
Table of Contents

.....	1
o1	1
o2	2
2c	4
2d	6
2e	7
2f	8
Oppgave 3	9

close all

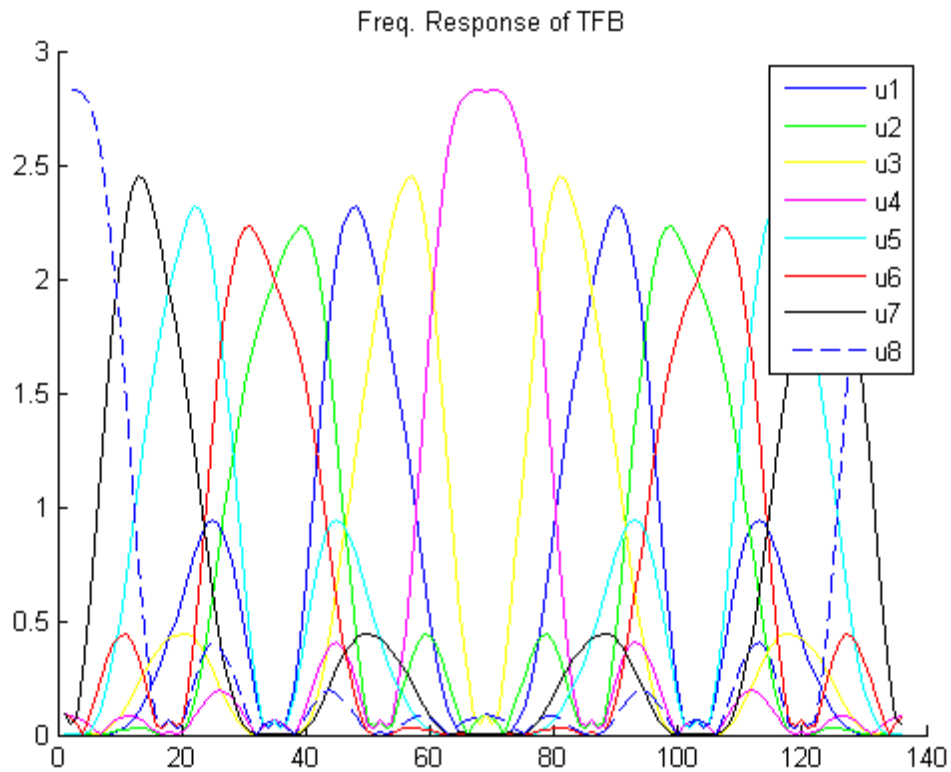
o1

Each channel is represented by a color. That way I can plot every channel in one plot. This follows through the entire exercise set.

```
N = 10;
s = [1 zeros(1,N-1)];
k = tan([.39 .41 .45 .49]*pi);

zero = zeros(1,N);

u1 = TFB(s,zero,zero,zero,zero,zero,zero,zero,k);
u2 = TFB(zero,s,zero,zero,zero,zero,zero,zero,k);
u3 = TFB(zero,zero,s,zero,zero,zero,zero,zero,k);
u4 = TFB(zero,zero,zero,s,zero,zero,zero,zero,k);
u5 = TFB(zero,zero,zero,zero,s,zero,zero,zero,k);
u6 = TFB(zero,zero,zero,zero,zero,s,zero,zero,k);
u7 = TFB(zero,zero,zero,zero,zero,zero,s,zero,k);
u8 = TFB(zero,zero,zero,zero,zero,zero,zero,s,k);
figure(1); hold on, title('Freq. Response of TFB')
plot(abs(fft(u1)))
plot(abs(fft(u2)),'g');
plot(abs(fft(u3)),'y');
plot(abs(fft(u4)),'m');
plot(abs(fft(u5)),'c');
plot(abs(fft(u6)),'r');
plot(abs(fft(u7)),'k');
plot(abs(fft(u8)),'b--');
legend('u1','u2','u3','u4','u5','u6','u7','u8')
legend('show')
```

