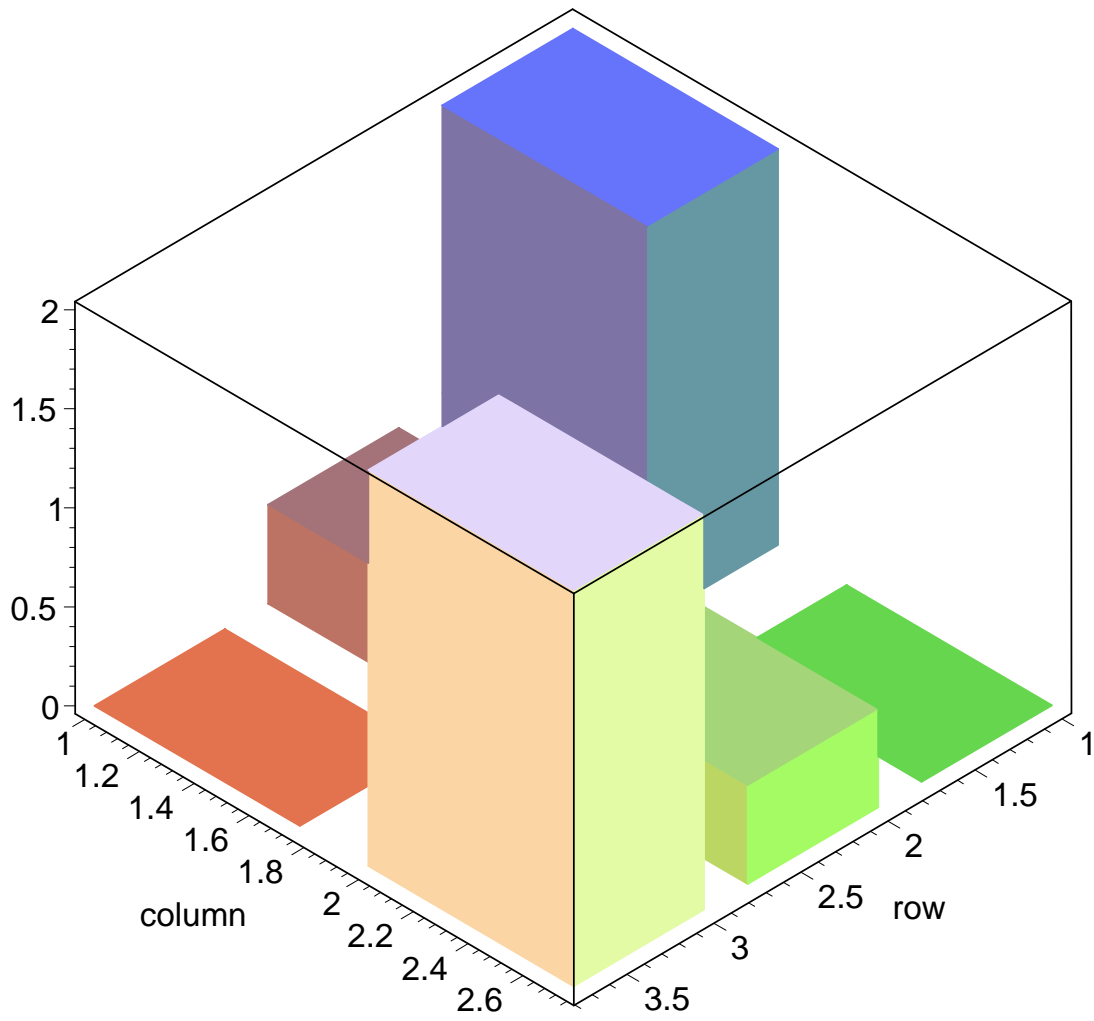


```

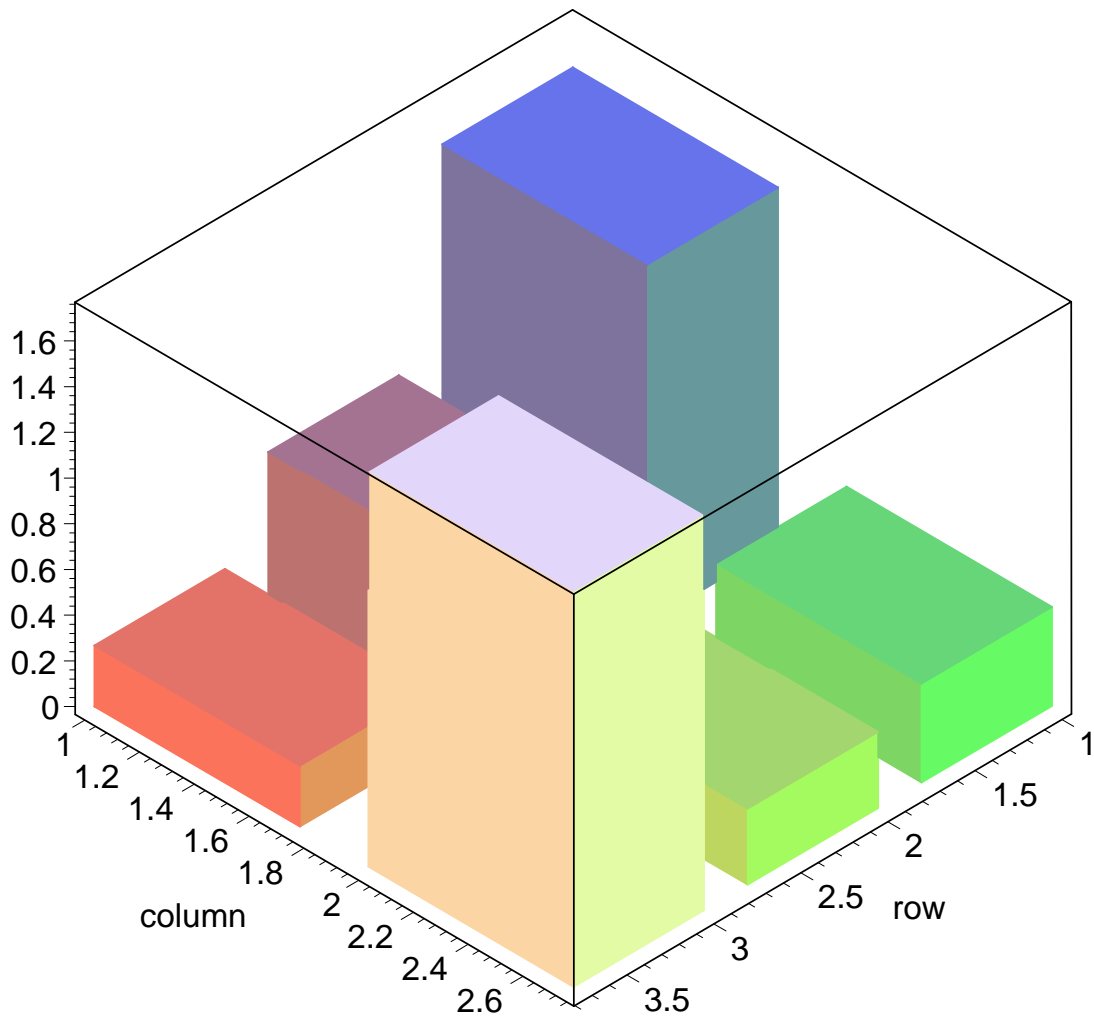
> restart:
  with(plots):
  with(plottools):
  interface(rtables=50):
Warning, the name changecoords has been redefined
Warning, the name arrow has been redefined
> glaeserreihe:=module()
  local inhalt;
  export fuellen, loeffel, loeffelrunde, show, draw, film;
  inhalt:=[];
  fuellen:=proc(L::list(list))
    inhalt:=L;
    NULL;
