```
0       j o h n         r u n s       0
        | | | |         | | | |
1   N 0 j o h n #N      | | | |       1
    |           |       | | | |
2 S N           #N V    | | | | #V #S 2
                   |    | | | | |
3                  V 1 r u n s #V    3
```

Figure 4

```
0 t h e       t a b l e 2
  | | |       | | | | |
1 t h e b i g t a b l e 1
```

(a)

```
0 t h e b i g t a b l e 0
  | | |       | | | | |
1 t h e       t a b l e 1
```

(b)

```
0 t h e b i g       t a b l e 0
  | | |             | | | | |
1 t h e w o o d e n t a b l e 1
```

(c)

Figure 5

```
0   c   m p u x t a r 0
    |   | | |   |   |
1 4 c o m p u   t e r 1
```

(a)

```
0   c     m p u x t a r 0
    |     |   |   |   |
1 5 c o m m   u   t e r 1
```

(b)

```
0   c   m p u x t a r 0
    |   |   |   |   |
1 5 c o m m u   t e r 1
```

(c)

```
0 c m p u x t a r           0
      |       | |
1 30  p       a r a f f i n 1
```

(d)

Figure 7

```
0           pt Jn #pt         1 pr 2 rd 3    4 ys 5 ys 6    7 fd 8 ys 9 0
            |      |          |    | |  |    | |  | |  |    | |  |    |
1 de    #de pt    #pt R       1    2 |  3    4 |  5 |  6    7 |  8    9 1
  |      |            |       |    | |  |    | |  | |  |    | |  |    |
2 |      |            R    fr 1    2 rd 3    | |  | |  |    7 fd 8    | 2
  |      |            |    |  |    |    |    | |  | |  |    |    |    |
3 |      |            R fs fr 1    |    |    4 ys 5 ys 6    |    |    9 3
  |      |            | |     |    |    |    |         |    |    |    |
4 de ia #de            R fs    1 nl 2    3 nl 4         6 no 7    8 no 9 4

0    10 nl 11 no 12 as 13 ry 14    15 hh 16 se 17                    0
     |  |  |  |  |  |  |  |  |     |  |  |  |  |
1    10 |  11 |  12 |  13 |  14    15 |  16 |  17    18     19    20 1
     |  |  |  |  |  |  |  |  |     |  |  |  |  |     |      |     |
2    |  |  |  |  |  |  |  |  |     15 hh 16 |  |     |      |     |  2
     |  |  |  |  |  |  |  |  |     |     |  |  |     |      |     |
3 ys 10 |  |  |  12 as 13 ry 14     |     16 se 17     |      |     |  3
     |  |  |  |  |           |     |           |     |      |     |
4    10 nl 11 no 12          14 nl 15          17 no 18 fls 19 ft 20 4
```

(a)

```
0           pt Jn #pt         1 pr 2 rd 3    4 ys 5 ys 6    7 fd 8 ys 9 0
            |      |          |    | |  |    | |  | |  |    | |  |    |
1 de    #de pt    #pt R       1    2 |  3    4 |  5 |  6    7 |  8    9 1
  |      |            |       |    | |  |    | |  | |  |    | |  |    |
2 |      |            R    fr 1    2 rd 3    | |  | |  |    7 fd 8    | 2
  |      |            |    |  |    |    |    | |  | |  |    |    |    |
3 |      |            R fs fr 1    |    |    4 ys 5 ys 6    |    |    9 3
  |      |            | |     |    |    |    |         |    |    |    |
4 de sx #de            R fs    1 nl 2    3 nl 4         6 no 7    8 no 9 4

0     10 nl 11 no 12 as 13 ry 14    15 hh 16 se 17                    0
      |  |  |  |  |  |  |  |  |     |  |  |  |  |
1     10 |  11 |  12 |  13 |  14    15 |  16 |  17    18    19     20 1
      |  |  |  |  |  |  |  |  |     |  |  |  |  |     |     |      |
2     |  |  |  |  |  |  |  |  |     15 hh 16 |  |     |     |      |  2
      |  |  |  |  |  |  |  |  |     |     |  |  |     |     |      |
3  ys 10 |  |  |  12 as 13 ry 14     |     16 se 17     |     |      |  3
      |  |  |  |  |           |     |           |     |     |      |
4     10 nl 11 no 12          14 rs 15          17 no 18 ss 19 smt 20 4
```