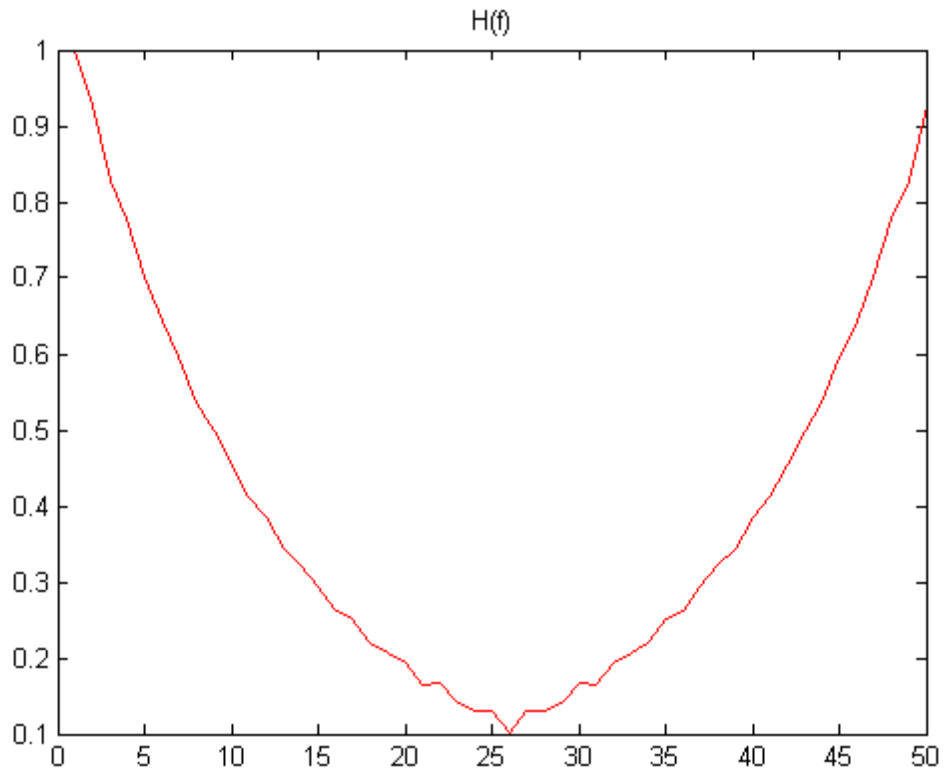


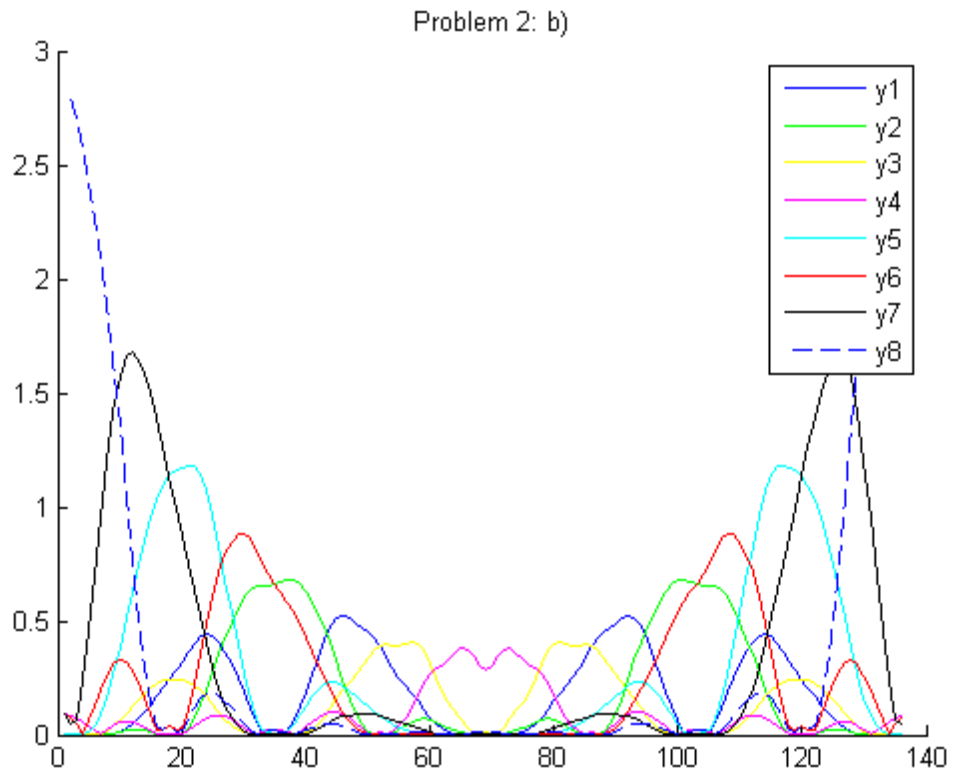
o2

```
h = [0.3336, 0.2975, 0.1328, 0.0729, 0.0389, 0.0274, 0.0172, 0.0140, 0.0098, 0.008
N = 50;
x = [1 zeros(1,N-1)];
y = filter(h,1,x);
figure(2)
plot(abs(fft(y)), 'r');title('H(f)');

%2b
y1 = filter(h,1,u1);
y2 = filter(h,1,u2);
y3 = filter(h,1,u3);
y4 = filter(h,1,u4);
y5 = filter(h,1,u5);
y6 = filter(h,1,u6);
y7 = filter(h,1,u7);
y8 = filter(h,1,u8);
figure(3); title('Problem 2: b');hold on;
plot(abs(fft(y1)))
plot(abs(fft(y2)), 'g');
plot(abs(fft(y3)), 'y');
plot(abs(fft(y4)), 'm');
plot(abs(fft(y5)), 'c');
plot(abs(fft(y6)), 'r');
```

