

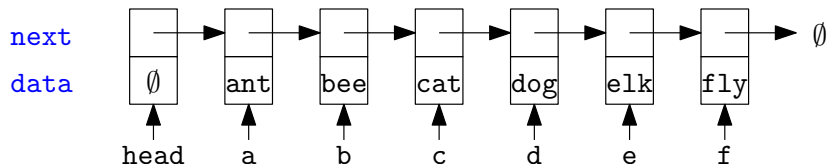
Skip Lists

CPSC 221: Algorithms and Data Structures

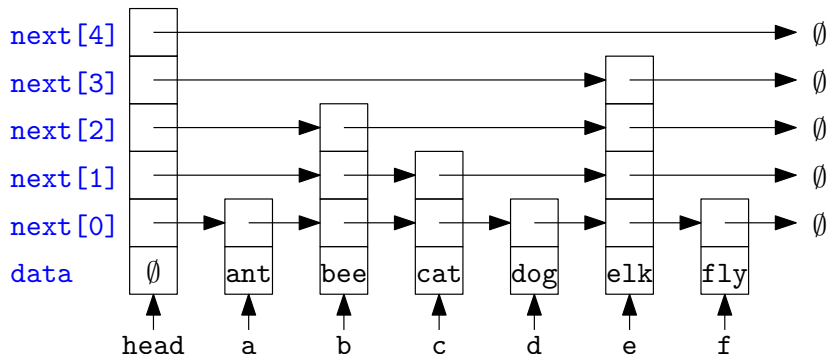
Will Evans and Jan Manuch

2016W1

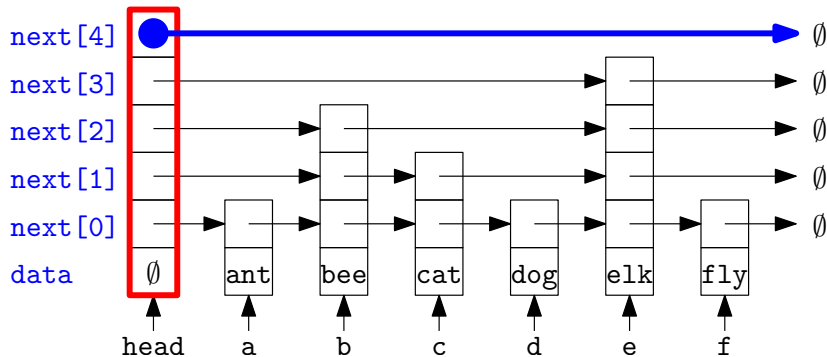
Linked List



Skip List

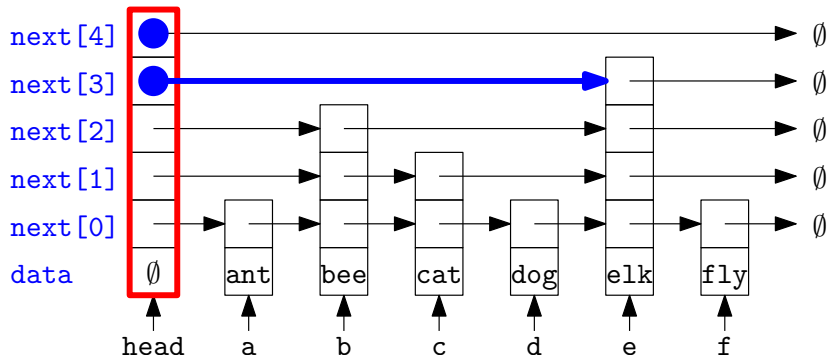


Find cow



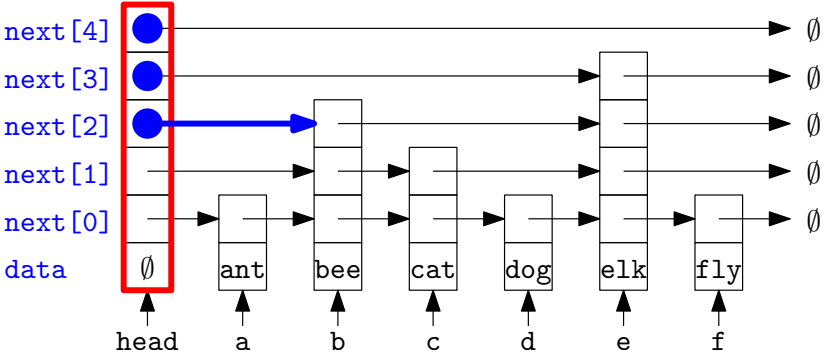
Since pointer is NULL, go Down.

