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Q1 List Equality

a) $[apple, Z, bee, [Z, car, door]]$

$[X, [bee, Y, [Q, R]]]$

$[apple, Z, bee, Z, car, door]$

$[X, [bee, Y, [Q, R]]]$

$X = apple$

$[X, [bee, Y, Q, R]]$

$Z = bee = Y = Q$

$[X, bee, Y, Q, R]$

$Y = bee$

$Z = Q$

MATCHES

$R = [car, door]$

b) $[a, [Y, [b, c]], d]$

$[a, [b, [b, c]], z]$

L1 $[a, [Y, b, c], d]$

$a = a$

$Z = d$

L2 $[a, [b, [b, c]], z]$

$Y = b$

$b = [b, c]$

unification fails

as the second element
of L2 has 2 elements
while L1's 2nd element
has 3 elements

NOT MATCHES

c) $[Z | [Z | [Z | [Z]]]]$ bid (9)

$[b | Y]$

$[Z | [Z | [Z, [Z]]]]$ bid

$[Z | [Z, [Z, [Z]]]]$ bid

$[Z, Z, [Z, [Z]]]$ bid

~~$[b | Y]$~~

$Z = b$ $Y = bid$

$Y = [Z, [Z, [Z]]]$

MATCHES

$X = [Z, [Z, [Z]]]$

d) $[U | [W | [U]]]$

$[the, quick, brown, fox, W]$

$[U | [W, U]] \rightarrow [U, W, U]$

$U = the$

$W = quick$

$U = brown$ Contradiction

NOT MATCHES

e) [Did | [An, X] | [ever, Win, An, X]]

[Only, [One, oscar] | [Did, X, hammerstein, TheSecond]]

[Did | [An, X], ever, Win, An, X]

[Did, [An, X], ever, Win, An, X]

[Only, [One, oscar], Did, X, hammerstein, TheSecond]

Did = Only = ever

One = An = hammerstein

X = oscar = Win = TheSecond

MATCHES

[Did | [An, X] | [ever, Win, An, X]]

[Did, [An, X], ever, Win, An, X]

[Only, [One, oscar], Did, X, hammerstein, TheSecond]

[Only, [One, oscar], Did, X, hammerstein, TheSecond]

Did = Only = ever

One = An = hammerstein

X = oscar = Win = TheSecond

Did = Only

One = An