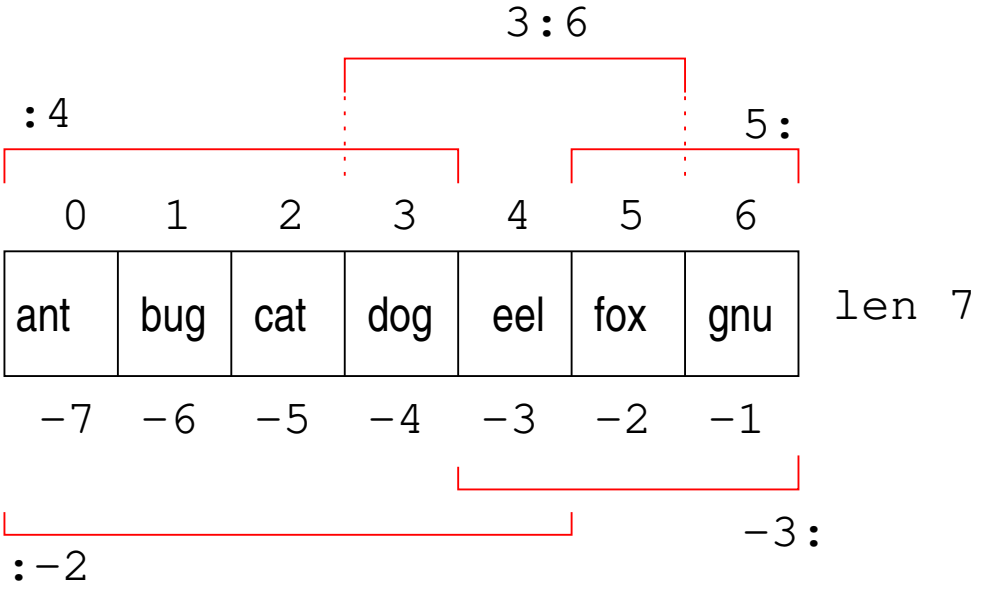
Chapter 2 outline:

- Mathematical sequences and Python lists (Monday)
- Recurrence relations and recursive functions (**today**)
- Functions on lists (next week Monday)
- More about functions on lists; sorting (next week Wednesday)
- Arrays, vectors, and intervals (next week Friday)
- Review for test (next week Wednesday)
- Test on Chapters 1 & 2 (next week Fri, Feb 7)

Today:

- Recurrence relations
- Python pieces
- Recursive functions
- Functions to build lists

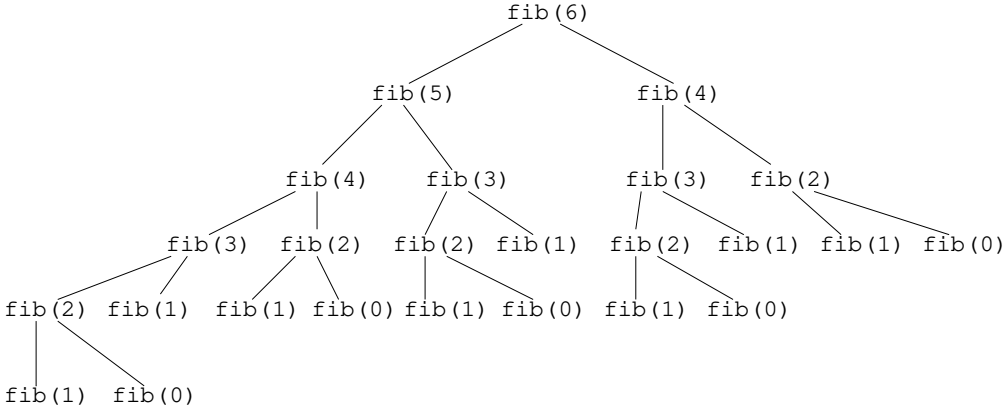

3:6
:4
5:
0 1 2 3 4 5 6
ant bug cat dog eel fox gnu
len 7
−7 −6 −5 −4 −3 −2 −1
−3:
:−2

The ideas introduced in Sections 2.2 (today) and 2.3 (next week Monday and Wednesday) include

- Recursion, or defining a object or process self-referentially.
- Decision-making using conditional expressions and statements.
- Storing values in local (temporary) variables so that the values can be reused instead of recomputed.
- Algorithms for building sets and lists recursively.
- Algorithms for processing lists recursively.

Principles of recursion

- A recursive function calls itself.
- A recursive algorithm defines the solution in terms of a smaller version of the same problem.
- A recursive function must have a base case and a recursive case.


fib(6)
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For next time:

Do Exercises 2.2.(2, 3, 4, 5, 6, 11, 12, 15).

Note that Exercise 2.2.12 (powerset) requires your solution to an exercise from a previous assignment: You'll need to grab your code from Exercise 1.8.13 (add to each).

Read 2.3

Take quiz (short)