In[646]:=
```
ClearAll[S0];
```

In[647]:=
```
s1 = {{1, 333, 7, 0.0164}, {1, 333, 14, 0.0316},
    {1, 333, 26, 0.0528}, {1, 333, 49, 0.0923}, {1, 333, 75, 0.1404},
    {1, 333, 117, 0.2137}, {1, 333, 1052, 0.9834}};
s2 = {{2, 166.7, 8, 0.0350}, {2, 166.7, 16, 0.0636}, {2, 166.7, 28, 0.108},
    {2, 166.7, 52, 0.198}, {2, 166.7, 82, 0.3000}, {2, 166.7, 103, 0.378}};
s3 = {{3, 83, 49.5, 0.352}, {3, 83, 90, 0.575}, {3, 83, 125, 0.690},
    {3, 83, 151, 0.766}, {3, 83, 208, 0.900}};
s4 = {{4, 41.6, 10.25, 0.1147}, {4, 41.6, 30.75, 0.3722},
    {4, 41.6, 61.75, 0.615}, {4, 41.6, 90.75, 0.747}, {4, 41.6, 112.7, 0.85},
    {4, 41.6, 132.7, 0.925}, {4, 41.6, 154.7, 0.940}};
s5 = {{5, 20.8, 17, 0.331}, {5, 20.8, 27, 0.452}, {5, 20.8, 38, 0.611},
    {5, 20.8, 62, 0.736}, {5, 20.8, 95, 0.86}, {5, 20.8, 1372, 0.99}};
alldata0 = Join[s1, s2, s3, s4, s5]
alldata = Flatten[ Import[ NotebookDirectory[] <> "Data_SameSize .xls"] , 1]

model =
 Sum[KroneckerDelta[x1 - i] * (S0 - ((1 + (S0) / Kp) / (1 / Ks - 1 / Kp)) * ProductLog[
         S0 / ((1 + (S0) / Kp) / (1 / Ks - 1 / Kp)) * Exp[(S0 - V / (1 - Ks / Kp) * t) /
             ((1 + (S0) / Kp) / (1 / Ks - 1 / Kp))]]) / S0, {i, 5}]
sol = NonlinearModelFit[alldata, model, {{Ks, 20}, {Kp, 40}, {V, 0.50}},
    {x1, S0, t}];
sol ["ParameterConfidenceIntervalTable"]
sol["ANOVATable"]
Export[NotebookDirectory[] <> "MeasurementData.xls", alldata, "XLS"]
```

Out[652]=
```
{ { 1, 333, 7 , 0.0164} , { 1, 333, 14, 0.0316 } ,
 { 1, 333, 26 , 0.0528 } , { 1, 333, 49 , 0.0923} , { 1, 333, 75, 0.1404} ,
 { 1, 333, 117 , 0.2137 } , { 1, 333, 1052, 0.9834} , { 2, 166.7 , 8 , 0.035} ,
 { 2, 166.7 , 16 , 0.0636 } , { 2, 166.7 , 28 , 0.108 } ,
 { 2, 166.7 , 52, 0.198 } , { 2, 166.7 , 82, 0.3} , { 2, 166.7 , 103, 0.378 } ,
 { 3, 83, 49.5, 0.352} , { 3, 83, 90, 0.575} , { 3, 83, 125, 0.69 } ,
 { 3, 83, 151, 0.766 } , { 3, 83, 208 , 0.9 } , { 4, 41.6 , 10.25, 0.1147 } ,
 { 4, 41.6 , 30.75, 0.3722} , { 4, 41.6 , 61.75, 0.615} ,
 { 4, 41.6 , 90.75, 0.747 } , { 4, 41.6 , 112.7 , 0.85} ,
 { 4, 41.6 , 132.7 , 0.925} , { 4, 41.6 , 154.7 , 0.94} ,
 { 5, 20.8 , 17 , 0.331} , { 5, 20.8 , 27 , 0.452} , { 5, 20.8 , 38 , 0.611} ,
 { 5, 20.8 , 62, 0.736 } , { 5, 20.8 , 95, 0.86 } , { 5, 20.8 , 1372, 0.99 } }
```

Out[653]= { { 1., 333., 7., 0.016 } , { 1., 333., 14., 0.032} ,
{ 1., 333., 26., 0.053} , { 1., 333., 49., 0.092} , { 1., 333., 75., 0.14} ,
{ 1., 333., 117., 0.214} , { 1., 333., 1052., 0.983} ,
{ 2., 166.7 , 0., 0.} , { 2., 166.7 , 8., 0.035} , { 2., 166.7 , 16., 0.064} ,
{ 2., 166.7 , 28., 0.108 } , { 2., 166.7 , 52., 0.198 } ,
{ 2., 166.7 , 82., 0.3} , { 2., 166.7 , 103., 0.378 } , { 3., 83., 49.5, 0.352} ,
{ 3., 83., 90., 0.575} , { 3., 83., 49.5, 0.352} , { 3., 83., 90., 0.575} ,
{ 3., 83., 125., 0.69 } , { 3., 83., 151., 0.766 } , { 3., 83., 208., 0.9 } ,
{ 4., 41.6 , 10.25, 0.115} , { 4., 41.6 , 30.75, 0.372} ,
{ 4., 41.6 , 61.75, 0.615} , { 4., 41.6 , 90.75, 0.747 } ,
{ 4., 41.6 , 112.7 , 0.85} , { 4., 41.6 , 132.7 , 0.925} ,
{ 4., 41.6 , 154.7 , 0.94} , { 5., 20.8 , 17., 0.331} ,
{ 5., 20.8 , 17., 0.331} , { 5., 20.8 , 27., 0.452} , { 5., 20.8 , 38., 0.611} ,
{ 5., 20.8 , 62., 0.736 } , { 5., 20.8 , 95., 0.86 } , { 5., 20.8 , 1372., 0.99 } }

