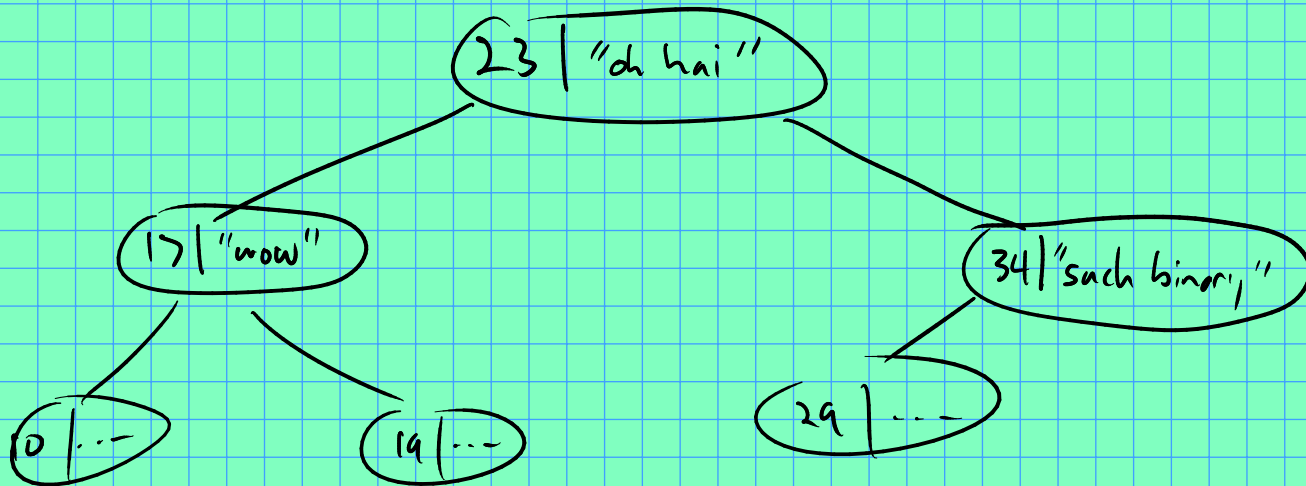


## Maps

Like an augmented set:



(Illustration of a  $\text{Map}(\text{int}, \text{string})$ )

Quick example application: print a histogram of strings from stdin

```
echo aaa bbb aaa ccc aaa | ./histogram
```

```
aaa: 3
bbb: 1
ccc: 1
```

Can't do this with an array!

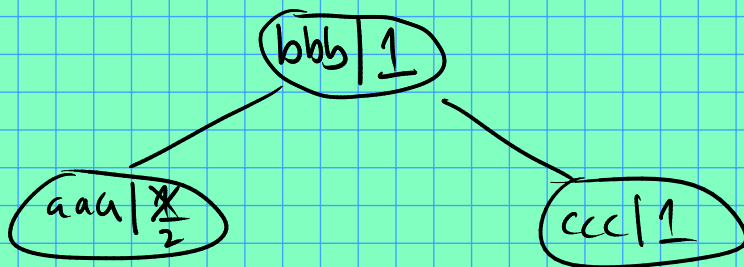
a	..	aa	
b		ab	
c		ac	
:		:	
:		:	

Issue: the domain is too large to make a table for all the values.

Map is a nice fix: lets you partially define functions on a large domain.

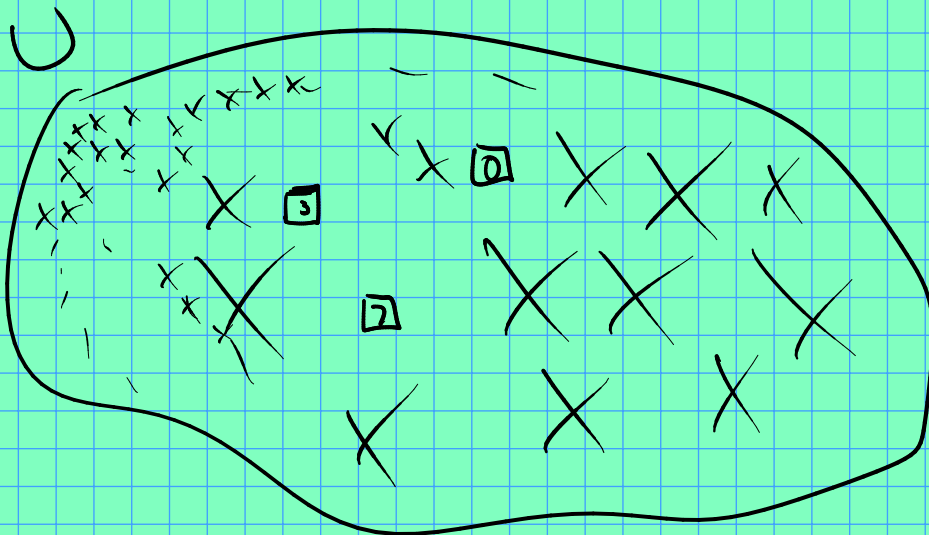
---

edbs bdb aac ccc aca | ./freq



---

Partially defined functions:



X = don't care about value here

□ = set value here.

---

You can think of maps like vectors, but the indexes don't have to be integers.

$$\text{map} \langle \text{int}, \text{int} \rangle \cong \text{vector} \langle \text{int} \rangle$$

Exercise: compare & contrast.