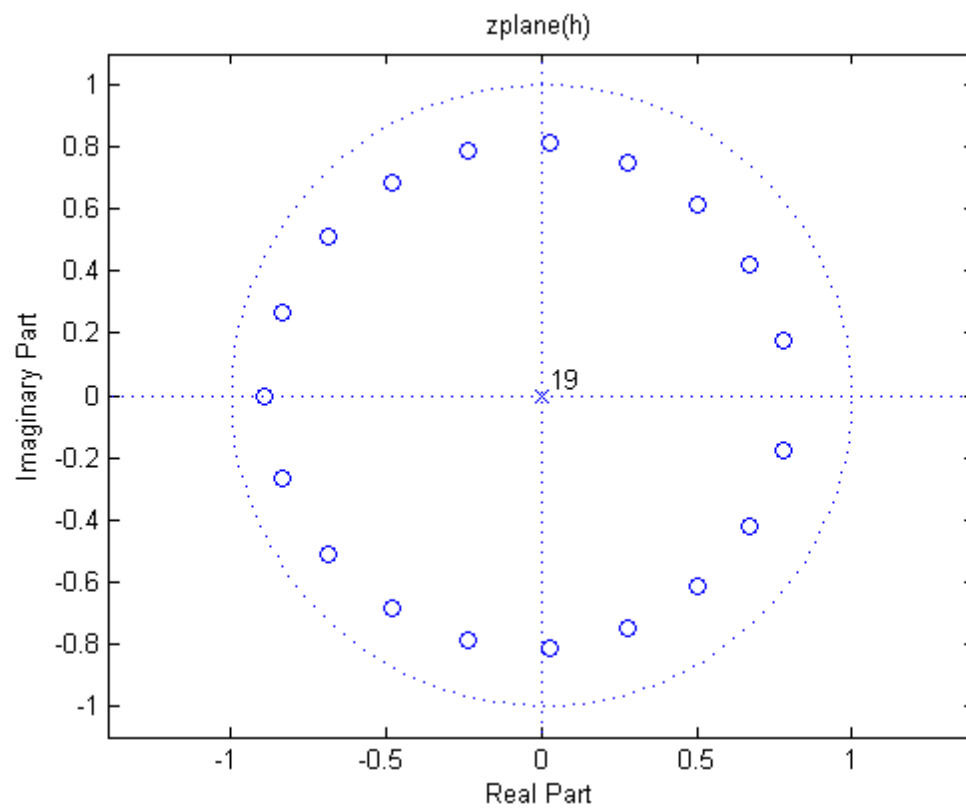
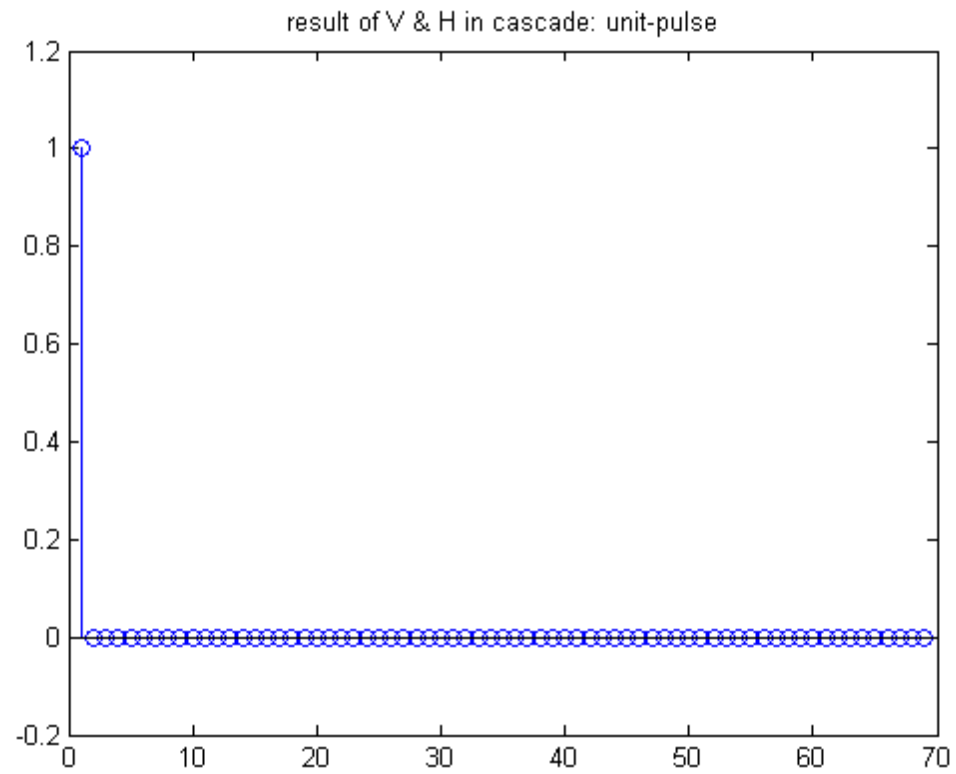
```
plot(abs(fft(y7)), 'k');  
plot(abs(fft(y8)), 'b--');  
legend('y1', 'y2', 'y3', 'y4', 'y5', 'y6', 'y7', 'y8')  
legend('show')
```

