

(α)

```
mergeInt [5,16,20,24] [8,10,18]
# [5,16,20,24] <<< (h1:t1)
  <=> 5:[16,20,24] <<< (h1:t1)
  <=> "yes"
# [8,10,18] <<< (h2:t2)
  <=> 8:[10,18] <<< (h2:t2)
  <=> "yes"
? 5 <= 8
  = True
= 5 : (mergeInt [16,20,24] [8,10,18])
# [16,20,24] <<< (h1:t1)
  <=> 16:[20,24] <<< (h1:t1)
  <=> "yes"
# [8,10,18] <<< (h2:t2)
  <=> 8:[10,18] <<< (h2:t2)
  <=> "yes"
? 16 <= 8
  = False
? otherwise
  = True
= 5 : (8 : (mergeInt [16,20,24] [10,18]))
# [16,20,24] <<< (h1:t1)
  <=> 16:[20,24] <<< (h1:t1)
  <=> "yes"
# [10,18] <<< (h2:t2)
  <=> 10:[18] <<< (h2:t2)
  <=> "yes"
? 16 <= 10
  = False
? otherwise
  = True
= 5 : (8 : (10 : (mergeInt [16,20,24] [18])))
# [16,20,24] <<< (h1:t1)
  <=> 16:[20,24] <<< (h1:t1)
  <=> "yes"
# [18] <<< (h2:t2)
  <=> 18:[] <<< (h2:t2)
  <=> "yes"
? 16 <= 18
  = True
```

```

= 5 : (8 : (10 : (16 : (mergeInt [20,24] [18])))))
#    [20,24] <<< (h1:t1)
<=> 20:[24] <<< (h1:t1)
<=> "yes"
#    [18] <<< (h2:t2)
<=> 18:[] <<< (h2:t2)
<=> "yes"
? 20 <= 18
= False
? otherwise
= True
= 5 : (8 : (10 : (16 : (18: (mergeInt [20,24] [])))))
#    [20,24] <<< (h1:t1)
<=> 20:[24] <<< (h1:t1)
<=> "yes"
#    [] <<< (h2:t2)
<=> "no"
#    [] <<< []
<=> "yes"
= 5 : (8 : (10 : (16 : (18: [20,24]))))
= 5 : (8 : (10 : (16 : [18,20,24])))
= 5 : (8 : (10 : [16,18,20,24]))
= 5 : (8 : [10,16,18,20,24])
= 5 : [8,10,16,18,20,24]
= [5,8,10,16,18,20,24]

```

(β)

```
delete "white" ["green", "red", "blue", "white"]
#   ["green", "red", "blue", "white"] <<< (h:t)
  <=> "green":["red", "blue", "white"] <<< (h:t)
  <=> "yes"
  ? "white" == "green"
    = False
  ? otherwise
    = True
= "green" : (delete "white" ["red", "blue", "white"])
#   ["red", "blue", "white"] <<< (h:t)
  <=> "red":["blue", "white"] <<< (h:t)
  <=> "yes"
  ? "white" == "red"
    = False
  ? otherwise
    = True
= "green" : ("red" : (delete "white" ["blue", "white"]))
#   ["blue", "white"] <<< (h:t)
  <=> "blue":["white"] <<< (h:t)
  <=> "yes"
  ? "white" == "blue"
    = False
  ? otherwise
    = True
= "green" : ("red" : ("blue" : (delete "white" ["white"])))
#   ["white"] <<< (h:t)
  <=> "white":[] <<< (h:t)
  <=> "yes"
  ? "white" == "white"
    = True
= "green" : ("red" : ("blue" : []))
= "green" : ("red" : ["blue"])
= "green" : ["red", "blue"]
= ["green", "red", "blue"]
```

(γ)

```
insertInt 12 [1,5,11,12,13,20]
#    [1,5,11,12,13,20] <<< (h:t)
  <=> 1:[5,11,12,13,20] <<< (h:t)
  <=> "yes"
? 12 <= 1
  = False
? otherwise
  = True
= 1 : (insertInt 12 [5,11,12,13,20])
#    [5,11,12,13,20] <<< (h:t)
  <=> 5:[11,12,13,20] <<< (h:t)
  <=> "yes"
? 12 <= 5
  = False
? otherwise
  = True
= 1 : (5 : (insertInt 12 [11,12,13,20]))
#    [11,12,13,20] <<< (h:t)
  <=> 11:[12,13,20] <<< (h:t)
  <=> "yes"
? 12 <= 11
  = False
? otherwise
  = True
= 1 : (5 : (11 : (insertInt (12 [12,13,20])))))
#    [12,13,20] <<< (h:t)
  <=> 12:[13,20] <<< (h:t)
  <=> "yes"
? 12 <= 12
  = True
= 1 : (5 : (11 : (12 : (12 : [13,20])))))
= 1 : (5 : (11 : (12 : [12,13,20])))
= 1 : (5 : (11 : [12,12,13,20]))
= 1 : (5 : [11,12,12,13,20])
= 1 : [5,11,12,12,13,20]
= [1,5,11,12,12,13,20]
```

(δ)

```
conc [(1,4),(3,8),(5,5)] [(9,0),(0,3),(8,8)]
#    [(1,4),(3,8),(5,5)] <<< (h:t)
<=> (1,4):[(3,8),(5,5)] <<< (h:t)
<=> "yes"
= (1,4) : (conc [(3,8),(5,5)] [(9,0),(0,3),(8,8)])
#    [(3,8),(5,5)] <<< (h:t)
<=> (3,8):[(5,5)] <<< (h:t)
<=> "yes"
= (1,4) : ((3,8) : (conc [(5,5)] [(9,0),(0,3),(8,8)]))
#    [(5,5)] <<< (h:t)
<=> (5,5):[] <<< (h:t)
<=> "yes"
= (1,4) : ((3,8) : ((5,5) : (conc [] [(9,0),(0,3),(8,8)])))
#    [] <<< (h:t)
<=> "no"
#    [] <<< []
<=> "yes"
= (1,4) : ((3,8) : ((5,5) : [(9,0),(0,3),(8,8)]))
= (1,4) : ((3,8) : [(5,5),(9,0),(0,3),(8,8)])
= (1,4) : [(3,8),(5,5),(9,0),(0,3),(8,8)]
= [(1,4),(3,8),(5,5),(9,0),(0,3),(8,8)]
```