

【微分器/積分器 differentiator/integrator】

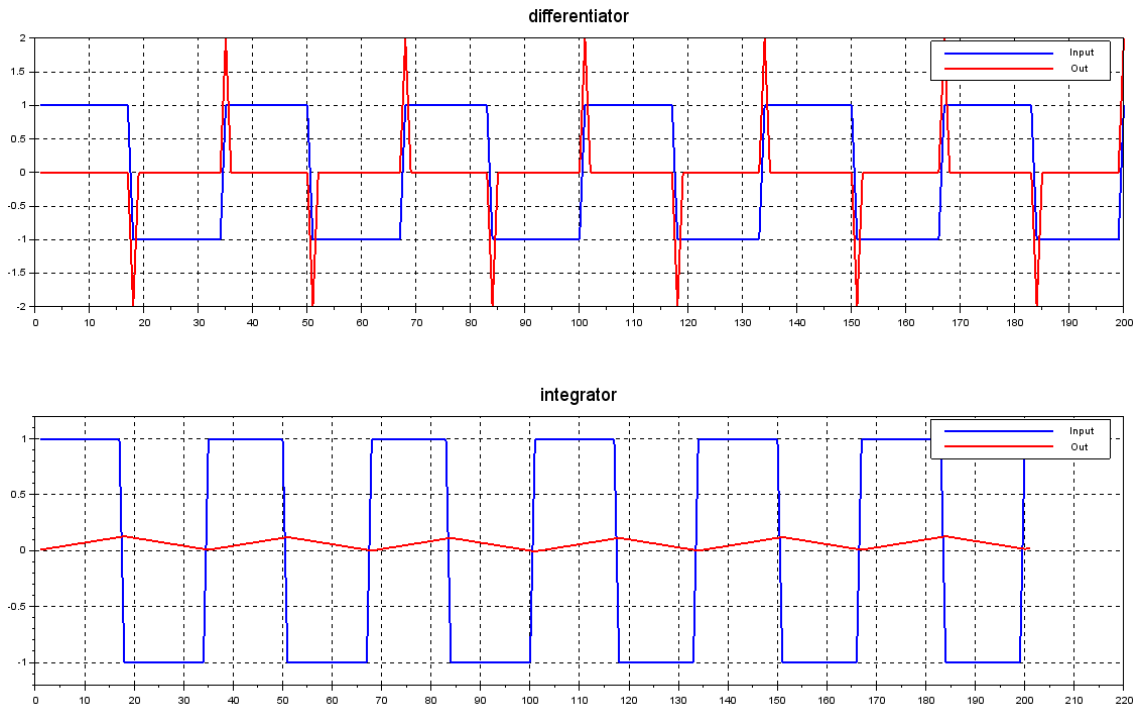
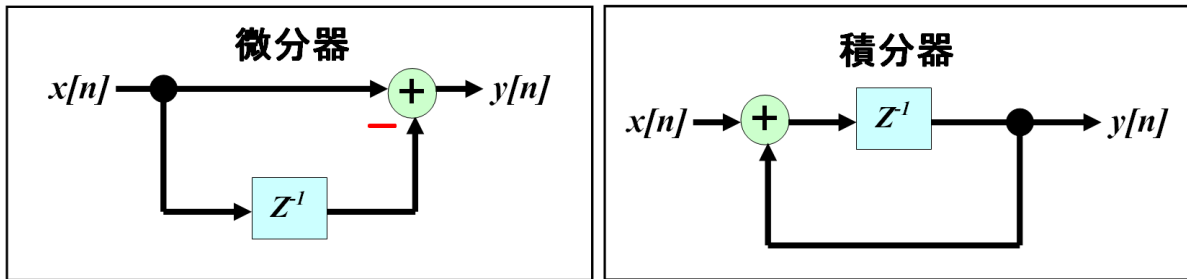


Figure 1: Scilab 実行結果

Source Code 1: Scilab

```

////////////////////////////////////
// 微分器/積分器
// differentiator/integrator
//
// M.Tsutsui
////////////////////////////////////

clear;

t=linspace(0,12*%pi,200);

x=squarewave(t);//矩形波生成(入力信号)

funcprot(0);//微分器
function[y]=differentiator(x);//x:入力信号

t.size=length(x);//行列サイズ

```

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y(1)=0;

for i=2:1:t_size;
    y(i)=x(i)-x(i-1);
end

endfunction

funcprot(0);//積分器
function[y]=integrator(x);//x:入力信号

    t_size=length(x);//行列サイズ

    y(1)=x(1);
    for i=2:1:t_size+1;
        y(i)=y(i-1)+x(i-1);
    end

    y=y/norm(y);

endfunction

y_d=differentiator(x);//微分器出力
y_i=integrator(x);//積分器出力

subplot(2,1,1)
plot(x);a=gce();
a=gce();
c=a.children;
c.thickness = 1.5;
plot(y_d,'r');
a=gce();
c=a.children;
c.thickness = 1.5;
xgrid();
legend(['Input','Out']);
title('differentiator','fontsize',4);

subplot(2,1,2)
plot(x);
a=gce();
c=a.children;
c.thickness = 1.5;
plot(y_i,'r');
a=gce();
c=a.children;
c.thickness = 1.5;
axis=gca();
axis.data_bounds(:,2)=[-1.1;1.1]; //Y軸の範囲指定
xgrid();
legend(['Input','Out']);
title('integrator','fontsize',4);

```