

IS MSc Artificial Intelligence Programming II

Exercise 7

Issued: week 7

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1. Using the “boxes” model of lists draw a diagram showing the structure of the following list:

```
[[a b] 5 [c d][e [f g]]]
```

2. Explain the use and function of the following two Pop-11 list operators:

- ::
- <>

How could the same results be achieved by use of the ^ and ^^ operators?

3. Consider the following piece of Pop-11 code:

```
vars list, list1, list2;

[a b c]->list;
[d e f]->list1
list <> list1 ->list2;
100->list2(5);
```

What are the values of list, list1, and list2 after this piece of code is executed? Explain your answer by drawing “boxes” model diagrams.

4. Write a recursive procedure flat to flatten a list.i.e. flat should produce a new list which is the same as the original list but with all list brackets “removed”.

For example:

```
flat( [ [a b] [c d] e [f [g h]] ] )=>
** [a b c d e f g h]
```