```
list4 = [0 1.0000e+00   4.9360e-01   2.0000e+02   4.9360e+04   2.0000e+02;

   5.0000e-01   1.0000e+00   4.9884e-01   2.0000e+02   4.9884e+04   2.0000e+02;

   1.0000e+00   1.0000e+00   4.9451e-01   2.0000e+02   4.9451e+04   2.0000e+02;

   1.5000e+00   1.0000e+00   4.9102e-01   2.0000e+02   4.9102e+04   2.0000e+02;

   2.0000e+00   1.0000e+00   4.9020e-01   2.0000e+02   4.9020e+04   2.0000e+02;

   2.5000e+00   1.0000e+00   4.8115e-01   2.0000e+02   4.8115e+04   2.0000e+02;

   3.0000e+00   9.9000e-01   4.5101e-01   1.9800e+02   4.5101e+04   2.0000e+02;

   3.5000e+00   8.2000e-01   3.2708e-01   1.6400e+02   3.2708e+04   2.0000e+02;

   4.0000e+00   3.9000e-01   1.3805e-01   7.8000e+01   1.3805e+04   2.0000e+02;

   4.5000e+00   6.0000e-02   1.9010e-02   1.2000e+01   1.9010e+03   2.0000e+02;

   5  0   0   0  0   200;

   5.5  0   0   0  0   200;

   6  0   0   0  0   200;

   6.5  0   0   0  0   200;

   7  0   0   0  0   200;

   7.5  0   0   0  0   200;

   8  0   0   0  0   200;

   8.5  0   0   0  0   200;

   9  0   0   0  0   200;

   9.5  0   0   0  0   200;

   10  0   0   0  0   200
   ];

list8 = [0   1.0000e+00   4.9434e-01   1.0000e+02   2.4717e+04   1.0000e+02;

   5.0000e-01   1.0000e+00   4.9240e-01   1.0000e+02   2.4620e+04   1.0000e+02;

   1.0000e+00   1.0000e+00   4.9760e-01   1.0000e+02   2.4880e+04   1.0000e+02;

   1.5000e+00   1.0000e+00   4.9124e-01   1.0000e+02   2.4562e+04   1.0000e+02;
```

1

```
    2.0000e+00    1.0000e+00    4.8868e-01    1.0000e+02    2.4434e+04    1.0000e+02;

    2.5000e+00    1.0000e+00    4.8248e-01    1.0000e+02    2.4124e+04    1.0000e+02;

    3.0000e+00    9.8000e-01    4.4024e-01    9.8000e+01    2.2012e+04    1.0000e+02;

    3.5000e+00    6.8000e-01    2.6990e-01    6.8000e+01    1.3495e+04    1.0000e+02;

    4.0000e+00    3.3000e-01    1.0830e-01    3.3000e+01    5.4150e+03    1.0000e+02;

    4.5000e+00    5.0000e-02    1.0320e-02    5.0000e+00    5.1600e+02    1.0000e+02;

    5   0   0   0   0   100;

    5.5  0   0   0   0   100;

    6   0   0   0   0   100;

    6.5  0   0   0   0   100;

    7   0   0   0   0   100;

    7.5  0   0   0   0   100;

    8   0   0   0   0   100;

    8.5  0   0   0   0   100;

    9   0   0   0   0   100;

    9.5  0   0   0   0   100;

    10  0   0   0   0   100
    ];
list16 = [0    1.0000e+00    4.9913e-01    5.0000e+02    1.2478e+05    5.0000e+02;

    5.0000e-01    1.0000e+00    4.9670e-01    5.0000e+02    1.2418e+05    5.0000e+02;

    1.0000e+00    1.0000e+00    4.9656e-01    5.0000e+02    1.2414e+05    5.0000e+02;

    1.5000e+00    1.0000e+00    4.9326e-01    5.0000e+02    1.2332e+05    5.0000e+02;

    2.0000e+00    1.0000e+00    4.8821e-01    5.0000e+02    1.2205e+05    5.0000e+02;

    2.5000e+00    1.0000e+00    4.7951e-01    5.0000e+02    1.1988e+05    5.0000e+02;

    3.0000e+00    9.2400e-01    4.1111e-01    4.6200e+02    1.0278e+05    5.0000e+02;
```

```
    3.5000e+00    6.4200e-01    2.4921e-01    3.2100e+02    6.2303e+04    5.0000e+02;

    4.0000e+00    1.9600e-01    6.5648e-02    9.8000e+01    1.6412e+04    5.0000e+02;

    4.5000e+00    1.8000e-02    4.9240e-03    9.0000e+00    1.2310e+03    5.0000e+02;

    5    0    0    0    0    500;

    5.5  0    0    0    0     500;

    6    0    0    0    0     500;

    6.5  0    0    0    0     500;

    7    0    0    0    0     500;

    7.5  0    0    0    0     500;

    8    0    0    0    0     500;

    8.5  0    0    0    0     500;

    9    0    0    0    0     500;

    9.5  0    0    0    0     500;

    10   0    0    0    0     500
    ];

sc = [0    1.0000e+00    4.9301e-01    1.0000e+02    2.5242e+04    1.0000e+02;

    5.0000e-01    1.0000e+00    5.0057e-01    1.0000e+02    2.5629e+04    1.0000e+02;

    1.0000e+00    1.0000e+00    4.9496e-01    1.0000e+02    2.5342e+04    1.0000e+02;

    1.5000e+00    1.0000e+00    4.9072e-01    1.0000e+02    2.5125e+04    1.0000e+02;

    2.0000e+00    1.0000e+00    4.8922e-01    1.0000e+02    2.5048e+04    1.0000e+02;

    2.5000e+00    1.0000e+00    4.8307e-01    1.0000e+02    2.4733e+04    1.0000e+02;

    3.0000e+00    1.0000e+00    4.6895e-01    1.0000e+02    2.4010e+04    1.0000e+02;

    3.5000e+00    9.8000e-01    4.2352e-01    9.8000e+01    2.1684e+04    1.0000e+02;

    4.0000e+00    7.9000e-01    2.9039e-01    7.9000e+01    1.4868e+04    1.0000e+02;

    4.5000e+00    3.6000e-01    1.2041e-01    3.6000e+01    6.1650e+03    1.0000e+02;

    5.0000e+00    1.0000e-01    1.8359e-02    1.0000e+01    9.4000e+02    1.0000e+02
```

```matlab
    5.5  0   0   0  0   1000;

    6    0   0   0  0   1000;

    6.5   0   0   0  0   1000;

    7    0   0   0  0   1000;

    7.5   0   0   0  0   1000;

    8    0   0   0  0   1000;

    8.5   0   0   0  0   1000;

    9    0   0   0  0   1000;

    9.5   0   0   0  0   1000;

    10   0   0   0  0   1000;
    ];

semilogy(sc(:,1),sc(:,3),'LineWidth',1.5,'MarkerSize',12);
hold on;
semilogy(list4(:,1),list4(:,3),'LineWidth',1.5,'MarkerSize',12);
semilogy(list8(:,1),list8(:,3),'LineWidth',1.5,'MarkerSize',12);
semilogy(list16(:,1),list16(:,3),'LineWidth',1.5,'MarkerSize',12);

grid on;
xlabel('Ebnodb');
ylabel('Biterrorrate');
legend('SC','Listsize = 4', 'Listsize = 8', 'Listsize = 16');
xlim([0 10]);
ylim([0 1]);
title('Polar codes sc list decoding and sc decoding length = 1024 Rate ≈ 1/2');
```

Polar codes sc list decoding and sc decoding length = 1024 Rate ≈ 1/2