Out[654]=
$$\text{KroneckerDelta}[1-x1]\left(S0-\frac{\left(1+\frac{S0}{Kp}\right)\ \text{ProductLog}\left[\frac{e^{\frac{\left(-\frac{1}{Kp}+\frac{1}{Ks}\right)\left(S0-\frac{t\,V}{1-\frac{Ks}{Kp}}\right)}{1+\frac{S0}{Kp}}}\left(-\frac{1}{Kp}+\frac{1}{Ks}\right)S0}{1+\frac{S0}{Kp}}\right]}{-\frac{1}{Kp}+\frac{1}{Ks}}\right)+$$
$$\text{KroneckerDelta}[2-x1]\left(S0-\frac{\left(1+\frac{S0}{Kp}\right)\ \text{ProductLog}\left[\frac{e^{\frac{\left(-\frac{1}{Kp}+\frac{1}{Ks}\right)\left(S0-\frac{t\,V}{1-\frac{Ks}{Kp}}\right)}{1+\frac{S0}{Kp}}}\left(-\frac{1}{Kp}+\frac{1}{Ks}\right)S0}{1+\frac{S0}{Kp}}\right]}{-\frac{1}{Kp}+\frac{1}{Ks}}\right)+$$

$$\text{KroneckerDelta}[3-x1]\left(S0-\frac{\left(1+\frac{S0}{Kp}\right)\ \text{ProductLog}\left[\frac{e^{\frac{\left(-\frac{1}{Kp}+\frac{1}{Ks}\right)\left(S0-\frac{t\,V}{Ks\left(1-\frac{S0}{Kp}\right)}\right)}{1+\frac{S0}{Kp}}}\left(-\frac{1}{Kp}+\frac{1}{Ks}\right)S0}{1+\frac{S0}{Kp}}\right]}{-\frac{1}{Kp}+\frac{1}{Ks}}\right)+$$

$$\text{KroneckerDelta}[4-x1]\left(S0-\frac{\left(1+\frac{S0}{Kp}\right)\ \text{ProductLog}\left[\frac{e^{\frac{\left(-\frac{1}{Kp}+\frac{1}{Ks}\right)\left(S0-\frac{t\,V}{Ks\left(1-\frac{S0}{Kp}\right)}\right)}{1+\frac{S0}{Kp}}}\left(-\frac{1}{Kp}+\frac{1}{Ks}\right)S0}{1+\frac{S0}{Kp}}\right]}{-\frac{1}{Kp}+\frac{1}{Ks}}\right)+$$

$$\text{KroneckerDelta}[5-x1]\left(S0-\frac{\left(1+\frac{S0}{Kp}\right)\ \text{ProductLog}\left[\frac{e^{\frac{\left(-\frac{1}{Kp}+\frac{1}{Ks}\right)\left(S0-\frac{t\,V}{Ks\left(1-\frac{S0}{Kp}\right)}\right)}{1+\frac{S0}{Kp}}}\left(-\frac{1}{Kp}+\frac{1}{Ks}\right)S0}{1+\frac{S0}{Kp}}\right]}{-\frac{1}{Kp}+\frac{1}{Ks}}\right)$$

Out[656]=

	Estimate	Standard Error	Confidence Interval
Ks	16.5328	1.34006	{13.8032, 19.2625}
Kp	34.4601	5.61347	{23.0258, 45.8943}
V	0.775403	0.026221	{0.721992, 0.828813}

Out[657]=

	DF	SS	MS
Model	3	10.7123	3.57078
Error	32	0.0105953	0.000331102
Uncorrected Total	35	10.7229	
Corrected Total	34	3.68216	

Out[658]= C:\Users\o_schrabm\Documents\Delphi Projects\MMA\mmenten\MichaelsMenten\MeasurementData.xls

In[659]:=
```
pl = ListPlot[{Table[{s1[[n, 3]], s1[[n, 4]]}, {n, 7}],
    Table[{s2[[n, 3]], s2[[n, 4]]}, {n, 6}],
    Table[{s3[[n, 3]], s3[[n, 4]]}, {n, 5}], Table[{s4[[n, 3]], s4[[n, 4]]},
     {n, 7}], Table[{s5[[n, 3]], s5[[n, 4]]}, {n, 6}]} ,
   PlotStyle → {Blue, Green, Red, Yellow, Gray}];
```

In[660]:=

In[661]:=
```
p1 = Plot[sol[x1, S0 , t]  /. x1 → 1 /. S0 → 333,
   {t, 0, 250}, PlotStyle → {Blue}, PlotLegends → {"S0 = 333"}];


p2 = Plot[sol[x1, S0 , t]  /. x1 → 2 /. S0 → 166.7,
   {t, 0, 250}, PlotStyle → {Green}, PlotLegends → {"S0 = 166.7"}];

p3 = Plot[sol[x1, S0 , t]  /. x1 → 3 /. S0 → 83,
   {t, 0, 250}, PlotStyle → {Red}, PlotLegends → {"S0 = 83"}];

p4 = Plot[sol[x1, S0 , t]  /. x1 → 4 /. S0 → 41.6,
   {t, 0, 250}, PlotStyle → {Yellow}, PlotLegends → {"S0 = 41.6"}];
p5 = Plot[sol[x1, S0 , t]  /. x1 → 5 /. S0 → 20.8, {t, 0, 250},
   PlotStyle → {Grey}, PlotLegends → {"S0 = 20.8"}];
```

In[666]:=
```
Show[pl, p1, p2, p3, p4, p5,
 PlotRange → {{0, 250}, {0, 1.3}}, AxesOrigin → {0.0, 0}]
```

Out[666]=