

```
In[4]:= fit[beta0_, beta1_, ip_] := Exp[beta0 + beta1*data[[ip, 1]]] /
      (1 + Exp[beta0 + beta1*data[[ip, 1]]])

In[5]:= devSQ[beta0_, beta1_, ip_] := -2 * (data[[ip, 2]] * Log[fit[beta0, beta1, ip]] +
      (1 - data[[ip, 2]]) * Log[1 - fit[beta0, beta1, ip]])

In[14]:= devSigned[beta0_, beta1_, ip_] := If[data[[ip, 2]] < fit[beta0, beta1, ip],
      -1, 1] * Sqrt[devSQ[beta0, beta1, ip]]

In[15]:= (* implements sign convention of NWK 14.64 *)

In[1]:= data = ReadList["f:\\drr99\\ed257\\web\\exs\\program.dat", Number,
      RecordLists -> True];

In[2]:= Length[data]

Out[2]= 25

In[6]:= fit[-3.0597, .1615, 1]

Out[6]= 0.310304

In[7]:= Log[%]

Out[7]= -1.1702

In[8]:= Sqrt[devSQ[-3.0597, .1615, 1]]

Out[8]= 0.861979

      (* up to sign checks with NWK p.596 *)

In[16]:= devSigned[-3.0597, .1615, 1]

Out[16]= -0.861979

In[17]:= Table[{i, devSigned[-3.0597, .1615, i]}, {i, 1, Length[data]}]

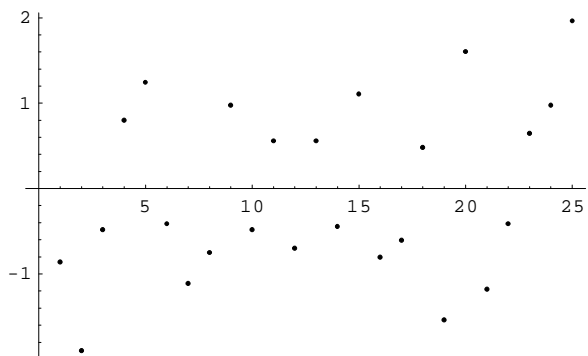
Out[17]= {{1, -0.861979}, {2, -1.89934}, {3, -0.48278}, {4, 0.7991}, {5, 1.24291},
      {6, -0.414014}, {7, -1.11329}, {8, -0.750946}, {9, 0.976332}, {10, -0.48278},
      {11, 0.556913}, {12, -0.699472}, {13, 0.556913}, {14, -0.447207}, {15, 1.106},
      {16, -0.805136}, {17, -0.604751}, {18, 0.478785}, {19, -1.53777}, {20, 1.6027},
      {21, -1.18115}, {22, -0.414014}, {23, 0.645597}, {24, 0.976332}, {25, 1.96231}}
```

```
In[18]:= TableForm[%]
```

```
Out[18]//TableForm=
```

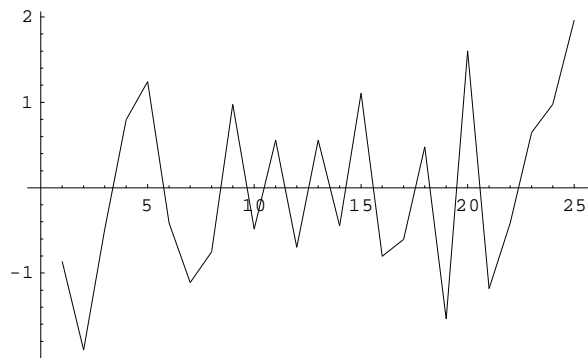
1	-0.861979
2	-1.89934
3	-0.48278
4	0.7991
5	1.24291
6	-0.414014
7	-1.11329
8	-0.750946
9	0.976332
10	-0.48278
11	0.556913
12	-0.699472
13	0.556913
14	-0.447207
15	1.106
16	-0.805136
17	-0.604751
18	0.478785
19	-1.53777
20	1.6027
21	-1.18115
22	-0.414014
23	0.645597
24	0.976332
25	1.96231

```
In[19]:= ListPlot[%18]
```



```
Out[19]= Graphics
```

```
In[20]:= ListPlot[%18, PlotJoined -> True]
```



```
Out[20]= Graphics
```

```
In[21]:= (* that recreates NWK Fig 14.7 *)
```

```
Sum[devsQ[-3.0597, .1615, ip], {ip, 1, Length[data]}
```

```
25.4246
```

```
(* this matches -2 logLikelihood NWK 14.47 p.586 *)
```