We introduce the structure constants of sl2
We show the Killing-Cartan metric

```
 -8.00 0.00 0.00
 0.00 8.00 0.00
 0.00 0.00 8.00
```

and its determinant
-512.0

In what follows we expand sl2 with all the abelian semigroups of order 5 having
zero element and a resonance; and identify the ones that leads to a semisimple
algebra.
****

A semisimple algebra has been found, expanding with the semigroup #770
```
1 1 1 1 1
1 2 1 1 5
1 1 3 4 1
1 1 4 3 1
1 5 1 1 2
```
which has the zero element 1 and the resonance:
S0: 1 2 3
S1: 1 4 5
The metric of the reduction of the resonant subalgebra is:

```
 -8.00 0.00 0.00 0.00 0.00 0.00
 0.00 -8.00 0.00 0.00 0.00 0.00
 0.00 0.00 8.00 0.00 0.00 0.00
 0.00 0.00 0.00 8.00 0.00 0.00
 0.00 0.00 0.00 0.00 8.00 0.00
 0.00 0.00 0.00 0.00 0.00 8.00
```

and its determinant
262144.0
****
A semisimple algebra has been found, expanding with the semigroup #779
```
1 1 1 1 1
1 2 1 2 2
1 1 3 3 3
1 2 3 4 5
1 2 3 5 4
```
which has the zero element 1 and the resonance:
S0: 1 2 3 4
S1: 1 2 3 5
The metric of the reduction of the resonant subalgebra is:

```
 -8.00 0.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00
 0.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00
 -8.00 -8.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00
 0.00 0.00 0.00 8.00 0.00 8.00 0.00 0.00 0.00
 0.00 0.00 0.00 0.00 8.00 8.00 0.00 0.00 0.00
 0.00 0.00 0.00 8.00 8.00 24.00 0.00 0.00 0.00
 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 8.00
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00
```

```
  0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 24.00

and its determinant
-1.34217728E8
**********
A semisimple algebra has been found, expanding with the semigroup #922
1 1 1 1 1
1 2 2 2 2
1 2 3 3 3
1 2 3 4 5
1 2 3 5 4
which has the zero element 1 and the resonance:
S0: 1 2 3 4
S1: 1 2 3 5
The metric of the reduction of the resonant subalgebra is:

 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00
 -8.00 -16.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00
 -8.00 -16.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00
 0.00 0.00 0.00 8.00 8.00 8.00 0.00 0.00 0.00
 0.00 0.00 0.00 8.00 16.00 16.00 0.00 0.00 0.00
 0.00 0.00 0.00 8.00 16.00 24.00 0.00 0.00 0.00
 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00
 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 16.00
 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 24.00

and its determinant
-1.34217728E8
**********
A semisimple algebra has been found, expanding with the semigroup #968
1 1 1 1 1
1 2 2 4 4
1 2 3 4 5
1 4 4 2 2
1 4 5 2 3
which has the zero element 1 and the resonance:
S0: 1 2 3
S1: 1 4 5
The metric of the reduction of the resonant subalgebra is:

 -8.00 -8.00 0.00 0.00 0.00 0.00
 -8.00 -16.00 0.00 0.00 0.00 0.00
 0.00 0.00 8.00 8.00 0.00 0.00
 0.00 0.00 8.00 16.00 0.00 0.00
 0.00 0.00 0.00 0.00 8.00 8.00
 0.00 0.00 0.00 0.00 8.00 16.00

and its determinant
262144.0
**********
A semisimple algebra has been found, expanding with the semigroup #990
1 1 1 1 1
1 2 3 4 5
1 3 2 5 4
1 4 5 2 3
```

```
1 5 4 3 2
which has the zero element 1 and the resonance:
S0: 1 2 5
S1: 1 3 4
The metric of the reduction of the resonant subalgebra is:

 -16.00 0.00 0.00 0.00 0.00 0.00
 0.00 -16.00 0.00 0.00 0.00 0.00
 0.00 0.00 16.00 0.00 0.00 0.00
 0.00 0.00 0.00 16.00 0.00 0.00
 0.00 0.00 0.00 0.00 16.00 0.00
 0.00 0.00 0.00 0.00 0.00 16.00

and its determinant
1.6777216E7
**********
A semisimple algebra has been found, expanding with the semigroup #991
1 1 1 1 1
1 2 3 4 5
1 3 2 5 4
1 4 5 3 2
1 5 4 2 3
which has the zero element 1 and the resonance:
S0: 1 2 3
S1: 1 4 5
The metric of the reduction of the resonant subalgebra is:

 -16.00 0.00 0.00 0.00 0.00 0.00
 0.00 -16.00 0.00 0.00 0.00 0.00
 0.00 0.00 0.00 16.00 0.00 0.00
 0.00 0.00 16.00 0.00 0.00 0.00
 0.00 0.00 0.00 0.00 0.00 16.00
 0.00 0.00 0.00 0.00 16.00 0.00

and its determinant
1.6777216E7
**********

There are 204 semigroups of order 5 with zero element and at least one resonant
decomposition.
In total, there are 1295 different resonant decompositions.
And 6 of them leads to a semisimple algebra.
There are 0 semigroups with zero element, having more than one resonance and
leading to semisimple algebras with all those resonances.
```