Find cow



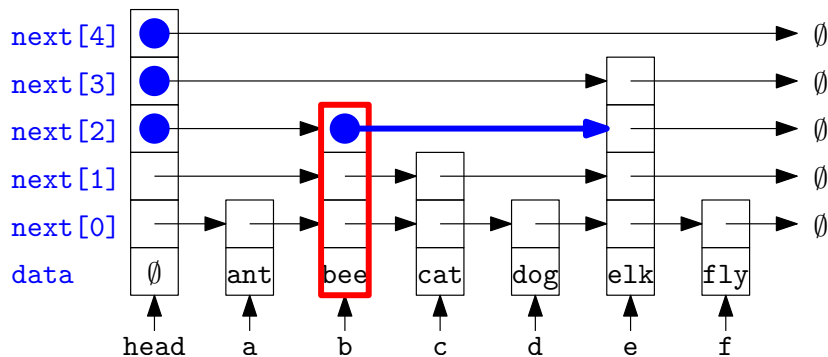
Since cow < elk, go Down.

Find cow



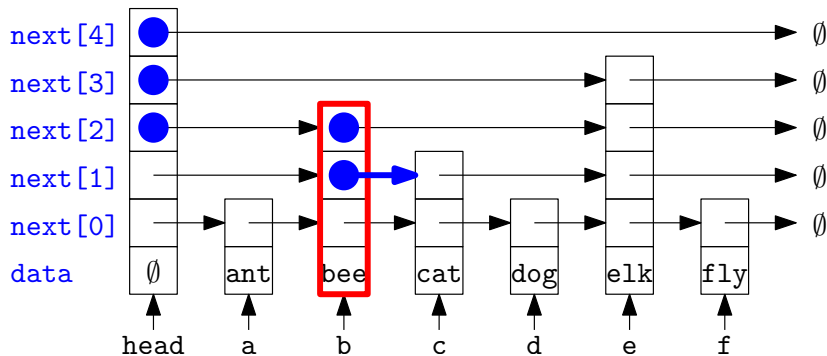
Since cow > bee, go Right.

Find cow



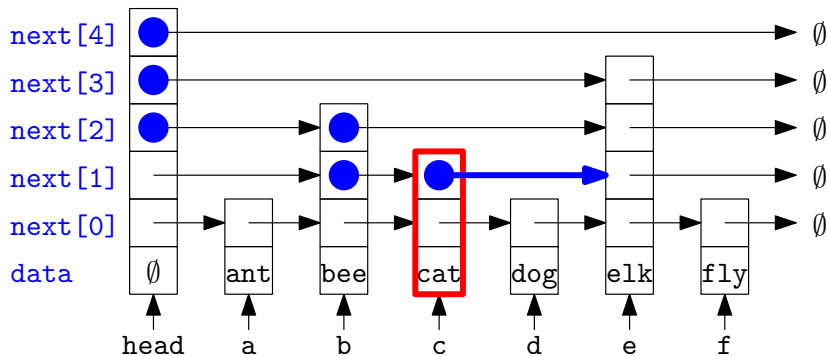
Since `cow < elk`, go Down.

