

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

A semisimple algebra has been found, expanding with the semigroup #12

```
1 1 1
1 2 3
1 3 2
```

whith the resonance:

S0: 1 2

S1: 1 3

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

There are 8 semigroups of order 3 at least one resonant decomposition.
In total, there are 9 different resonant decompositions.
And 1 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.