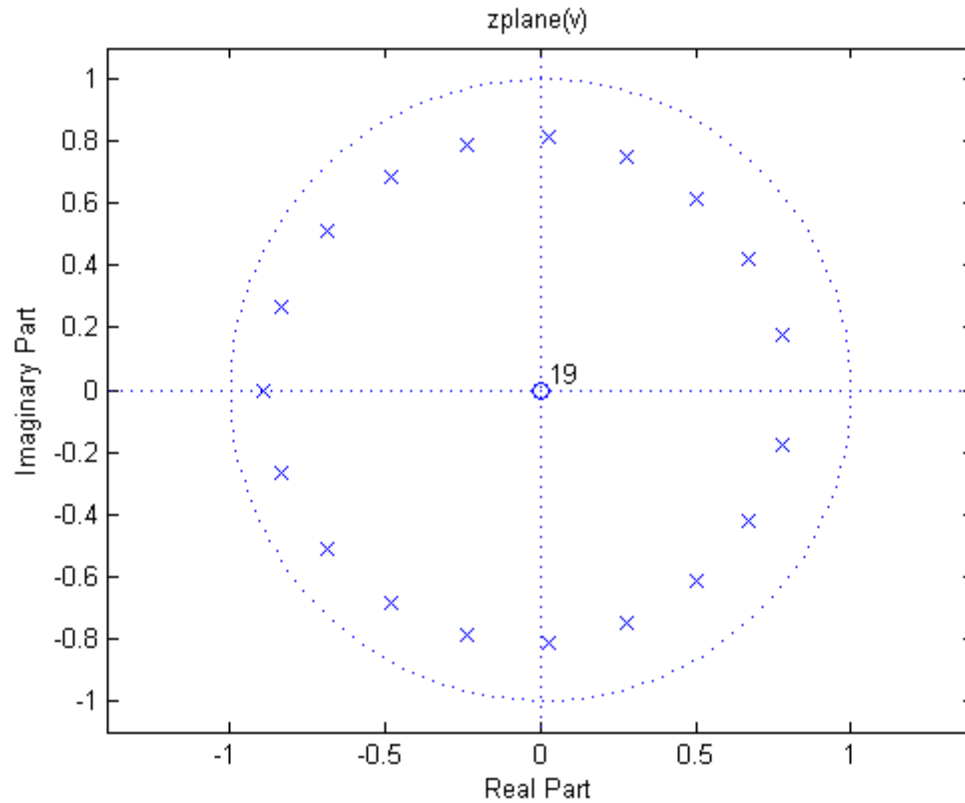




2c

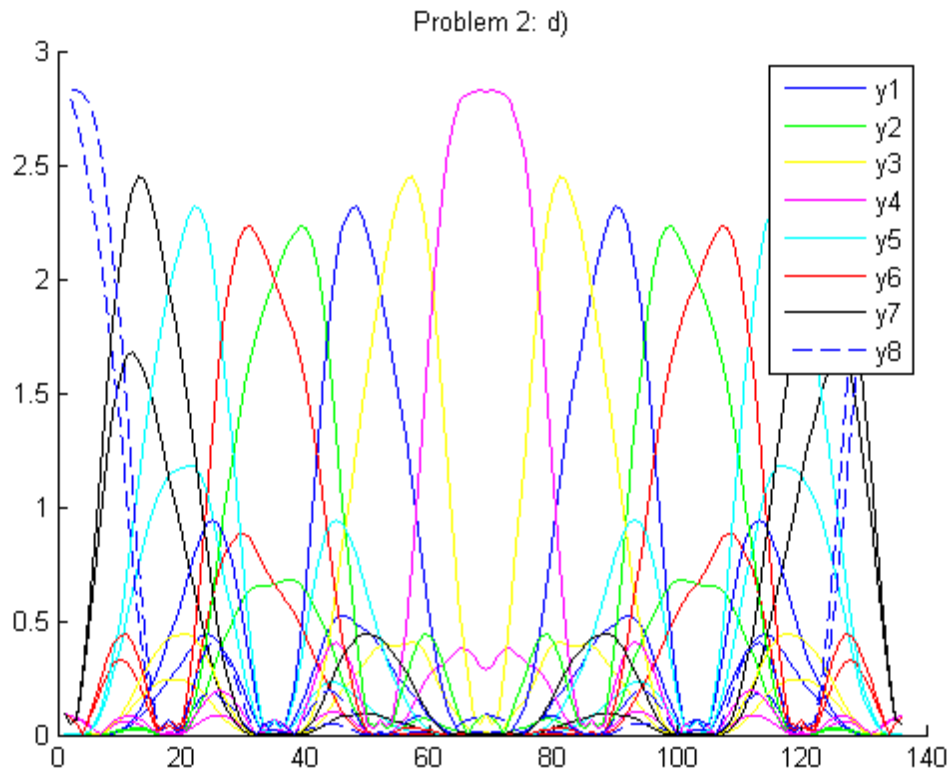
```
v = filter(1,h,x);  
figure(4);  
stem(conv(v,h)); title('result of V & H in cascade: unit-pulse')  
figure(5);  
zplane(h,1); title('zplane(h)')  
figure(6)  
zplane(1,h); title('zplane(v)')
```





