

## 1 Rotation

```
(x,y) in {x^2+y^2=1}; [1]
{
  x = cos(pi/4)*x-sin(pi/4)*y;
  y = sin(pi/4)*x+cos(pi/4)*y; [2]
}
```

## 2 Rotation10

```
x in {||x||=1}; [1]
{
  x1 = cos(pi/3)*x1-sin(pi/3)*x2;
  x2 = sin(pi/3)*x1+cos(pi/3)*x2;
  x3 = cos(pi)*x3-sin(pi)*x4;
  x4 = sin(pi)*x3+cos(pi)*x4;
  x5 = cos(pi/2)*x5-sin(pi/2)*x6;
  x6 = sin(pi/2)*x5+cos(pi/2)*x6;
  x7 = cos(pi/4)*x7-sin(pi/4)*x8;
  x8 = sin(pi/4)*x7+cos(pi/4)*x8;
  x9 = cos(pi/6)*x9-sin(pi/6)*x10;
  x10 = sin(pi/6)*x9+cos(pi/6)*x10; [2]
}
```

## 3 Filtre

```
x = [0,1];
y = [0,1]; [1]
while [2] (true) {
  x = (3/4)*x-(1/8)*y;
  y = x; [3]
}
```

## 4 Oscillator

```
h = 0.01;
c = 1;
x = [0,1];
v = [0,1]; [1]
while [2] (true) {
  x = x+h*v;
  v = -h*x+(1-h*c)*v; [3]
}
```

## 5 Symplectic

```
tau = 0.1;
x = [0,1];
v = [0,1]; [1]
while [2] (true) {
    x = (1-(tau/2))*x+(tau-((tau^3)/4))*v;
    v = -tau*x+(1-(tau/2))*v; [3]
}
```

## 6 SymplecticSeu

```
tau = 0.1;
x = [0,1];
v = [0,1]; [1]
while [2] (v>=1/2 [3]) { [4]
    x = (1-(tau/2))*x+(tau-((tau^3)/4))*v;
    y = -tau*x+(1-(tau/2))*v; [5]
}
```

## 7 Arrow-Hurwicz

```
a = 1;
b = -1;
c = -1;
r = 1/2;
u = [0,1];
v = [0,1];
x = [0,3/2];
y = [3/8,11/8]; [1]
while [2] (max(|x-u|,|y-v|)>1e-9 [3]) { [4]
    u = x;
    v = y;
    x = u-r*(a*u+b*v);
    y = v+(r/2)*(b*u-c); [5]
    if [6] (y<=0 [7]) {
        y=0; [8]
    } [9]
} [10]
```