(b)

Figure 9

```
0                ne Ty #ne                        be                                          hr     bld wm #bld 0
                 |      |                         |                                           |       |  |   |
1 ve ml       dn |      |                         |                                        cg hr #cg bld wm #bld 1
  |  |        |  |      |                         |                                        |      |   |      |
2 ve |        dn ne    #ne se hd cm ms #ms #hd by be #by ls nr    #nr ft    #ft #ls fm #fm cg    #cg bld    #bld 2
     |        |                                          |  |      |  |      |   |
3    ml ce    dn                                         ls nr fr #nr |      |  #ls                              3
        |     |                                                       |      |
4       ce ct dn                                                      ft rs #ft                                  4

0         ps                            ng mk #ng                      ld                         0
          |                             |  |   |                       |
1         |                rn bh le #bh ng mk #ng sh #sh pn #pn #rn    |      #dn         #ml #ve 1
          |                |                                     |     |       |           |   |
2 #se vce |  #vce rsn #rsn rn                                   #rn ht |  #ht #dn          |  #ve 2
       |  |   |                                                     |  |   |   |           |
3      |  |   |                                                     ht ld #ht #dn     #ce #ml     3
       |  |   |                                                                |       |
4     vce ps #vce                                                             #dn #ct #ce         4
```

Figure 11

```
0 bird      Tweety                                                          0
   |           |
1  |   name Tweety #name                                                    1
   |    |             |
2 bird name        #name canfly wings feathers beak crop lays_eggs ... #bird 2
```

Figure 13

```
0           Susan       canfly                                            0
              |           |
1      name Susan #name   |                                               1
        |           |     |
2 bird name       #name canfly wings feathers beak crop lays_eggs ... #bird 2
```

(a)

```
0          Susan           canfly                        0
             |                |
1     name Susan #name        |                          1
       |           |          |
2 bat name       #name fur canfly eats_insects ... #bat 2
```

(b)

Figure 14

```
0 Start    yes    yes    no   no   no   yes   no   0
    |       |      |     |    |    |     |    |
1 Start 43  |      |     |    |    |     |    |    1
        |   |      |     |    |    |     |    |
2       43 yes 44  |     |    |    |     |    |    2
               |   |     |    |    |     |    |
3              44 yes 19 |    |    |     |    |    3
                      |  |    |    |     |    |
4                     19 no 1 |    |     |    |    4
                            | |    |     |    |
5                           1 no 3 |     |    |    5
                                 | |     |    |
6                                3 no 7  |    |    6
                                      |  |    |
7                                     7 yes 8 |    7
                                            | |
8                                           8 no 9 8
```

Figure 17

```
0 Start 43 yes 44                     7 yes 8 no   0
    |   |   |  |                      |  |  | |
1   |   |   |  |                      7 yes 8 |    1
    |   |   |  |                      |     | |
2   |   |   |  |                 3 no 7     | |    2
    |   |   |  |                 |          | |
3   |   |   |  |            1 no 3          | |    3
    |   |   |  |            |               | |
4 Start 43  |  |            |               | |    4
        |   |  |            |               | |
5       43 yes 44           |               | |    5
               |            |               | |
6              44 yes 19    |               | |    6
                      |     |               | |
7                     19 no 1               | |    7
                                            | |
8                                           8 no 9 8
```

Figure 18

```
0   TRUE      0
     |
1 S TRUE 1 #S 1
```

(a)

```
0 not   TRUE        #not 0
   |     |            |
1  |  S TRUE 1 #S     |   1
   |  |      | |      |
2 not S      1 #S 0 #not 2
```

(b)

