

```
In[1]:= Needs["IdentifiabilityAnalysis`"]
      startTime = AbsoluteTime[]
```

```
Out[2]:= 3.7143131216768538 × 109
```

```
In[3]:= vars = {x1, x2, x3, x4, x5, x6, x7, x8}
```

```
Out[3]:= {x1, x2, x3, x4, x5, x6, x7, x8}
```

```
In[4]:= params = {d, b, kTL, m0, m1, g1, m2, g2, m3, g3, m4, g4}
```

```
Out[4]:= {d, b, kTL, m0, m1, g1, m2, g2, m3, g3, m4, g4}
```

```
In[5]:= sys = {x1'[t] == -d * x1[t],
               x2'[t] == kTL * x1[t] - b * x2[t],
               x3'[t] == -d * x3[t],
               x4'[t] == kTL * x3[t] - b * x4[t],
               x5'[t] == -d * x5[t],
               x6'[t] == kTL * x5[t] / 2 - b * x6[t],
               x7'[t] == -d * x7[t],
               x8'[t] == kTL * x7[t] - 3 * b * x8[t] / 4,
               x1[0] == m1, x2[0] == 0, x3[0] == m1 / 2,
               x4[0] == 0, x5[0] == m1, x6[0] == 0, x7[0] == m1, x8[0] == 0}
```

```
Out[5]:= {x1'[t] == -d x1[t], x2'[t] == kTL x1[t] - b x2[t], x3'[t] == -d x3[t],
          x4'[t] == kTL x3[t] - b x4[t], x5'[t] == -d x5[t], x6'[t] ==  $\frac{1}{2}$  kTL x5[t] - b x6[t],
          x7'[t] == -d x7[t], x8'[t] == kTL x7[t] -  $\frac{3}{4}$  b x8[t], x1[0] == m1, x2[0] == 0,
          x3[0] ==  $\frac{m1}{2}$ , x4[0] == 0, x5[0] == m1, x6[0] == 0, x7[0] == m1, x8[0] == 0}
```

```
In[6]:= output = {x2[t]}
```

```
Out[6]:= {x2[t]}
```

```
In[7]:= iad = IdentifiabilityAnalysis[{sys, output}, vars, params, t]
```

```
Out[7]:= IdentifiabilityAnalysisData[False, <>]
```

```
In[8]:= iad["IdentifiableQ"]
```

```
Out[8]:= False
```

```
In[9]:= iad["DegreesOfFreedom"]
```

```
Out[9]:= 9
```

```
In[10]:= iad["NonIdentifiableParameters"]
```

```
Out[10]:= {g1, g2, g3, g4, kTL, m0, m1, m2, m3, m4}
```

```
In[11]:= endTime = AbsoluteTime[]  
N[endTime - startTime]
```

```
Out[11]= 3.7143131224302231  $\times 10^9$ 
```

```
Out[12]= 0.753369
```

```
In[13]:=
```