A

A10 B11 C12 — — — D50

Cluster 1

↓

A10 B11 C12 D50

System 1

B

A10 B11 C12 — — — A20 B21 C22 D50 D60

Cluster 1   Cluster 2

D50
    D60

↓

A10 B11 C12 D50
            D60

System 1

A20 B21 C22 D50
            D60

System 2

C

A10 B11 C12 — — — A20 B21 C22 D50 —

Cluster 1   Cluster 2

D50

↓

A10 B11 C12 D50

System 1

A20 B21 C22 D50

System 2

+

WARNING

D

E10 F11 G12 — — — E20 F21 G22 — — D50 —

Cluster 1   Cluster 2

↓

E10 F11 G12 D50

System 1

E20 F21 G22 D50

System 2

Model A Definition

```
<model min_mandatory_genes_required="1"
        min_genes_required="4">
  <gene name="A" presence="mandatory"/>
  <gene name="B" presence="accessory"/>
  <gene name="C" presence="accessory"/>
  <gene name="D" presence="accessory" loner="1"/>
</model>
```

Model B Definition

```
<model min_mandatory_genes_required="1"
        min_genes_required="4">
  <gene name="E" presence="mandatory"/>
  <gene name="F" presence="accessory"/>
  <gene name="G" presence="accessory"/>
  <gene name="D" presence="accessory" loner="1
                              multi_system="1"/>
</model>
```