Find cow



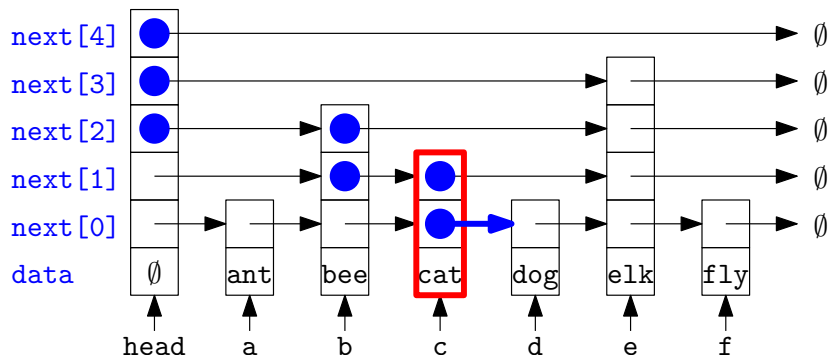
Since cow > cat, go Right.

Find cow



Since cow < elk, go Down.

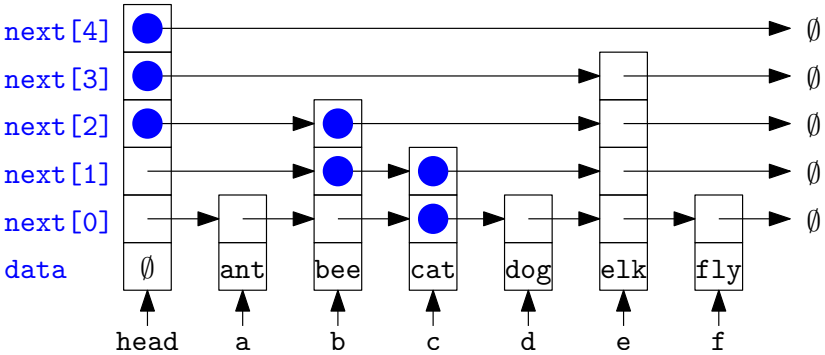
Find cow



Since cow < dog, go Down.

Oops! cow not found!

Find cow



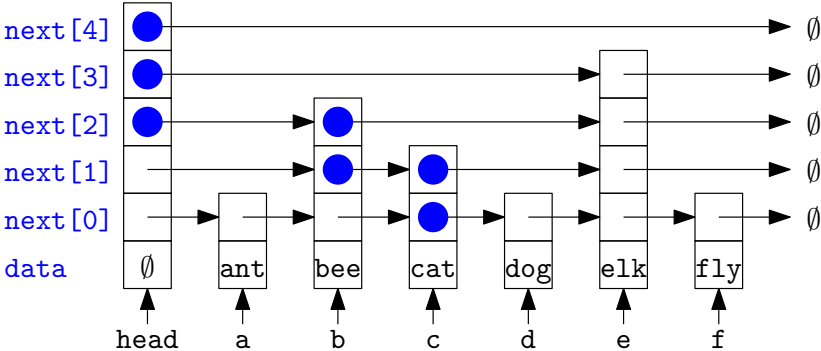
The pointers we looked at.

Insert cow

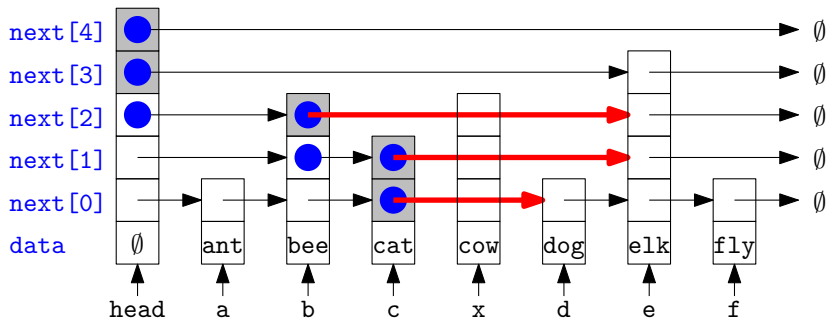
1. Create a new skiplist node. **What height?**

```
for( i=1; i<MAX_HEIGHT; ++i )  
    if( randBit() == 1 ) break;  
height = i;
```

2. Add it to the skiplist. **How?**



Insert cow



The pointers we need to change.

Insert cow