Figure 20

```
0   IF1                 IF2                                                          0
     |                   |
1 1 IF1 2             7 IF2 8                             16 THEN1 17                1
  |     |             |     |                             |    |   |
2 1     2 3     4 5 6 7     8 9 10 11      12 13     14 15 16    |   17 18 19        20 2
          |     |                  |      |  |      |          |         |        |
3         3 IF3 4                  11 IF4 12 |      |        THEN1       |        |  3
             |                         |     |      |                    |        |
4           IF3                       IF4    13 IF5 14                   19 THEN2 20 4
```

Figure 22

```
0 Start    0
    |
1 Start 43 1
```

(a)

```
0 Start           0
    |
1 Start 43        1
        |
2       43 yes 44 2
```

(b)

```
0 Start          0
    |
1 Start 43       1
        |
2       43 no 45 2
```

(c)

```
0 Start                  0
    |
1 Start 43               1
        |
2       43 yes 44        2
               |
3               44 yes 19 3
```

(d)

```
0 Start                 0
    |
1 Start 43              1
        |
2       43 no 45        2
              |
3             45 yes 46 3
```

(e)

```
0 Start                 0
    |
1 Start 43              1
        |
2       43 yes 44       2
               |
3               44 no 51 3
```

(f)

```
0 Start                0
    |
1 Start 43             1
        |
2       43 no 45       2
              |
3             45 no 47 3
```

(g)

Figure 23

```
0                 parallel processing 0
                      |          |
1 concurrency #cy parallel processing 1

(a)

0                                                  parallel processing 0
                                                       |          |
1 concurrency                                  #cy parallel processing 1
       |                                        |
2 concurrency ... info_about_concurrency ... #cy                      2

(b)
```

Figure 25

```
0 A  small circle inside large triangle ; B large circle above small triangle # 0
       |            |      |            |     |            |     |            |
1 C2 small square inside large ellipse  ; E large square above small ellipse  # 1
```

Figure 27

```
0 guest name Mr Smith #name addr London #addr          room 2 #room            #guest 0
    |    |              |    |            |             |       |                |
1 guest name          #name addr        #addr tel #tel room   #room diet #diet #guest 1
```

(a)

```
0 guest name Mr Smith #name addr London #addr          room 2 #room                     #guest 0
    |    |              |    |            |             |       |                         |
1 guest name          #name addr        #addr tel #tel room   #room diet          #diet #guest 1
                                                                     |              |
2                                                                   diet standard #diet        2
```

(b)

```
0 guest name Mr Smith #name addr London #addr          room 2 #room                       #guest 0
    |    |              |    |            |             |       |                           |
1 guest name          #name addr        #addr tel #tel room   #room diet            #diet #guest 1
                                                                     |                |
2                                                                   diet vegetarian #diet        2
```

(c)

```
0 guest name Mr Smith #name addr London #addr          room 2 #room                        #guest 0
    |    |              |    |            |             |       |                            |
1 guest name          #name addr        #addr tel #tel room   #room diet             #diet #guest 1
                                                                     |                 |
2                                                                   diet gluten free #diet        2
```

(d)

Figure 29

```
0 guest name Mr Smith #name addr London #addr          room 2 #room diet gluten free #diet #guest 0
    |     |               |     |             |             |       |    |     |      |     |
1 guest name           #name addr        #addr tel #tel room   #room diet   |      |   #diet #guest 1
                                                                     |     |      |     |
2                                                                    diet gluten free #diet        2
```

Figure 30

```
0 guest name Mr Smith #name addr London #addr          room 2 #room diet anti-candida #diet #guest 0
    |    |              |    |            |             |       |    |                  |     |
1 guest name          #name addr        #addr tel #tel room   #room diet              #diet #guest 1
```

(a)

```
0 guest name Mr Smith #name addr London #addr          room 2 #room diet anti-candida #diet #guest 0
    |    |              |    |            |             |       |    |                  |     |
1 guest name          #name addr        #addr tel #tel room   #room diet              #diet #guest 1
                                                                     |                  |
2                                                                   diet standard     #diet        2
```

