

**GETTING SAGE/COCALC TO HELP YOU COMPUTE
(q, t)-CATALAN POLYNOMIALS AND (LITTLE) (q, t)-SCHRÖDER
POLYNOMIALS**

1. SAGEMATHCELL

Enter these commands in SageMathCell, and hit the “Evaluate” button’:

```
Sym = SymmetricFunctions(FractionField(QQ['q', 't']))
s = Sym.schur()
park4=s[1,1,1,1].nabla()
park4.coefficient([3,1])
```

2. COCALC

Get a (free!) COCALC account, create a Sage worksheet, and type in/evaluate this:

```
Sym = SymmetricFunctions(FractionField(QQ['q', 't']));
s = Sym.schur()
park3=s[1,1,1].nabla()
park3
park3.coefficient([1,1,1])
park3.coefficient([2,1])
park3.coefficient([3])

def qtLittleSchroeder(n,k):
    qtparkingfunction=s[[1 for i in range(n)]].nabla();
    hookshape=[k+1]+[1 for i in range(n-k-1)];
    schroeder=qtparkingfunction.coefficient(hookshape);
    return(schroeder)

qtLittleSchroeder(4,2);
```