Quiz 6

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1. Draw the box-and-pointer diagram for the `Link L` after the following code is executed.

```
>>> L = Link(0)
>>> for n in range(1, 3):
...     L = Link(n, Link(L, L))
>>> L.rest.rest.rest = L.rest
```

2. Implement a function `deep_map`, which takes an (possibly nested) `Link` and a function `f`, and applies `f` to every element in the Link. If an element is itself a `Link`, recursively apply `f` to each of the element's elements.

```
def deep_map(f, lst):
    """Applies f to every element in lst.

    >>> normal = Link(1, Link(2, Link(3)))
    >>> deep_map(lambda x: x*x, normal)
    >>> normal
    Link(1, Link(4, Link(9)))
    >>> deep = Link(Link(1, Link(2)), Link(3, Link(4)))
    >>> deep_map(lambda x: x*x, deep)
    >>> deep
    Link(Link(1, Link(4)), Link(9, Link(16)))
    """
```

3. Write a function `all_paths` that takes in a `Tree` and returns a list of paths from the root to leaves. Each path is represented as a `Link`.

```
def all_paths(tree):
```