The Guess-My-Number Game [1]

[1] From Chapter 2 of *Land of Lisp*.

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In this game, you pick a number from 1 to 100, and the computer has to guess it.

Outline

1 ⟨*guess* 1⟩≡
⟨*(Re)set the global state* 2⟩

⟨*Define the guess-my-number function* 3⟩

⟨*Define the smaller function* 6⟩

⟨*Define the bigger function* 9⟩

⟨*Define the start-over function* 12⟩

Defining the Small and Big Variables

2 ⟨*(Re)set the global state* 2⟩≡ (1)
```
(defparameter *small* 1)
(defparameter *big* 100)
```

Defining the Guess-My-Number Function

3 ⟨*Define the guess-my-number function* 3⟩≡ (1)
```
(defun guess-my-number ()
  ⟨Halve the sum of the limits and shorten the result 4⟩)
```

4 ⟨*Halve the sum of the limits and shorten the result* 4⟩≡ (3)
```
(ash (+ *small* *big*) -1)
```

5 ⟨*Have the computer guess a number* 5⟩≡ (6 8 9 11 12)
```
(guess-my-number)
```

Defining the Smaller and Bigger Functions

6 ⟨*Define the smaller function* 6⟩≡ (1)
```
(defun smaller ()
  ⟨Set *big* to one less than the last guess 7⟩
  ⟨Have the computer guess a number 5⟩)
```

7 ⟨*Set *big* to one less than the last guess* 7⟩≡ (6)
```
(setf *big* ⟨Subtract one from the most recent guess 8⟩)
```

8 ⟨*Subtract one from the most recent guess* 8⟩≡ (7)
```
(1- ⟨Have the computer guess a number 5⟩)
```

9 ⟨*Define the bigger function* 9⟩≡ (1)
```
(defun bigger ()
  ⟨Set *small* to one greater than the last guess 10⟩
  ⟨Have the computer guess a number 5⟩)
```

10 ⟨*Set *small* to one greater than the last guess* 10⟩≡ (9)
```
(setq *small* ⟨Add one to the most recent guess 11⟩)
```

11 ⟨*Add one to the most recent guess* 11⟩≡ (10)
```
(1+ ⟨Have the computer guess a number 5⟩)
```

Defining the Start-Over Function

12 ⟨*Define the start-over function* 12⟩≡ (1)
```
(defun start-over ()
  «(Re)set the global state>
  ⟨Have the computer guess a number 5⟩)
```

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