**plaseaza**(l1,…,ln, X) =

{ [X], daca n =0

{ l1 U plaseaza(l2,…,ln, X), daca X > l1

{ X U l1,…,ln, daca X < l1

{ l1,…,ln, daca X = l1

**sorteaza\_fara\_dubluri**(l1,…,ln) =

{ [], daca n = 0

{ plaseaza(sorteaza\_fara\_dubluri(l2,…,ln), l1), altfel

**lista\_eterogena**(l1,…,ln) =

{ [], n = 0

{ sortare\_eliminare\_dubluri(l1) U lista\_eterogena(l2,…,ln) , daca is\_lista(l1) = true

{ l1 U lista\_eterogena(l2,…,ln) , daca is\_lista(l1) = false

**is\_lista**(L) =

{ false, daca L nu e lista

{ true, daca L e lista

**main\_3a**(L) = sorteaza\_fara\_dubluri(L)

**main\_3b**(L) = lista\_eterogena(L)

**Teste**:

plaseaza([2, 3, 7], 5) = 2 U plaseaza([3, 7], 5)

= 2 U 3 U plaseaza([7], 5)

= 2 U 3 U [5, 7] = [2, 3, 5, 7]

plaseaza([1], 3) = 1 U plaseaza([], 3) = 1 U [3] = [1, 3]

plaseaza([1, 2, 3], 2) = [1, 2, 3]

sorteaza\_fara\_dubluri([2, 1, 3, 4, 2]) =

= plaseaza(sorteaza\_fara\_dubluri([1, 3, 4, 2], 2)

= plaseaza(plaseaza(sorteaza\_fara\_dubluri([3, 4, 2]), 1), 2)

= plaseaza(plaseaza(plaseaza(sorteaza\_fara\_dubluri([4, 2]), 3), 1), 2)

= plaseaza(plaseaza(plaseaza(plaseaza(sorteaza\_fara\_dubluri([2]), 4), 3), 1), 2)

= plaseaza(plaseaza(plaseaza(plaseaza(plaseaza(sorteaza\_fara\_dubluri([]), 2), 4), 3), 1), 2)

= plaseaza(plaseaza(plaseaza(plaseaza([2], 4), 3), 1), 2)

= plaseaza(plaseaza(plaseaza([2, 4], 3), 1), 2)

= plaseaza(plaseaza([2, 3, 4], 1), 2)

= plaseaza([1, 2, 3, 4], 2)

= [1, 2, 3, 4]

is\_lista(2) = false

is\_lista([2, 3, 4]) = true

is\_lista([]) = true

lista\_eterogena([1, [2, 3, 1], 3, 4, [1, 2, 4, 2, 3])

= 1 U lista\_eterogena([[2, 3, 1], 3, 4, [1, 2, 4, 2, 3]])

= 1 U sorteaza\_fara\_dubluri([2, 3, 1]) U lista\_eterogena(3, 4, [1, 2, 4, 2, 3]])

= 1 U [1, 2, 3] U 3 U lista\_eterogena(4, [1, 2, 4, 2, 3]])

= 1 U [1, 2, 3] U 3 U 4 U lista\_eterogena([1, 2, 4, 2, 3]])

= 1 U [1, 2, 3] U 3 U 4 U sorteaza\_fara\_dubluri([1, 2, 4, 2, 3]]) U lista\_eterogena([])

= 1 U [1, 2, 3] U 3 U 4 U [1, 2, 3, 4]

= [1, [1, 2, 3], 3, 4, [1, 2, 3, 4]]