2d

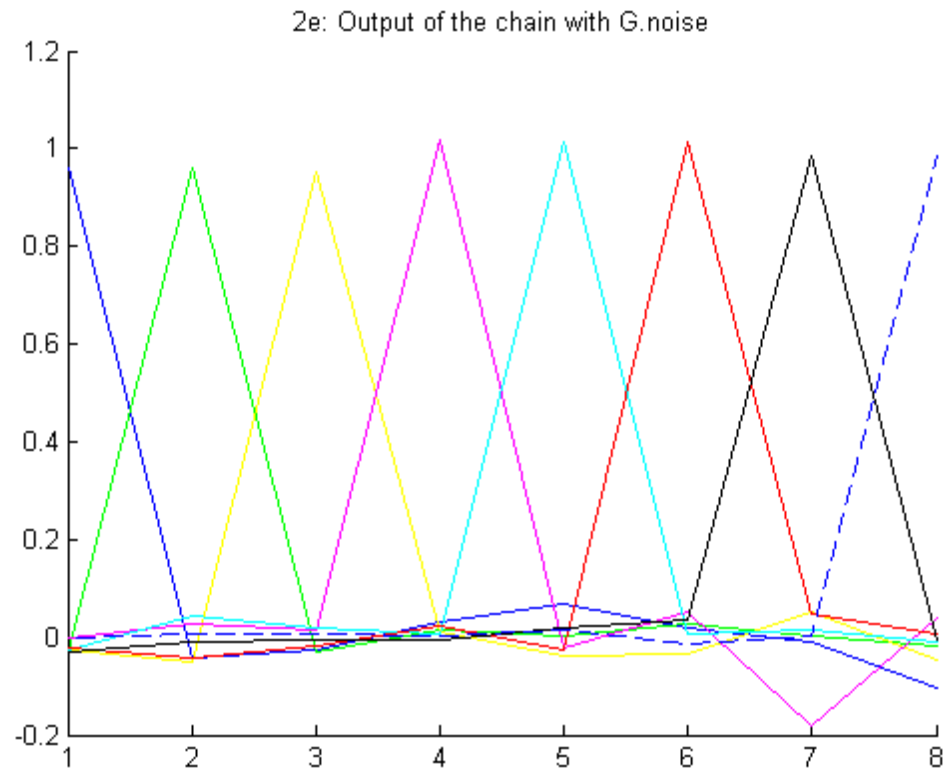
```
figure(3); title('Problem 2: d');hold on;
plot(abs(fft(filter(v,1,y1))))
plot(abs(fft(filter(v,1,y2))), 'g');
plot(abs(fft(filter(v,1,y3))), 'y');
plot(abs(fft(filter(v,1,y4))), 'm');
plot(abs(fft(filter(v,1,y5))), 'c');
plot(abs(fft(filter(v,1,y6))), 'r');
plot(abs(fft(filter(v,1,y7))), 'k');
plot(abs(fft(filter(v,1,y8))), 'b--');
legend('y1', 'y2', 'y3', 'y4', 'y5', 'y6', 'y7', 'y8')
legend('show')
hold off
```



