

# Lisp programming using Map functions L3

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**6.** Write a function that returns the depth of a list.

**Mathematical Models**

$$\text{maxdepth}(l) = \begin{cases} \max(\bigcup_{i=1}^n \text{maxdepth}(l_i)) & \text{if } l = (l_1, \dots, l_n) \\ 0 & \text{otherwise} \end{cases}$$

**Meaning of predicates. Flow models. Source Code**

```
; max_depth(l : List)
; l - List of atoms and lists
(defun max_depth (l)
  (cond
    ((atom l) 0)
    (t (1+ (apply #'max (mapcar #'max_depth l))))
  )
)
```

**Examples**

```
[2]> (max_depth '(1 (2 (3 (4))))))
4
```

```
[3]> (max_depth '(1 (2 (3 (4 (5 (6)))) (3 (4)))))
6
```