

CS 61A

Homework assignment 3A

Due 7/19/06

SICP, exercises 2.7, 2.8, 2.10, 2.12, 2.17, 2.20, 2.22, 2.23

(Note: “Spans zero” means that one bound is \leq zero and the other is \geq zero!)

- Write a procedure `substitute` that takes three arguments: a list, an old word, and a new word. It should return a copy of the list, but with every occurrence of the old word replaced by the new word, even in sublists. For example:

```
> (substitute '((lead guitar) (bass guitar) (rhythm guitar) drums)
      'guitar 'axe)
((lead axe) (bass axe) (rhythm axe) drums)
```

- Now write `substitute2` that takes a list, a list of old words, and a list of new words; the last two lists should be the same length. It should return a copy of the first argument, but with each word that occurs in the second argument replaced by the corresponding word of the third argument:

```
> (substitute2 '((4 calling birds) (3 french hens) (2 turtle doves))
      '(1 2 3 4) '(one two three four))
((four calling birds) (three french hens) (two turtle doves))
```