3f. Casimir element of K_0

See (2.34)

Definition

```
In[ ]:= CasK = WW0 ** WW0 + WW1 ** WW1 + WW2 ** WW2
        CasKZ = CasK /. XWtoZsub // Simplify
```

```
Out[ ]= WW0 ** WW0 + WW1 ** WW1 + WW2 ** WW2
```

```
Out[ ]= -2 i WW0 + WW0 ** WW0 + Z12 ** Z21
```

Is it central?

```
In[ ]:= CasKZ ** WW0 - WW0 ** CasKZ
        CasKZ ** Z12 - Z12 ** CasKZ // Expand
        CasKZ ** Z21 - Z21 ** CasKZ // Expand
        CasKZ ** CKi - CKi ** CasKZ /. nul → 0 // Expand
```

```
Out[ ]= 0
```

```
Out[ ]= 0
```

```
Out[ ]= 0
```

```
Out[ ]= 0
```

In the next checks we use the routines defined later on (carried out in initialization)

```
In[ ]:= Clear[h, p, r, q]
        eR[CasK, Phi[h, p, r, q], subtriv]
        eR[CasKZ, Phi[h, p, r, q], subtriv]
```

```
Out[ ]= -p (2 + p) Phi[h, p, r, q]
```

```
Out[ ]= -p (2 + p) Phi[h, p, r, q]
```

```
In[ ]:= eR[CKi, Phi[h, p, r, q], subtriv]
```

```
Out[ ]= -i h Phi[h, p, r, q]
```

```
In[ ]:= eR[WW0, Phi[h, p, r, q], subtriv]
```

```
Out[ ]= -i q Phi[h, p, r, q]
```