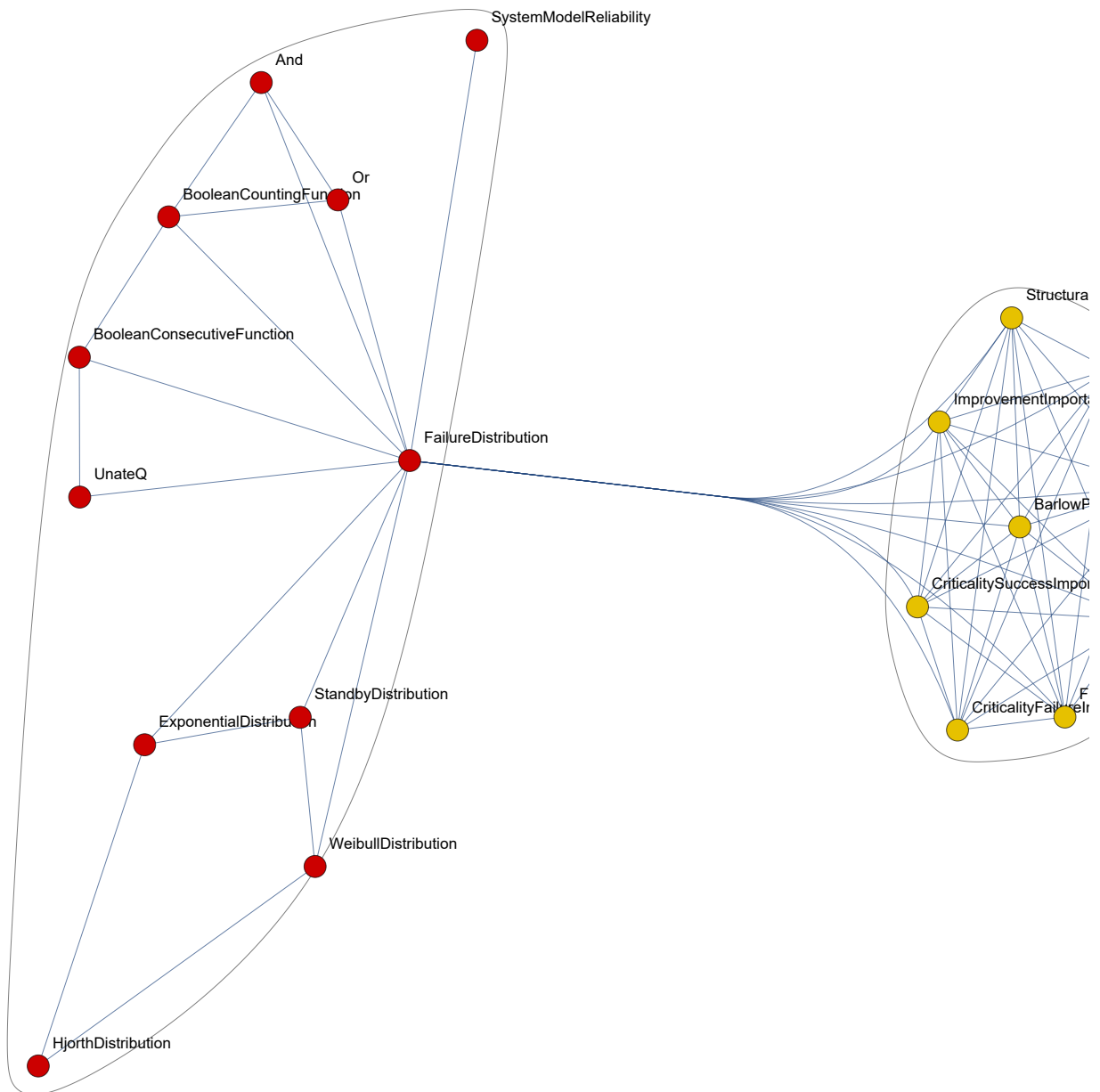


Learning Reliability

Based on default notebooks.

```
In[ ]:= Show[WolframLanguageData["ReliabilityDistribution",  
"RelationshipCommunityGraph"], ImageSize -> 800]
```

Out[]:=



```
In[ ]:= R = ReliabilityDistribution[x ^ y, {{x, ExponentialDistribution[Subscript[l, 1]]},
      {y, ExponentialDistribution[Subscript[l, 2]]}}]
```

```
Out[ ]:= ReliabilityDistribution[x1 && x2,
      {{x1, ExponentialDistribution[l1]}, {x2, ExponentialDistribution[l2]}}
```

```
In[ ]:= Mean[R]
```

```
Out[ ]:= 
$$\frac{1}{l_1 + l_2}$$

```

```
In[ ]:= R = ReliabilityDistribution[x v y, {{x, ExponentialDistribution[Subscript[l, 1]]},
      {y, ExponentialDistribution[Subscript[l, 2]]}}];
```

```
In[ ]:= Mean[R]
```

```
Out[ ]:= 
$$\frac{1}{l_1} + \frac{1}{l_2} - \frac{1}{l_1 + l_2}$$

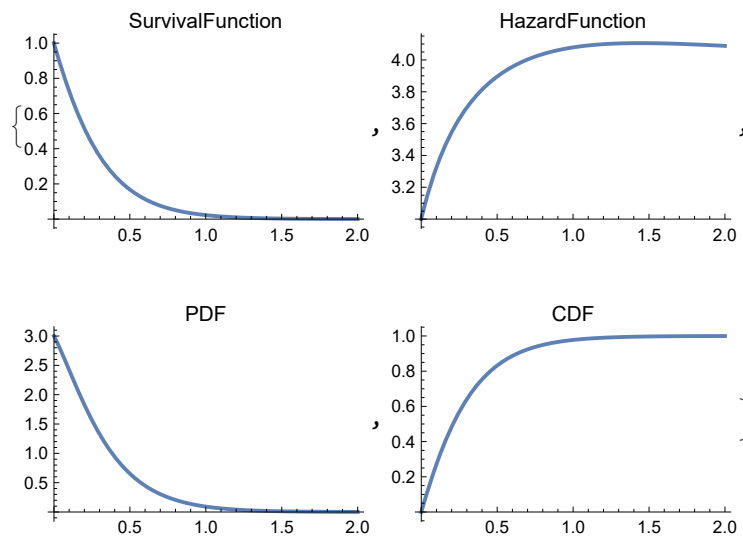
```

```
In[ ]:= R = ReliabilityDistribution[x ^ (y v z), {{x, ExponentialDistribution[3]},
      {y, ExponentialDistribution[1]}, {z, ExponentialDistribution[2]}}];
```

Time from 0 to 2

```
In[ ]:= Table[Plot[df[R, t], {t, 0, 2}, PlotLabel -> df, PlotRange -> All],
      {df, {SurvivalFunction, HazardFunction, PDF, CDF}}]
```

```
Out[ ]:=
```



```
In[ ]:= {Mean[R], Median[R]}
```

```
Out[ ]:= 
$$\left\{ \frac{17}{60}, \text{Log}\left[\text{Root}\left[2 - 2 \sqrt{1 - 2 \sqrt{1^6}} + \sqrt{1^6}, 2, 0\right]\right] \right\}$$

```

```
In[ ]:= {Mean[R], Median[R]};
N[%]
```

```
Out[n]=  
{0.283333, 0.208872}
```

```
In[n]:= Probability[t < 0.5, t  $\approx$  R]
```

```
Out[n]=  
0.832367
```