CPS721
Assignment 2

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Question 1: List Equality

a. [W, X, Y | Z] and [1, 2, 3, 4, 5 | [6, 7, X]]

These lists can be made identical by assigning:
W = 1
X = 2
Y = 3
Z = [4, 5, 6, 7, X]

This is possible because the second list can be simplified to [1, 2, 3, 4, 5, 6, 7, X] by removing the nested list.

b. [p | [q | [r | [s | [t | [V]]]]]] and [X, Y | Z]

These lists can be made identical by assigning:
X = p
Y = [q, r, s, t, V]
Z = []

This is possible by expanding the nested structure in the first list.

c. [[Z | [x, y]], e, f, g] and [[a, [x, y]] | V]

These lists can be made identical by assigning:
Z = a
x = e
y = f
g = V

This is possible by matching the elements in corresponding positions.

d. [[a], B, C | D] and [[a | [B]] | [C | D]]

These lists cannot be made identical. In the first list, there is no nested list after the first element, while in the second list, there are nested lists after the first element.

e. [minus | [Y, X | [minus, Y | [X]]]] and [X, plus, minus | [X, Y, minus]]

These lists cannot be made identical because the structure of the nested lists and the elements do not match. There are different numbers of elements between the main lists, and the nested structure is also different.

f. [bike | A] and [C | [C | [C | [C | [C]]]]

These lists can be made identical by assigning:

bike = C
A = [C, C, C, C]

This is possible by matching the elements to their respective positions.

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

These lists cannot be made identical because the structure of nested lists is different, and there are empty lists in the second list that are not present in the first list.

h. [Fox, [[in], socks], [on], box, on | [[knox]]] and [[The, cat], [[in], The], Hat | [Comes | Back]]

These lists cannot be made identical because the structures and elements are completely different, and there is no clear correspondence between them.