  end proc:
  loeffel:=proc(l::positive,i::nonnegint,j::nonnegint)
    local trans;
    trans:=1 * inhalt[i]/convert(inhalt[i],'+');
    inhalt[i]:=inhalt[i]-trans;
    inhalt[j]:=inhalt[j]+trans;
    NULL;
  end proc:
  loeffelrunde:=proc(l::positive)
    local i;
    for i to nops(inhalt)-1 do
      loeffel(l,i,i+1);
    end do;
    loeffel(l,i,1);
    NULL;
  end proc:
  show:=proc()
    Matrix(inhalt,scan=columns);
  end proc:
  draw:=proc()
    matrixplot(
      inhalt,
      heights=histogram,
      gap=0.25,
      axes=boxed,
      style=patchnogrid);
  end proc:
  film:=proc(L,l,n)
    local FILM;
    fuellen(L);
    FILM:=draw();
    to n do
      loeffelrunde(l);
      FILM:=FILM,draw();
    end do;
    display([FILM],insequence=true);
  end proc:
end module:
> with(glaeserreihe):

```

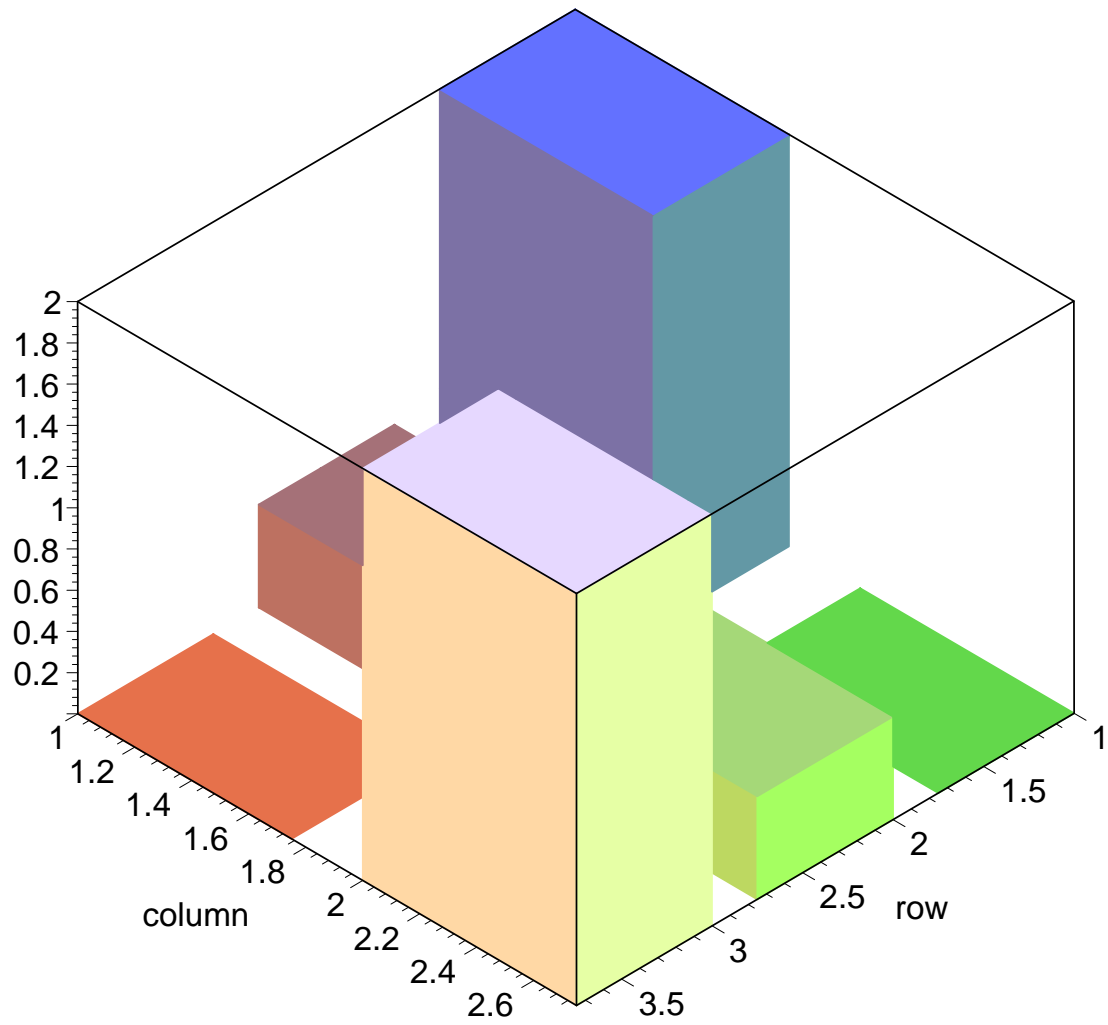
