In[44]:=
```
S[i_, f_] := f /. y[i] → tmp /. y[i + 1] → y[i] /. tmp → y[i + 1]
```

In[45]:=
```
Delta[i_, f_] := (f - S[i, f]) / (y[i] - y[i + 1])
```

In[46]:=
```
T[i_, f_] := S[i, f] - eta * Delta[i, f]
```

In[49]:=
```
Simplify[T[1, T[1, f[y[1], y[2]]]]] - f[y[1], y[2]]
```

Out[49]=
```
0
```

In[50]:=
```
Simplify[T[2, T[1, T[2, f[y[1], y[2], y[3]]]]] - T[1, T[2, T[1, f[y[1], y[2], y[3]]]]]
```

Out[50]=
```
0
```