----------------|
     A B C D E F G H
NIL
CL-USER> (random-queen-move testqueen)

   |-----------------|
8  | - - - - - - - - |
7  | - - - - - - - - |
6  | - - - - - - - - |
5  | - - Q - - - - - |
4  | - - - - - - - - |
3  | - - - - - - - - |
2  | - - - - - - - - |
1  | - - - - - - - - |
   |-----------------|
     A B C D E F G H
NIL
CL-USER> (random-queen-move testqueen)

   |-----------------|
8  | - - - - - - - - |
7  | - - - - - - - - |
6  | - - - - - - - - |
5  | - - - - - - - - |
4  | - - - - - - - - |
3  | - - - - - - - - |
2  | - - - - - - - - |
1  | - - Q - - - - - |
   |-----------------|
     A B C D E F G H
NIL
CL-USER> (random-queen-move testqueen)

   |-----------------|
8  | - - - - - - - - |
7  | - - Q - - - - - |
6  | - - - - - - - - |
5  | - - - - - - - - |
4  | - - - - - - - - |
3  | - - - - - - - - |
2  | - - - - - - - - |
1  | - - - - - - - - |
   |-----------------|
     A B C D E F G H
NIL
CL-USER> 
```

Code:



```
(defun queen-legal-move (cs ns)
  (cond
    ((or (bishop-legal-move cs ns) (legal-rook-move cs ns)))))

(defmethod movequeen ((obj queen) (x integer))
  (setf (desired-square obj) x)
  (cond
    ((queen-legal-move (current-square obj) (desired-square obj))
     (setf (aref the-board (desired-square obj)) 5)
     (setf (aref the-board (current-square obj)) 0)
     (setf (current-square obj) x)
     (display-current-board))))

(defun queen-moves (n)
  (remove n (append (get-possible-rook-moves n) (get-bishop-tiles
n))))

(defun queen-get-move (n)
  (nth (random (length (queen-moves n))) (queen-moves n)))

(defmethod random-queen-move ((obj queen))
  (movequeen obj (queen-get-move (current-square obj))))
```