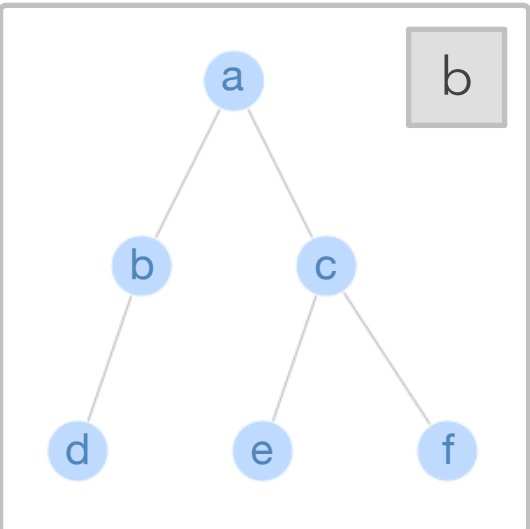**a**

```
1   {
2     "nodes": [
3       {"name": "a", "depth": 0}, {"name": "b", "depth": 1},
4       {"name": "c", "depth": 1}, {"name": "d", "depth": 2},
5       {"name": "e", "depth": 2}, {"name": "f", "depth": 2}
6     ],
7     "links": [
8       {"source": 0, "target": 1},
9       {"source": 0, "target": 2},
10      {"source": 1, "target": 3},
11      {"source": 2, "target": 4},
12      {"source": 2, "target": 5}
13    ],
14    "constraintDefinitions": [
15      {
16        "name": "layer",
17        "sets": {"partition": "depth"},                          3 sets: [a], [b,c], [d,e,f]
18        "forEach": [{ "constraint": "align", "axis": "x" }]      3 constraints
19      },
20      {
21        "name": "sort",
22        "sets": ["layer"],                                       1 set: "layer"
23        "forEach": [{ "constraint": "order", "axis": "y", "by": "depth" }]   8 constraints
24      }
25    ]
26  }
```

c

```
1   {
2     "nodes": [
3       {"name": "a", "_id": 0, "depth": 0}, {"name": "b", "_id": 1, "depth": 1},
4       {"name": "c", "_id": 2, "depth": 1}, {"name": "d", "_id": 3, "depth": 2},
5       {"name": "e", "_id": 4, "depth": 2}, {"name": "f", "_id": 5, "depth": 2},
6       {
7         "name": "boundary0", "_id": 6, "cid": "set0_order",
8         "temp": true, "fixed": true,
9         "width": 1, "height": 1, "padding": 0,
10        "boundary": "y", "y": 0, "x": 0,
11      },
12      {
13        "name": "boundary1", "_id": 7, "cid": "set0_order",
14        "temp": true, "fixed": true,
15        "width": 1, "height": 1, "padding": 0,
16        "boundary": "y", "y": 30, "x": 10,
17      }
18    ],
19    "links": [...],
20    "constraints": [
28      {
29        "_type": "layer_align",
30        "type": "alignment", "axis": "y",
31        "offsets": [{"node": 0,"offset": 0}]
32      },
33      {
34        "_type": "layer_align",
35        "type": "alignment", "axis": "y",
36        "offsets": [{"node": 1,"offset": 0},{"node": 2,"offset": 0}],
37      },
38      {
39        "_type": "layer_align",
40        "type": "alignment", "axis": "y",
41        "offsets": [{"node": 3,"offset": 0},{"node": 4,"offset": 0},{"node": 5,"offset": 0}]
42      },
43      {"_type": "set0_order", "axis": "y", "gap": 0, "left": 0, "right": 6},
44      {"_type": "set0_order", "axis": "y", "gap": 0, "left": 6, "right": 1},
45      {"_type": "set0_order", "axis": "y", "gap": 0, "left": 1, "right": 7},
46      {"_type": "set0_order", "axis": "y", "gap": 0, "left": 6, "right": 2},
47      {"_type": "set0_order", "axis": "y", "gap": 0, "left": 2, "right": 7},
48      {"_type": "set0_order", "axis": "y", "gap": 0, "left": 7, "right": 3},
49      {"_type": "set0_order", "axis": "y", "gap": 0, "left": 7, "right": 4},
50      {"_type": "set0_order", "axis": "y", "gap": 0, "left": 7, "right": 5}
51    ]
    }
```

Two temporary nodes are added to the graph to act as boundaries for the order constraint.

We generate three WebCoLa alignment constraints: one for each set produced by the SetCoLa "layer" constraint definition.

We generate eight WebCoLa position constraints to order the three layers based on the SetCoLa "sort" constraint definition.