2e

```
x = TFB([1 0 0 0 0 0 0 0],[0 1 0 0 0 0 0 0],[0 0 1 0 0 0 0 0],[0 0 0 1 0 0 0 0],[0 0 0 0 1 0 0 0],[0 0 0 0 0 1 0 0],[0 0 0 0 0 0 1 0],[0 0 0 0 0 0 0 1]);
y = filter(h,1,x);
noise = randn(1,size(x,2))/100;
g = y + noise;
[p1, p2, p3, p4, p5, p6, p7, p8]=RFB(filter(v,1,g),k);

figure; hold on; title('2e: Output of the chain with G.noise')
plot(p1)
plot(p2,'g')
plot(p3,'y');
plot(p4,'m');
plot(p5,'c');
plot(p6,'r');
plot(p7,'k');
plot(p8,'b--');
hold off
```

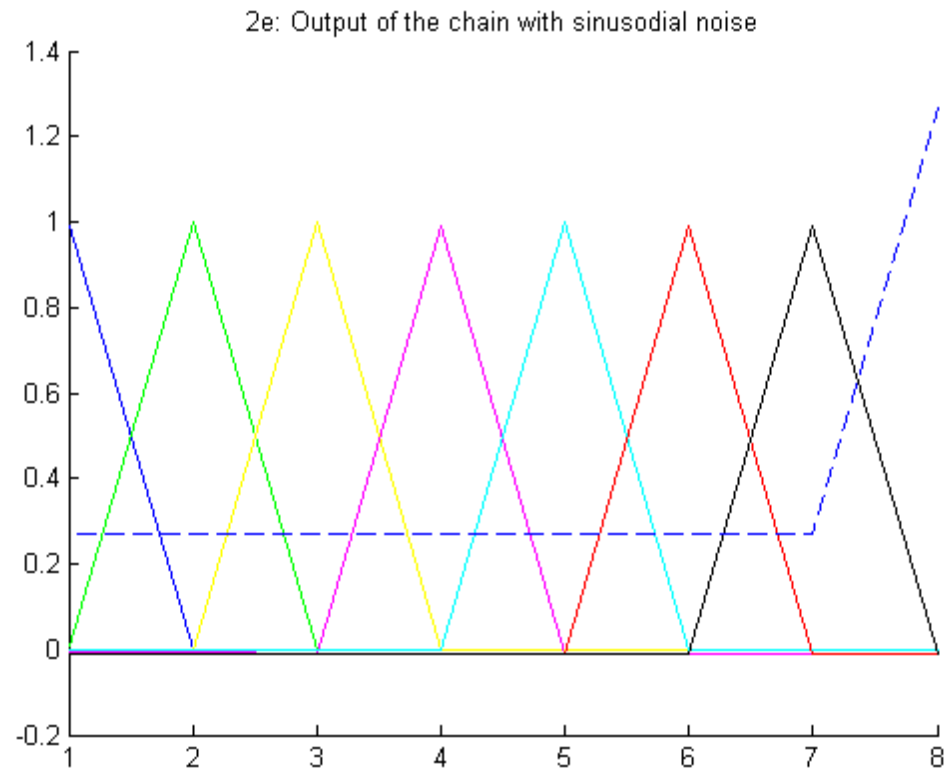


2f

The noise only functions at one channel at the time, and it works like adding a constant to the channel.

```
noise = sin(2*pi*.3)/10;
g = y + noise;
[p1, p2, p3, p4, p5, p6, p7, p8]=RFB(filter(v,1,g),k);

figure; hold on; title('2e: Output of the chain with sinusodial noise')
plot(p1)
plot(p2, 'g')
plot(p3, 'y');
plot(p4, 'm');
plot(p5, 'c');
plot(p6, 'r');
plot(p7, 'k');
plot(p8, 'b--');
hold off
```

Oppgave 3

Oppg3 was too hard to solve. I had a look at the solution, but that didn't clarify the problem.

Published with MATLAB® R2014a