(b)

```
0 guest name Mr Smith #name addr London #addr          room 2 #room diet anti-candida #diet #guest 0
    |    |              |    |            |             |       |    |                  |     |
1 guest name          #name addr        #addr tel #tel room   #room diet              #diet #guest 1
                                                                     |                  |
2                                                                   diet vegetarian   #diet        2
```

(c)

```
0 guest name Mr Smith #name addr London #addr          room 2 #room diet anti-candida #diet #guest 0
    |    |              |    |            |             |       |    |                  |     |
1 guest name          #name addr        #addr tel #tel room   #room diet              #diet #guest 1
                                                                     |                  |
2                                                                   diet gluten free  #diet        2
```

(d)

Figure 31

```
0    bd       Twy                                                0
     |         |
1    |     ne Twy #ne                                            1
     |     |       |
2 ve |  dn ne     #ne se                 #se fn           #fn #dn     #ve 2
  |  |  |             |                   |  |             |   |       |
3 ve bd dn            se ws #ws fs bk cp #se fn cy #cy ls #fn #dn #bd #ve 3
```

(a)

```
0    bd       Twy                                                   0
     |         |
1    |     ne Twy #ne                                               1
     |     |       |
2 ve |  dn ne     #ne se                 #se fn              #fn #dn     #ve 2
  |  |  |             |                   |  |                |   |       |
3 |  bd |             |                   |  |  cy ys #cy     |   |  #bd  |  3
  |  |  |             |                   |  |  |      |      |   |   |   |
4 ve bd dn            se ws #ws fs bk cp #se fn cy    #cy ls #fn #dn #bd #ve 4
```

(b)

```
0    bd          Twy                                                       0
     |            |
1    |        ne Twy #ne                                                   1
     |        |       |
2 ve |     dn ne     #ne se                   #se fn             #fn #dn         #ve 2
  |  |     |             |                     |  |               |   |           |
3 ve bd    dn            se ws    #ws fs bk cp #se fn cy    #cy ls #fn #dn     #bd #ve 3
     |     |                |       |             |  |       |      |   |       |
4    bd sw dn               ws pd #ws             fn cy ys #cy    #fn #dn #sw #bd     4
```

(c)

```
0    bd          Twy                                                       0
     |            |
1    |        ne Twy #ne                                                   1
     |        |       |
2 ve |     dn ne     #ne se                   #se fn             #fn #dn         #ve 2
  |  |     |             |                     |  |               |   |           |
3 ve bd    dn            se ws    #ws fs bk cp #se fn cy    #cy ls #fn #dn     #bd #ve 3
     |     |                |       |             |  |       |      |   |       |
4    bd pn dn               ws sy #ws             fn cy no #cy    #fn #dn #pn #bd     4
```

(d)

```
0    bd          Twy                                                       0
     |            |
1    |        ne Twy #ne                                                   1
     |        |       |
2 ve |     dn ne     #ne se                   #se fn             #fn #dn         #ve 2
  |  |     |             |                     |  |               |   |           |
3 ve bd    dn            se ws    #ws fs bk cp #se fn cy    #cy ls #fn #dn     #bd #ve 3
     |     |                |       |             |  |       |      |   |       |
4    bd ee dn               ws le #ws             fn cy ys #cy    #fn #dn #ee #bd     4
```

(e)

Figure 33

```
0       pn       Twy                                                                   0
        |         |
1       |     ne Twy #ne                                                               1
        |     |       |
2 ve    |  dn ne     #ne se                    #se fn              #fn #dn         #ve 2
  |     |  |             |                      |  |                |   |           |
3 |  bd pn dn            |  ws sy #ws           |  fn cy no #cy    #fn #dn #pn #bd  |  3
  |  |     |             |  |      |            |  |  |      |      |   |       |   |
4 ve bd    dn            se ws    #ws fs bk cp #se fn cy    #cy ls #fn #dn     #bd #ve 4
```