```
> fuellen( [[2,0], [1/2,1/2], [0,2]] );  
draw();
```



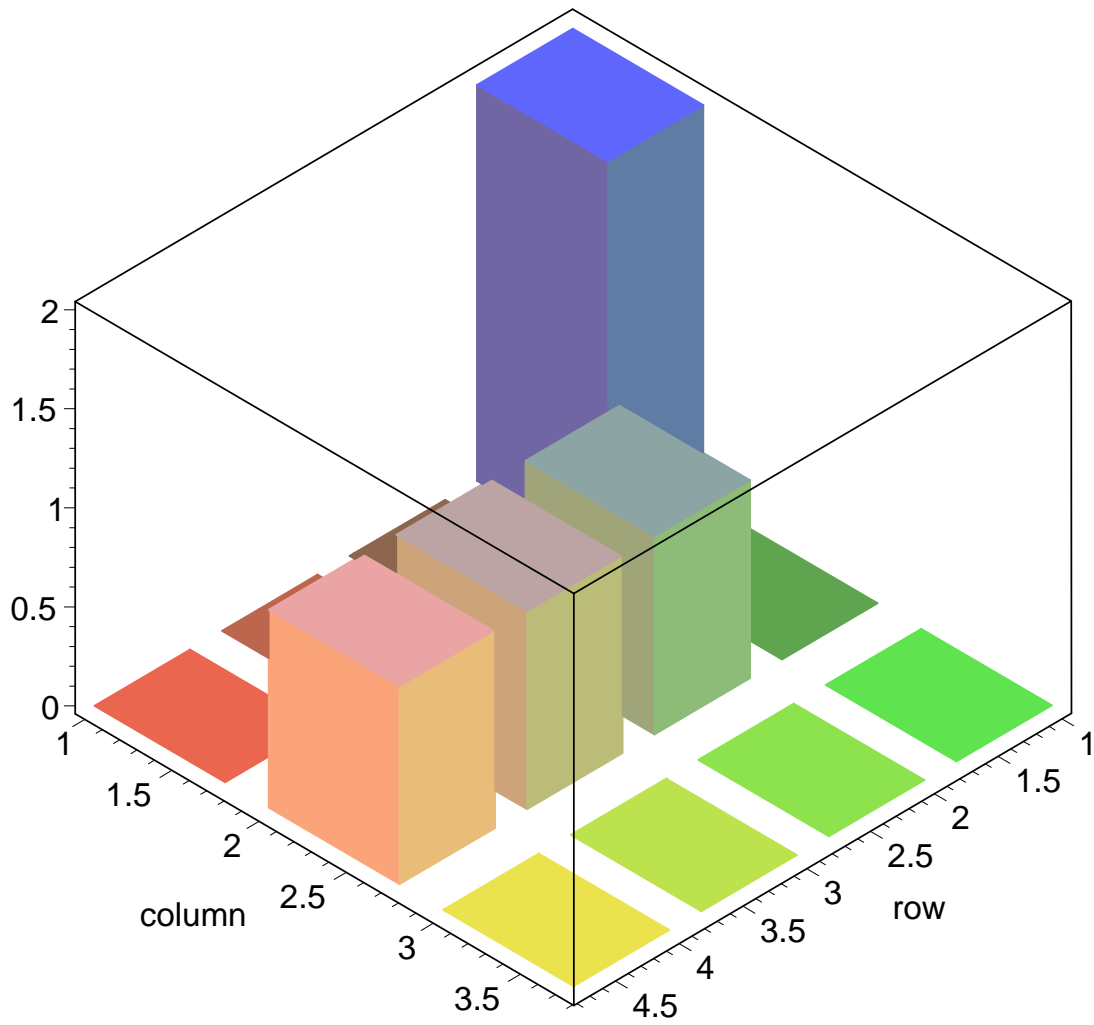
```
> loeffelrunde( 1/2 );  
draw();
```



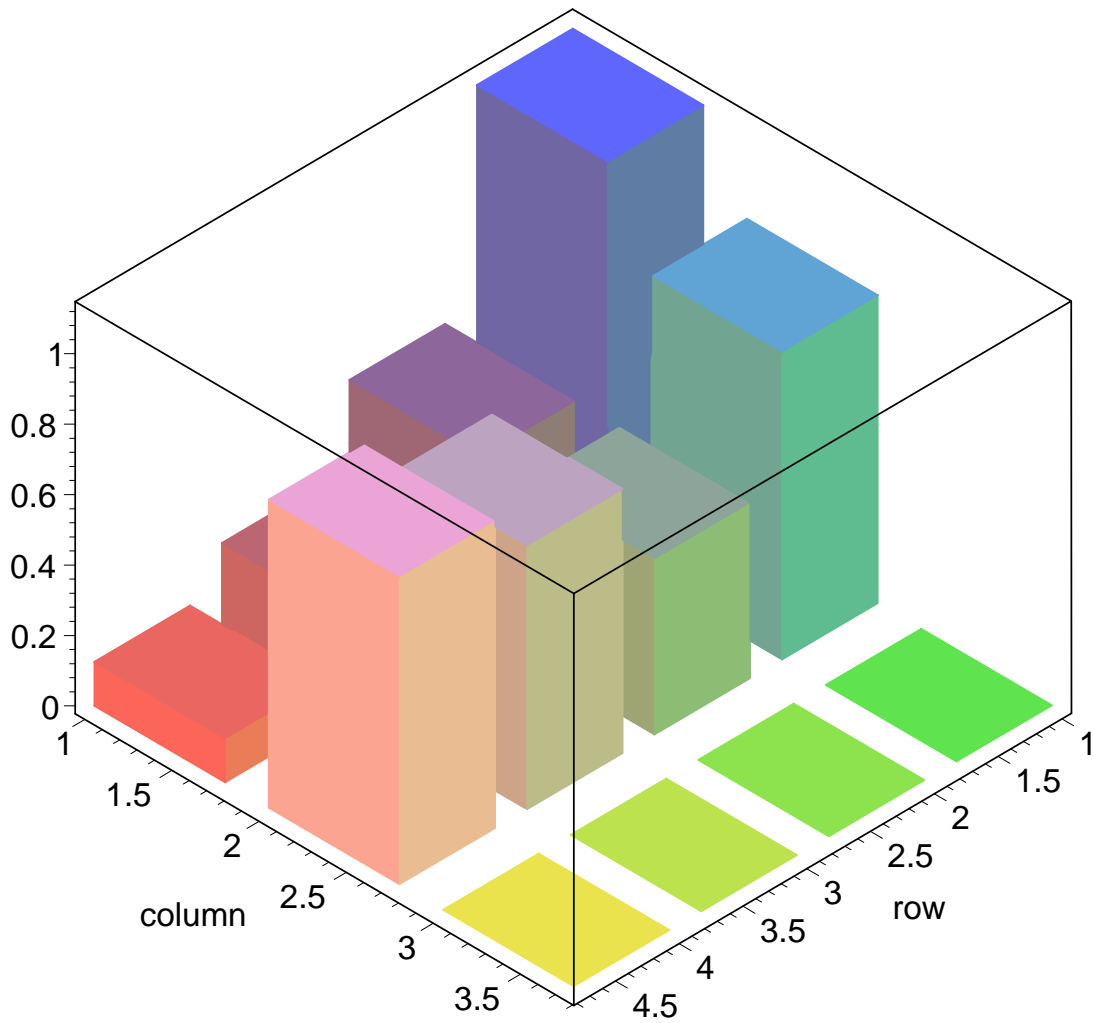
```
> film( [[2,0],[1/2,1/2],[0,2]], 1/2, 50 );
```



```
> fuellen( [[2,0,0],[0,1,0],[0,1,0],[0,1,0]] );  
> draw();
```



```
> loeffelrunde(1);  
draw();  
evalf(show());
```



```

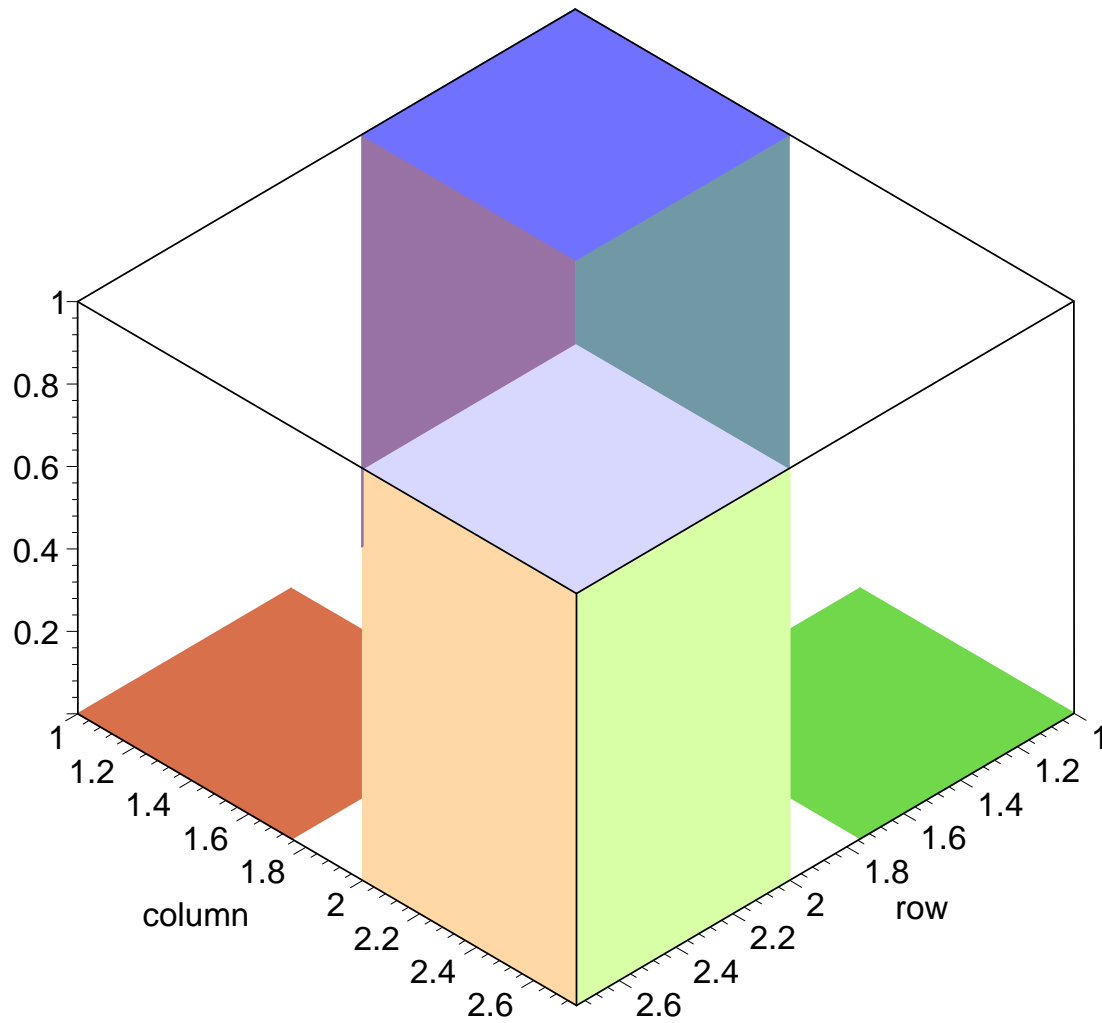
