

```
In[1]:= SetDirectory["/www/user/fdahl/papers/Conjugation/"];
<< kappaLib.m
<< Petrov.m
```

KappaLib v1.1

Petrov routine loaded

■ Class XVI: (2 1bar(1) 1bar(1))

$$\text{In[4]:= } \mathbf{B} = \begin{pmatrix} 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \\ 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 \end{pmatrix};$$

$$\text{In[5]:= } \mathbf{V} = \begin{pmatrix} \text{lam1} & 1 & 0 & 0 & 0 & 0 \\ 0 & \text{lam1} & 0 & 0 & 0 & 0 \\ 0 & 0 & \text{sigma1} & \text{tau1} & 0 & 0 \\ 0 & 0 & -\text{tau1} & \text{sigma1} & 0 & 0 \\ 0 & 0 & 0 & 0 & \text{sigma2} & \text{tau2} \\ 0 & 0 & 0 & 0 & -\text{tau2} & \text{sigma2} \end{pmatrix};$$

```
In[6]:= Eigenvalues[V]
```

```
Out[6]= {lam1, lam1, sigma1 - i tau1, sigma1 + i tau1, sigma2 - i tau2, sigma2 + i tau2}
```

$$\text{In[7]:= } \mathbf{W} = \begin{pmatrix} 0 & \text{eps1} & 0 & 0 & 0 & 0 \\ \text{eps1} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 1 & 0 \end{pmatrix};$$

■ eps1 can be +1 or -1:

```
In[8]:= Eigenvalues[W]
```

```
Out[8]= {-1, -1, 1, 1, -eps1, eps1}
```

```
In[9]:= (* Permutation 2,5 with leading B in FindSPermutations.m *)
```

$$\mathbf{S} = \begin{pmatrix} 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \\ \text{eps1} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 \end{pmatrix};$$

■ Check that S is in the set mathcal(S)

```
In[10]:= Transpose[S].B.S == W
```

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Out[10]= True
```

Compute result

```
In[11]:= res = S.V.Inverse[S];  
res // MatrixForm
```

Out[12]//MatrixForm=

$$\begin{pmatrix} \text{lam1} & 0 & 0 & 0 & 0 & 0 \\ 0 & \text{sigma1} & 0 & 0 & -\text{tau1} & 0 \\ 0 & 0 & \text{sigma2} & 0 & 0 & -\text{tau2} \\ \text{eps1} & 0 & 0 & \text{lam1} & 0 & 0 \\ 0 & \text{tau1} & 0 & 0 & \text{sigma1} & 0 \\ 0 & 0 & \text{tau2} & 0 & 0 & \text{sigma2} \end{pmatrix}$$

```
In[13]:= Petrov[res]
```

Out[13]//MatrixForm=

$$\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & \text{lam1} \\ 0 & -\text{tau1} & 0 & 0 & \text{sigma1} & 0 \\ 0 & 0 & -\text{tau2} & \text{sigma2} & 0 & 0 \\ 0 & 0 & \text{sigma2} & \text{tau2} & 0 & 0 \\ 0 & \text{sigma1} & 0 & 0 & \text{tau1} & 0 \\ \text{lam1} & 0 & 0 & 0 & 0 & \text{eps1} \end{pmatrix}$$

- **Export notebook as .pdf**

```
In[14]:= NotebookPrint[SelectedNotebook[],  
"/www/user/fdahl/papers/Conjugation/notebooks/ClassXVI.pdf"]
```