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 4 having
a resonance; and identify the ones that leads to a semisimple algebra.
****

A semisimple algebra has been found, expanding with the semigroup #88
```
1 1 1 1
1 2 2 2
1 2 3 4
1 2 4 3
```
whith the resonance:
S0: 1 2 3
S1: 1 2 4
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 #118
```
1 1 3 3
1 2 3 4
3 3 1 1
3 4 1 2
```
whith the resonance:
S0: 1 2
S1: 3 4
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 #125
1 2 3 4
2 1 4 3
3 4 1 2
4 3 2 1
whith the resonance:
S0: 1 4
S1: 2 3
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 #126
1 2 3 4
2 1 4 3
3 4 2 1
4 3 1 2
whith the resonance:
S0: 1 2
S1: 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 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 48 semigroups of order 4 at least one resonant decomposition.
In total, there are 124 different resonant decompositions.
And 4 of them leads to a semisimple algebra.
There are 0 semigroups having more than one resonance and
leading to semisimple algebras with all those resonances.
```