

Amay Shah      { Assignment 2 } Question 1  
 Farhan Ali

a)  $[w, x, y | z]$  and  $[1, 2, 3, 4, 5 | [6, 7, x]]$

- The left list starts with  $w, x, y$  and then  $z$  can be any list
- The right list starts with numbers 1 to 5, so we must have a list that begins with 6 and 7 followed by  $x$

$\therefore$  The list cannot match, as  $z$  would need to be a specific list  $[6, 7, x]$  in the first list

b)  $[p | [q, | r | [s | [t | [v] ]]]]]$  and  $[x, y | z]$ .

- $x = p, y = q$
- $z$  would need to be  $[r | [s | [t | [v] ]]]$

$\therefore$  Lists can be made identical if  $x = p, y = q$ , and  $z = [r | [s | [t | [v] ]]]$

c)  $[[z | [x, y]], e, f, g]$  and  $[[a, [x, y]] | v]$

- The left list has elements  $e, f, g$  which are not present in the right list

$\therefore$  Lists cannot be identical

d)  $[[a], B, C | D]$  and  $[[a | B] | [C | D]]$

- When we expand the list :  $[a, B | [C | D]]$

- The first two elements a, and B match perfectly with the first list

$\therefore$  The list can be made identical

e)  $[\text{minus} | [y, x | [\text{minus}, y | [x]]]]$  and  $[x, \text{plus}, \text{minus} | [x, y, \text{minus}]]$

- The left list starts with minus. The right list starts with x, plus, and minus

- The structure and elements are different

$\therefore$  list cannot be made identical

f)  $[\text{bike} | A]$  and  $[C | [C | [C | [CC | [C]]]]]$

- The list has repetitive structure with C, which first list doesn't have

$\therefore$  lists cannot be identical

g)  $[a, b | [C | [D, E | C]]]$  and  $[F | [G, H, []], [[D]]]]$

- The list starts with a and b, which are followed by list  $[C | [D, E | C]]$

- The second list starts with F, and then begins with G, H (list), followed by empty list and a list containing D

$\therefore$  The two lists cannot be made identical

- (h) [Fox, [[in], socks], [on], box, on | [[knox]] ] and  
[[The, cat], [[in], The], hat | [comes | Back]]
- The first list starts with 'Fox', followed by the nested list [[in], socks], then [on], 'box', 'on' and the list [[knox]]
  - The second list starts with the nested list [The, cat], followed by another nested list [[in], The], then 'hat' and the list [comes | Back].

∴ list cannot be made identical