(a)

```
0       pn       Twy                                                                   0
        |         |
1       |     ne Twy #ne                                                               1
        |     |   |   |
2 ve    |  dn ne  |  #ne se                    #se fn              #fn #dn         #ve 2
  |     |  |      |      |                      |  |                |   |           |
3 |  bd pn dn     |      |  ws sy #ws           |  fn cy no #cy    #fn #dn #pn #bd  |  3
  |  |     |      |      |  |      |            |  |  |      |      |   |       |   |
4 ve bd    dn     |      se ws    #ws fs bk cp #se fn cy    #cy ls #fn #dn     #bd #ve 4
     |            |
5    bd          Twy                                                                   5
```

(b)

Figure 34

```
0    bd       Twy                               cy no #cy                    0
     |         |                                |      |
1    |     ne Twy #ne                           |      |                     1
     |     |       |                            |      |
2 ve |  dn ne     #ne se                 #se fn |      |     #fn #dn     #ve 2
  |  |  |             |                   |  |  |      |      |   |       |
3 ve bd dn            se ws #ws fs bk cp #se fn cy ys #cy ls #fn #dn #bd #ve 3
```

(a)

```
0    bd          Twy                                  cy no #cy                        0
     |            |                                   |      |
1    |        ne Twy #ne                              |      |                         1
     |        |       |                               |      |
2 ve |     dn ne     #ne se                    #se fn |      |     #fn #dn         #ve 2
  |  |     |            |                       |  |  |      |      |   |           |
3 ve bd    dn            se ws    #ws fs bk cp #se fn cy ys #cy ls #fn #dn     #bd #ve 3
     |     |                |      |                                    |       |
4    bd sw dn               ws pd #ws                                  #dn #sw #bd     4
```

(b)

```
0    bd          Twy                                  cy no #cy                        0
     |            |                                   |      |
1    |        ne Twy #ne                              |      |                         1
     |        |       |                               |      |
2 ve |     dn ne     #ne se                    #se fn |      |     #fn #dn         #ve 2
  |  |     |            |                       |  |  |      |      |   |           |
3 ve bd    dn            se ws    #ws fs bk cp #se fn cy ys #cy ls #fn #dn     #bd #ve 3
     |     |                |      |                                    |       |
4    bd ee dn               ws le #ws                                  #dn #ee #bd     4
```

(c)

Figure 35

```
0       phone_alarm_call 0
               |
1 alarm phone_alarm_call 1
```

(a)

```
0                phone_alarm_call 0
                        |
1          alarm phone_alarm_call 1
             |
2 burglary alarm                  2
```

(b)

```
0                  phone_alarm_call 0
                          |
1            alarm phone_alarm_call 1
               |
2 earthquake alarm                  2
```

(c)

Figure 38

```
0                  phone_alarm_call radio_earthquake_announcement 0
                          |                       |
1            alarm phone_alarm_call               |               1
               |                                  |
2 earthquake alarm                                |               2
      |                                           |
3 earthquake                        radio_earthquake_announcement 3
```

(a)

```
0 phone_alarm_call radio_earthquake_announcement 0
                                 |
1 earthquake       radio_earthquake_announcement 1
```

(b)

```
0       phone_alarm_call radio_earthquake_announcement 0
               |
1 alarm phone_alarm_call                               1
```

(c)

```
0                phone_alarm_call radio_earthquake_announcement 0
                        |
1          alarm phone_alarm_call                               1
             |
2 burglary alarm                                                2
```

(d)

```
0                  phone_alarm_call radio_earthquake_announcement 0
                          |
1            alarm phone_alarm_call                               1
               |
2 earthquake alarm                                                2
```

(e)

Figure 39

```
0                phone_alarm_call radio_earthquake_announcement 0
                       |                       |
1          alarm phone_alarm_call              |               1
             |                                 |
2 burglary alarm                               |               2
                                               |
3 earthquake                     radio_earthquake_announcement 3

(a)

0                  phone_alarm_call radio_earthquake_announcement 0
                         |                       |
1            alarm phone_alarm_call              |               1
               |                                 |
2 earthquake alarm                               |               2
      |                                          |
3 earthquake                       radio_earthquake_announcement 3

4 burglary                                                       4

(b)
```

Figure 40