[ 1.125000000  0.500000000  0.250000000  0.125000000 ]
[ 0.875000000  0.500000000  0.750000000  0.875000000 ]
[ 0.          0.          0.          0.          ]

```

```

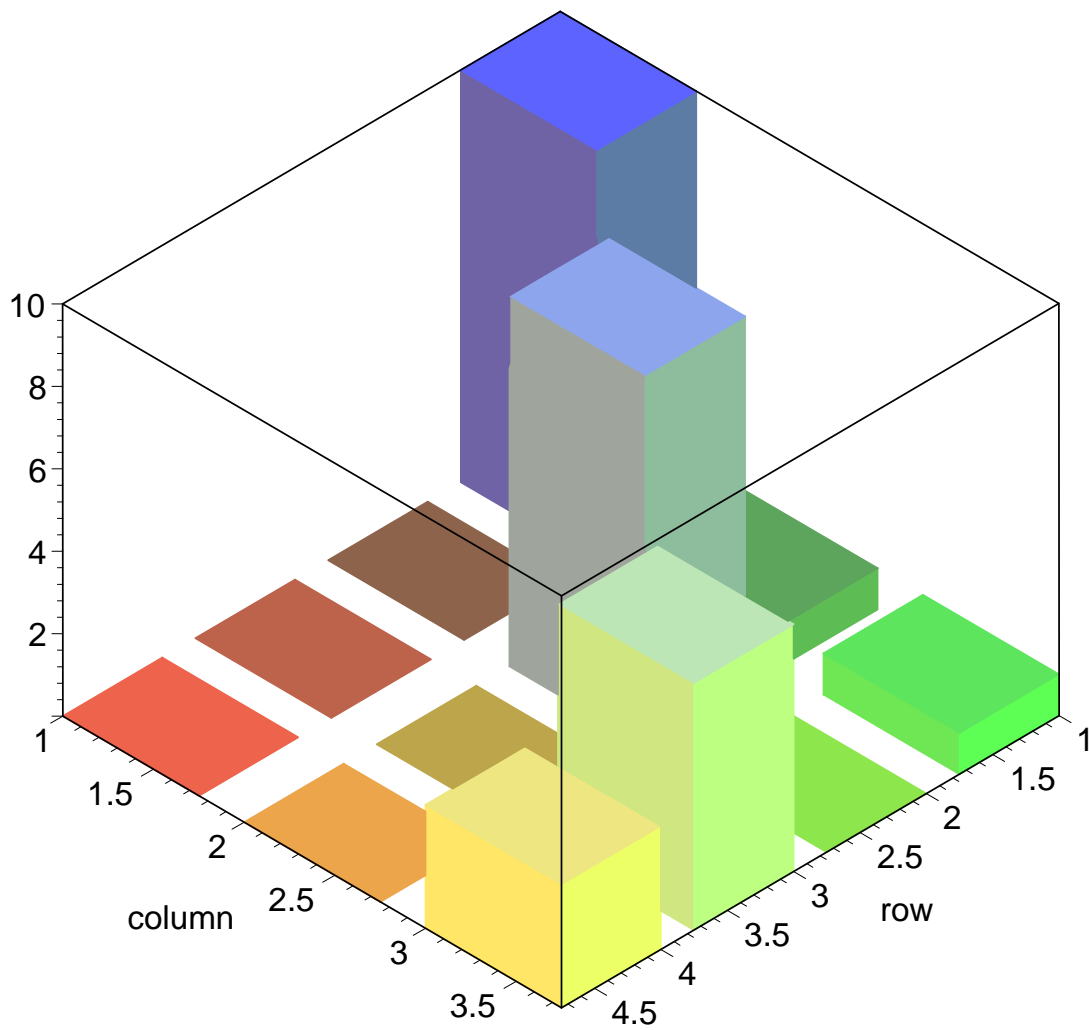
> film( [[1,0],[0,1]], 0.1, 100 );
evalf(show());

```



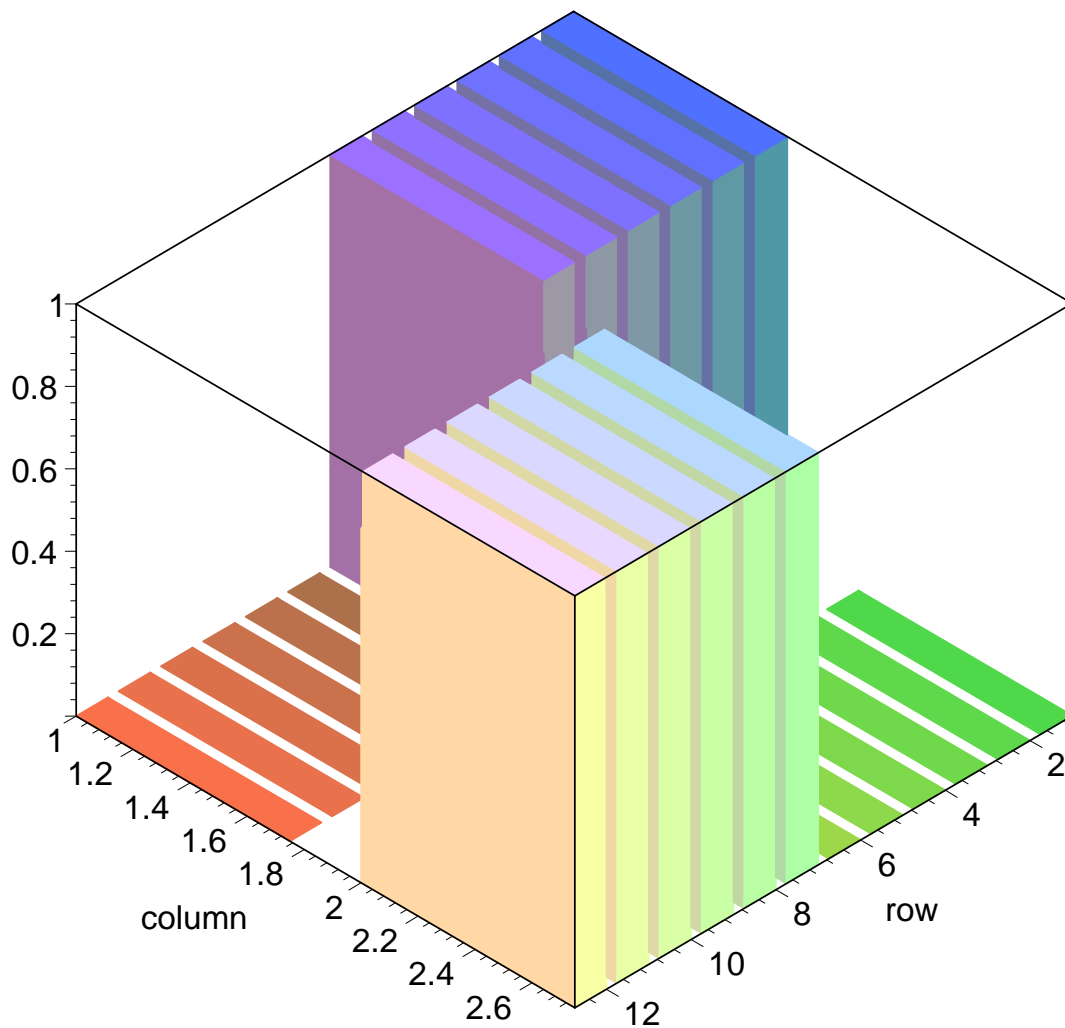
```
[0.5000000010  0.4999999990]
[0.4999999991  0.5000000009]
```

```
