Time Complexity and Algorithms

Quin Darcy

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1 Linked Lists

Non-empty *lists* can be represented by *two-cells*, in each of which the first cell contains a pointer to a list element and the second cell contains a *pointer* to either the empty list or another two-cell.For instance, the list $[3, 1, 2, 4, 5]$.

More abstractly, a list can be constructed by two constructors:

1. `EmptyList`, which gives you the empty list, and

2. `MakeList(element, list)`, which puts an element at the top of an existing list.

Using this, our last example list can be constructed as

```
MakeList(3, MakeList(1, MakeList(4, MakeList(2, MakeList(5, EmptyList))))).
```