

```
In[*]:= M_R_ := Expand[ $\mathcal{E}$  /. { $e_k \rightarrow (1-t)e_k + e_{k+1}$ ,  $e_{k+1} \rightarrow te_k$ }]
```

```
In[*]:= Table[Coefficient[M3[ej], ei], {i, 7}, {j, 7}] // MatrixForm
```

```
Out[*]//MatrixForm=
```

$$\begin{pmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1-t & t & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 \end{pmatrix}$$

```
In[*]:= Table[ei // M2 // M5, {i, 7}]
```

```
Out[*]= {e1, e2 - te2 + e3, te2, e4, e5 - te5 + e6, te5, e7}
```

```
In[*]:= Table[ei // M5 // M2, {i, 7}]
```

```
Out[*]= {e1, e2 - te2 + e3, te2, e4, e5 - te5 + e6, te5, e7}
```

```
In[*]:= lhs = Table[ei // M3 // M4 // M3, {i, 7}]
```

```
Out[*]= {e1, e2, e3 - te3 + e4 - te4 + e5, te3 - t^2 e3 + te4, t^2 e3, e6, e7}
```

```
In[*]:= rhs = Table[ei // M4 // M3 // M4, {i, 7}]
```

```
Out[*]= {e1, e2, e3 - te3 + e4 - te4 + e5, te3 - t^2 e3 + te4, t^2 e3, e6, e7}
```

```
In[*]:= lhs == rhs
```

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Out[*]= True
```