> film( [[10,1,1],[0,9,0],[0,0,6],[0,0,3]], 0.5, 100 );
evalf(show());
```



```
[4.001489073  2.998866467  1.999504528  1.000139931 ]
[4.000652654  3.001489214  1.999055660  0.9988024758 ]
[3.997858258  2.999644321  2.001439819  1.001057595 ]
```

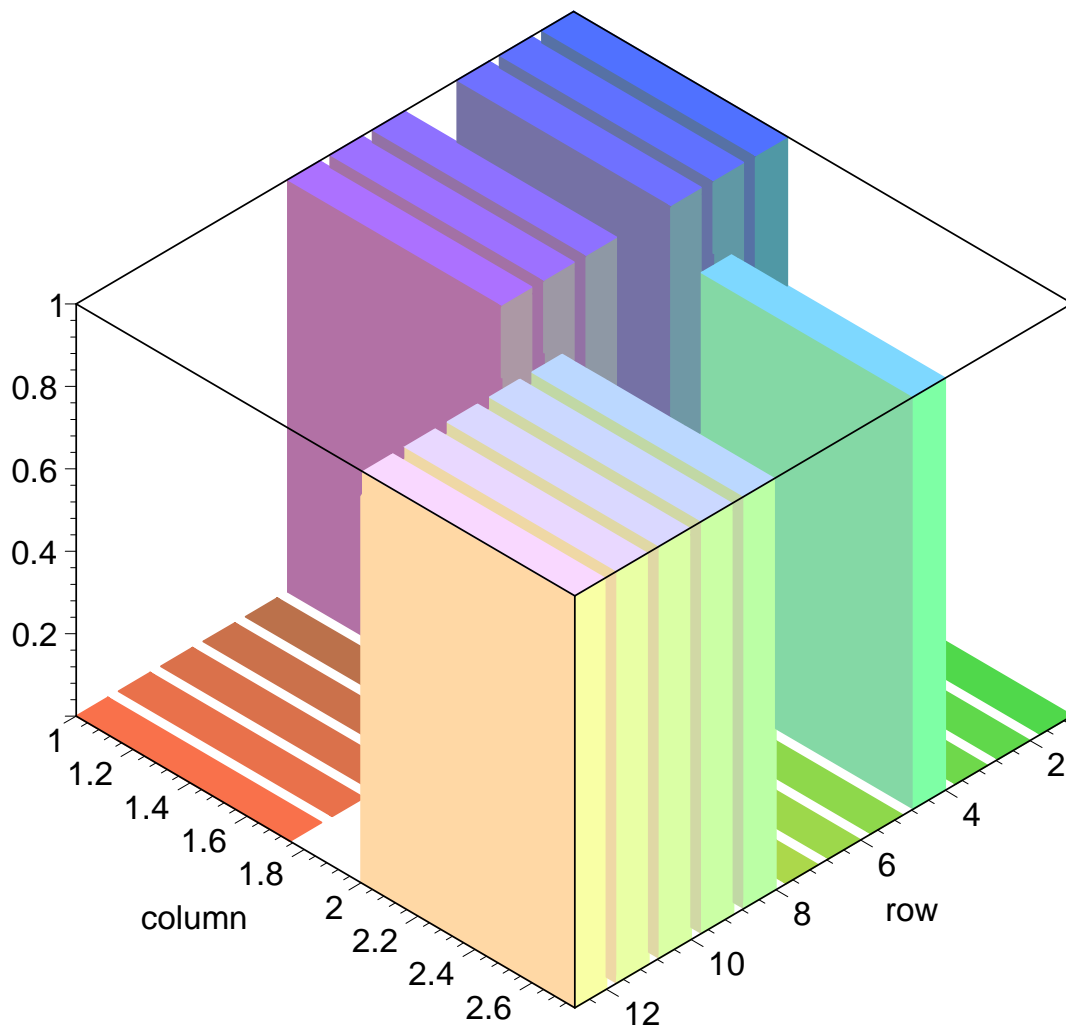
```
> film(
  [[1,0],[1,0],[1,0],[1,0],[1,0],[1,0],[0,1],[0,1],[0,1],[0,1],[0,
  1],[0,1]], 0.3, 100 );
evalf(show());
```



```

[0.4949301310 , 0.4951942591 , 0.4970835268 , 0.4997268392 , 0.5024083928 ,
 0.5044115692 , 0.5052103207 , 0.5046071568 , 0.5027815607 , 0.5002371157 ,
 0.4976627582 , 0.4957463698]
[0.5050698677 , 0.5048057402 , 0.5029164730 , 0.5002731601 , 0.4975916065 ,
 0.4955884317 , 0.4947896791 , 0.4953928441 , 0.4972184391 , 0.4997628841 ,
 0.5023372400 , 0.5042536301]
> film(
[[1,0],[1,0],[1,0],[0,1],[1,0],[1,0],[1,0],[0,1],[0,1],[0,1],[0,
1],[0,1]], 0.5, 100 );
show();

```



[0.5000663439 , 0.5000572576 , 0.5000272090 , 0.4999905219 , 0.4999571506 ,  
 0.4999359492 , 0.4999323288 , 0.4999468836 , 0.4999753345 , 0.5000097768 ,  
 0.5000408725 , 0.5000603730]  
 [0.4999336561 , 0.4999427426 , 0.4999727920 , 0.5000094783 , 0.5000428496 ,  
 0.5000640510 , 0.5000676714 , 0.5000531166 , 0.5000246658 , 0.4999902234 ,  
 0.4999591295 , 0.4999396249]

[ >  
 [ >